

Research and Practice of Curriculum Reform Based on the Integration of Industry, University, Research and Innovation

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Abstract: *In the new era, China's higher education also has a new development direction and goal. The National Education Department vigorously advocates the integration of industry, university and research, requires all major institutions of higher learning to strengthen teaching reform, pay attention to cultivating students' scientific and creative spirit and technical ability, and make effective educational contributions to China's innovative development. In recent years, the state has concentrated the power of society and government to scientifically promote the efficient development of industry, university, research and innovation. According to the employment development situation and objectives of college students, the curriculum reform and practical teaching have been effectively integrated, and a scientific, applicable and social talent training mechanism has been established to better meet the needs of social enterprises at the current stage. Now, the major universities have strengthened the teaching cooperation and collaborative development with enterprises, effectively carried out industry, university, research and innovation, and established a new mechanism for talent training. This paper discusses the contents and objectives of the reform, comprehensively analyzes the characteristics of the curriculum reform of the integration of industry, education and research, and thus explores the effective curriculum reform strategies.*

Keywords: *Industry, University, Research and Innovation, Curriculum Reform, Objectives, Strategy*

1. Introduction

As early as a few years ago, the direction and form of talent training in colleges and universities in China have changed. Major colleges and universities have carried out teaching reforms such as school enterprise integration and industry education integration, with the aim of improving and innovating the education work and talent training mechanism in colleges and universities. By innovating the teaching contents and forms of the courses, we can integrate innovative factors into higher education, gradually strengthen communication and cooperation with social enterprises, and cultivate modern talents with comprehensive qualities [1]. However, in recent years, the state has vigorously advocated and implemented "industry, university, research and innovation", integrating the comprehensive factors of modern social progress and development into college teaching, and enhancing the sociality, scientificity, timeliness and innovation of college teaching. Therefore, at the present stage, major universities should improve their teaching and research capabilities, improve the efficiency of teachers in carrying out industry, university, research and innovation, scientifically introduce social enterprises to participate in the industry, university, research and innovation, and promote the sustainable development of innovative education in universities [2].

2. Contents and objectives of curriculum reform based on the integration of industry, university, research and innovation

2.1. Making use of the integration of industry, university, research and innovation in school enterprise cooperation to provide intellectual and talent support for enterprises

At this stage, the exchanges and cooperation between universities and enterprises are closer. The two main bodies jointly promote the integration of industry, university, research and innovation, which not only brings great impetus to the transformation and development of social enterprises, but also provides effective support for the intellectual elements, human resources and scientific and technological innovation of social enterprises. Specifically, high IQ talents and modern technology are the main

contents to promote the integration of industry, university, research and innovation. In the process of cooperation and development, the two should deal with the coordination mechanism of cooperation and development, so as to share risks and benefits.[3] In the context of modern social development, the overall environment for the integrated development of industry, university, research and innovation is constantly changing, and has gradually become the development demand of universities, enterprises, society and the government. Therefore, colleges and universities should speed up the communication and cooperation with enterprises and society, constantly improve the course contents of industry, university, research and innovation, build an interactive and interactive talent training system of industry, university, research and innovation, scientifically and introduce the key technologies and innovation factors of social enterprises, in order to better realize the comprehensive development of efficient teaching, and thus provide necessary intellectual and talent support for social enterprises.

2.2. Using the integration of industry, university, research and innovation to activate scientific and technological innovation, and adjust and upgrade the structure of enterprises

According to the current development situation of social enterprises, in order to realize the adjustment, transformation and upgrading of enterprise structure, it is necessary to stimulate innovative development ideas in enterprises, scientifically introduce modern innovative technical personnel and management personnel, so as to pool wisdom and scientifically promote the effective adjustment of enterprise structure. Universities and enterprises scientifically promote the integration of industry, university, research and innovation, which can not only effectively activate the development factors of scientific and technological innovation, but also cultivate targeted and scientific modern talents for social enterprises, and make effective contributions to the technological transformation and scientific promotion of social enterprises. Universities and colleges should strengthen the scientific integration and effective development of industry, university, research and innovation. The promotion of scientific and technological achievements and the operation of business plans should be effectively combined to promote the scientific transformation of original achievements of production and learning, and promote the university adjustment and scientific upgrading of enterprise structure.

2.3. Dealing with the game of all parties in the cooperation of industry, university, research and innovation, so as to achieve long-term win-win

As a new type of higher education mode in the new era, "industry, university, research and innovation" is different from the traditional education mode. This mode is mainly market-oriented. In the process of scientifically promoting the integrated development of industry, university, research and innovation, all partners can obtain corresponding benefits and advantages, so as to realize the positive development trend and promote the long-term development of cooperative relations. Colleges and universities should scientifically adhere to their own educational stance, and take deepening education reform, improving talent training, and promoting social science development as the starting point to scientifically handle the cooperative relationship in the industry university research innovation cooperation mechanism.

2.4. Building a mechanism of risk sharing and benefit sharing in industry university research innovation cooperation

According to the relevant investigation and research, many social enterprises will worry about the risk during the implementation of the production university research innovation teaching mode. Due to the uncertainty of technological research and development of social enterprises, it is difficult to effectively evaluate and judge the problems and risks.[4] In the cooperation mode of integration of industry, university, research and innovation, the information held by schools and enterprises is asymmetric. In order to avoid unknown risks, many enterprises are reluctant to give too much scientific research investment to schools. Therefore, in the current development process, colleges and universities should scientifically analyze the interest relations and risks of the integration of industry, university, research and innovation, conduct in-depth communication and exchange with social enterprises, and build a cooperative mechanism of risk sharing and benefit sharing, so as to scientifically promote the scientific development of the integration mode of industry, university, research and innovation.

2.5. Key problems solved

"Industry, university, research and innovation" is a comprehensive and interactive educational development mode. The scientific development and comprehensive promotion of this mode can not only

solve the problems of innovation and technological development in China's colleges and universities, but also build a scientific, practical and interactive talent training mechanism to better meet the talent needs of social enterprises. At the same time, the scientific promotion of the integration mode of industry, university, research and innovation is conducive to building an interactive platform between universities and enterprises, which can realize the integration of university education and enterprise development, and promote the effective interaction between science and technology and talent training between the two main bodies.

3. Characteristics of curriculum reform based on the integration of industry, university, research and innovation

3.1. Complementary advantages to form a linkage innovation mechanism

The curriculum reform based on the integration of industry, university, research and innovation has certain characteristics, which greatly highlights the era value and social significance of the development of higher education in China at this stage. The promotion of the integration mode of industry, university, research and innovation makes colleges and universities constantly introduce innovative factors from the society, thus promoting higher education to be more scientific and modern. In the process of cooperation and development of enterprises, with the help of scientific elements and scientific research input of social enterprises, the degree of scientific and technological innovation of colleges and universities is also constantly improving. Social enterprises, with the help of high-efficiency education advantages, introduce relevant technical personnel, which is conducive to the scientific adjustment of their own structure and industrial transformation and upgrading. In addition, in the process of cooperation between universities and enterprises, the two main bodies can achieve efficient complementary advantages and benefit sharing, effectively integrate technological research and development with market advantages, and form a linkage innovation development mechanism.

3.2. Innovation and integration of curriculum integration

The scientific promotion of the integration mode of industry, university, research and innovation has made great innovation and integration in the curriculum content of colleges and universities. For example, colleges and universities can take advantage of the social education elements and scientific and technological factors in social enterprises to integrate the discipline knowledge of various disciplines in colleges and universities in an all-round way, so as to carry out effective integration and interactive teaching among disciplines, promote the interdisciplinary teaching of colleges and universities, and integrate the scientific and technological education elements in social enterprises, in order to avoid the emergence of single teaching, and make the cultivation of talents in colleges and universities have the modernity and social adaptability.

4. Curriculum reform strategy based on the integration of industry, university, research and innovation

4.1. Establishing a learning and scientific research compound teaching team

At this stage, the mode of integration of industry, university, research and innovation is now being scientifically promoted. How to maximize the educational utility and social value of this mode has become a problem that colleges and universities need to focus on and explore. In the implementation process of the integration mode of industry, university, research and innovation, colleges and universities bear the main responsibility of implementation and promotion. Colleges and universities should strengthen team communication and learning, carry out research and training for professional backbone teachers, as well as project leadership, so as to guide students to participate in innovation competitions and other forms, promote the innovation of teaching concepts and ideas of professional teachers, and comprehensively improve the scientific research level and teaching efficiency of teachers. For example, colleges and universities can establish learning and scientific research composite teaching teams. In daily teaching and work, we can actively organize college teachers to learn professional teaching knowledge, and carry out online and offline training activities in science with the advantage of modern Internet +. At the same time, it is necessary to strengthen cooperation and communication with interdisciplinary teacher teams, constantly broaden teachers' knowledge and thinking cognition through extensive project cooperation, and comprehensively improve professional teachers' interdisciplinary teaching ability.

4.2. Scientifically carrying out educational research and practice, and promoting the scientific development of industry, university, research and innovation

The implementation and operation of the integration mode of industry, university, research and innovation need to be based on the corresponding curriculum construction and take scientific research and practice as the development goal. Therefore, colleges and universities should not only build an interdisciplinary teaching system in combination with the contents of professional disciplines, but also promote teachers' scientific research and practical activities in an orderly manner, so that teachers have the opportunity to go out of the campus, out of the classroom, and participate in scientific research and research in social enterprises, comprehensively improve teachers' teaching ability, and promote the scientific reform and comprehensive innovation of university industry research and innovation courses. In addition, colleges and universities should closely carry out strategic cooperation in teaching and scientific research, further enhance the depth of cooperation and communication between colleges and social enterprises by means of joint research of projects, sharing of achievements, and mutual assignment of scientific research teams, in order to actively build a practice unit integrating industry, university, research and innovation, and provide more channels for scientific learning, effective practice and efficient employment of college students. Meanwhile, we should strengthen the construction of practice bases to provide effective scientific resources and practical basis for deepening teaching reform in colleges and universities.

4.3. Optimize the practical teaching system and strengthen the cultivation of students' practical skills

Under the background of encouraging mass innovation, universities have become an important base for the training of national innovative talents, and shoulder the great responsibility of supplying professional talents and scientific research talents. Industry-university-research innovation is a holistic practical development process, which involves many subjects and many production factors, and the most important thing is the cultivation of college students' innovation consciousness and ability. Therefore, colleges and universities should focus on optimizing the production and the practice of teaching system, through the use of diversified education platform, focus on cultivating students' comprehensive accomplishment and practical skills, inject the elements of innovation in the process of education, set the power of social multiple main body of scientific research and teaching in colleges and universities, guide students to the health of scientific development.

5. Conclusion

To sum up, "industry, university, research and innovation" is the new direction and goal of the development of higher education in China at this stage. It has important educational significance and social value for promoting the learning and efficient employment of colleges and universities, comprehensively improving the quality of higher education in China, and promoting the innovative development and innovation upgrading of social enterprises in China. On the journey of the 14th Five Year Plan, the state pays more attention to scientific and technological innovation and education reform. Colleges and universities should view the development and education reform of the university from a macro perspective, actively study the national education development policy, concentrate the forces of society and government, and scientifically promote the production, study, research and innovation, so as to continuously improve the scientific research and innovation education system of the university, improve the education, science and innovation spirit and the implementation ability of industry, university, research and innovation of the teachers of the university, and improve the overall efficiency of talent training.

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