

Research on the Path and Countermeasures for the Construction of Bases for the Integration of Production and Education in Chinese Universities

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Abstract

The training of talents in universities should closely focus on the needs of society, and the integration of industry and education is the contemporary requirement for the transformation and development of undergraduate universities. At present, there are phenomena such as the lack of depth and breadth of university-enterprise cooperation, the urgent need to strengthen the environment and the lack of an effective operation mode in the construction of industry-education integration bases. Therefore, we should explore innovative paths to promote the construction of industry-education integration bases at the levels of optimizing the supporting mechanism, perfecting the construction mode, forming a three-dimensional teaching resource system, building a cloud platform for teaching services, etc., so as to make industry-education integration bases an effective platform for the close integration of industry and teaching.

Keywords

Industry-education integration, Base construction, Path, Countermeasures.

1. Introduction

Deepening the integration of industry and education and promoting school-enterprise cooperation is the only way for colleges and universities to build connotation and develop themselves. In 2017, General Secretary Xi Jinping pointed out in the 19th National Congress report that building a strong nation in education is a fundamental project for the great rejuvenation of the Chinese nation, and that we must give priority to education, speed up education modernization, improve the vocational education and training system, and deepen the integration of industry and education and school-enterprise cooperation.^[1] In October, the State Council issued the National Pilot Implementation Plan for the Integration of Industry and Education, which elevates the integration of industry and education to a national priority in education reform and the development of a national education system. The overall institutional arrangement for talent training emphasizes the need to promote the all-round integration of structural elements on the supply side of talent training and on the demand side of industry. In recent years, many universities in China have fully realized that the integration of industry and education is an inevitable path to educational development and innovation, and have actively carried out the development of The integration of innovation bases is carried out in terms of building a platform for student practice, improving practical skills and innovating teaching models. Innovative exploration and attempt. In the context of widespread application of information network technology represented by big data, cloud computing, Internet of Things, artificial intelligence, and so on. it is important to examine China's The current situation of the construction of bases for the integration of industry-education in universities, and the search for bases that promote close collaboration among government, industry, academia and research institutions and realize the deep

integration of industry-education. The path and the response are undoubtedly of great contemporary importance.

2. Summary of relevant research findings

Philip J. Foster, a professor at the University of Chicago, USA, pioneered the concept of "education for industry" in 1965. (a) The concept of "integration", which he defines in his book "The Fallacy of Vocational Schools in Development Planning" as the meaning and form of integration between education and industry. In 1987, Allan Klingstrom boldly hypothesized and validated the idea that integration of education is a way of bringing educational activities together. (a) A human resources training model that is closely linked to social activities and has the main features of engineering integration, two-way participation and social service. Joel Yager (2011), Cole (2011), Kari Laine (2015) (2009) and other scholars have suggested that schools should build their own training platform based on their own advantageous majors. Students and faculty provide experimental sites and internship positions that are aligned with industry development; Harald Knudsen (2015) Research has found that the integration of industry and education is influenced by three factors: the school itself, the enterprise and the government. The meaning, relationship and the way of integration of industry and education pointed out the profound connotation of the relationship between industry and education; Wang Danzhong used the relevant aspects of industry-university research in higher vocational education as the basis of the He analyzed the characteristics of the times and the development direction of the integration of industry-education; Tang Libing analyzed the dilemma of the integration of industry-education in local undergraduate universities. To analyze and give strategies to optimize the implementation path of the integration of education and industry. Wu Shushan and other scholars have summarized two major types of cooperation models and four types of innovative mechanisms for school-enterprise cooperation in China; Yang Fan suggested that schools and enterprises should closely interface and explore specific programs to promote talent training according to local conditions; Qiu Hui and other scholars pointed out that enterprise participation, government impetus and funding investment are the three major factors affecting the effectiveness of industry-education integration.

Scholars have studied the connotation, internal motivation and mechanism of production-education fusion and explored the implementation and construction mode of production-education fusion. However, with the construction of the production-education integration base as the breakthrough point, there are fewer studies on the path design to promote the deep integration of production and education than the former. Now we intend to recognize the existing problems in the construction process of the production-education integration base and explore the construction path of the base, so as to promote the pace of the deep integration of production and education.

3. Problems existing in the construction of industry and education integration base

3.1 The depth and breadth of school-enterprise cooperation need to be strengthened

The integration of school and enterprise mainly refers to multi-level cooperation, multi-directional interaction and mutual benefit and win-win integration with enterprises in teaching and education. However, for comprehensive universities mainly engaged in teaching and research, cooperation at the research and development level is also extremely important. Schools to carry out the interaction between colleges and enterprises, industry is relatively easy, but in practical teaching and production, scientific research and production integration depth fusion, thus cultivating innovative meet the demand of modern social economy rapid development and technical personnel, and form a long-term effect and typical promotion experience, also need to be constantly efforts and exploration. Through interview and questionnaire survey method, found between the two sides in advancing the depth of fusion in the process of production and education, only about thirty percent of colleges and universities is closely cooperate with enterprises, is give priority to in order to promote the

construction of industry and education teaching reform, and about fifty percent of colleges and universities signed cooperation agreements with companies, but only to give priority to in order to promote the practice and employment, the rest is just basic surface form, without any substantive cooperation. It can be seen that to overcome the problem of deep integration between school and enterprise, we cannot do without the joint practice and exploration of both parties. Moreover, schools should actively seek stable development path in practice, break the shackles of traditional teaching mechanism, and realize the real integration between schools and enterprises.

3.2 The construction environment of the industry and education integration base needs to be optimized

At present, the relevant policies of school-enterprise cooperation and industry-education integration in China are in a process of continuous development and improvement. There is no formal corresponding special laws and regulations, and the responsibilities, rights and interests of the government, enterprises and schools in the process of mutual cooperation are not very clear. Therefore, there is a lack of institutional guarantee for the responsibilities and obligations of all parties, as well as incentive and punishment measures. In particular, the responsibilities of enterprises in the aspects of participating in teaching management and accepting students' fixed post internship are unclear. The integrated teaching practice classroom of industry and education will be built to the front lines of production such as parks and enterprises, which all put forward new requirements for the design of teaching programs, the construction of teaching staff, and the coordinated management of schools and enterprises. Although schools and enterprises jointly set up a teaching cooperation platform and have made considerable progress and achievements in promoting the process of industry-education integration and school-enterprise cooperation base construction, it still needs the unremitting efforts of schools and enterprises to form a long-term, effective and standardized good cooperation environment.

3.3 Lack of influential base construction mode

At present, the current situation of the integration of industry and education and school-enterprise cooperation is that the enthusiasm of enterprises is not high, and schools are very passive soloists, which leads to the low efficiency and poor effect of school-enterprise cooperation. If the industry and education integration base built has certain influence, the school will not be in a passive position in the process of cooperation between the school and the enterprise, and the enterprise will also reap the fruits of cooperation between the two sides. School, therefore, in the whole process of the integration of production and education practice, and focus on the specific situation of the industry and education cooperation, actively interact with the enterprise and the demand of the economic analysis of the current industry, reduce the cooperation in the process of the school "monologue", and schools and enterprises and other relevant interests highly collaborative and instant linkage model of social cooperation in running schools. The construction of the practice base integrating industry and education and school-enterprise cooperation can learn and draw lessons from the construction experience of the practice base in western developed countries, combine the regional economic development and school running reality, reform and innovate the existing education concept, implement teaching means flexibly, and explore the suitable talent training mode of the base. Theoretically speaking, it is not difficult to explore the construction mode of production and education integration base. However, it is still a long way to go to build an influential base with deep production and education integration, avant-garde school philosophy, curriculum reform and conditions matching.

4. The path design of production and education integration base construction

4.1 Supporting mechanisms for the construction and development of system design bases

Industry and education integration base is an important measure and platform to improve teachers' scientific research ability and technical service ability. With the help of this platform, it can stimulate

the motivation of innovative talent training mode in colleges and universities, improve the construction of professional connotation level, and promote local colleges and universities to transform to application-oriented universities. The complete base construction is mainly based on the basic conditions of the school, the school's resource investment, the combination of production and education of technology-oriented personnel training, the direction of scientific research and innovation, the organizational structure of project implementation, and the systematic design of the supporting mechanism of base construction and development, mainly including the management mechanism, assessment mechanism and resource sharing mechanism.

With the rapid development of social economy, the management form of base also presents the trend of a hundred flowers blossoming. Among them, several modes such as department management alone, professional marking management and centralized management of training center are widely used. However, most of the base management modes and methods in China are more traditional. With the rapid development of modern science and technology, information technology has been fully integrated into modern life, and new and high information technology is also advocated to apply in management, which can not only enrich the management means and mechanism of the base, but also improve the management effect of the base.^[2] Scientific, reasonable and comprehensive assessment system is indispensable in the management of the base. It is to comprehensively score and evaluate the learning effect of students in the base, the teaching quality of teachers, the work performance of enterprise employees and other aspects, and give corresponding rewards or punishments based on this. The design and establishment of the assessment system should be appropriate, adopt an objective and fair assessment system, timely introduce self-assessment and staff mutual assessment mechanism, so as to find their own learning and work on the lack of ability, and to monitor the correction and learning. At the same time, resource sharing mechanism is also indispensable in base construction management. The effective sharing of base resources can not only improve the utilization rate of teaching resources, reduce the pressure of teachers' construction, equipment and facilities, teaching funds, etc., but also reduce the waste rate of resources and improve the quality of education and teaching. With the modern optimization and upgrading of industrial structure, and the rapid development of economic society, the development of colleges and universities must according to the talent market and the needs of enterprises for labor deep reform and adjustment, also must carry out more effective cooperation between colleges and the complementary use of their advantages resource adequately, base resources to achieve genuine sharing.

4.2 To build the base construction mode of "open cycle"

At present, the existing base construction and development modes are mainly embodied in school-factory mode, factory-commander mode, university-science park mode, and region-sharing mode.^[3] Although the construction and development mode of these bases have their own characteristics and cultivate professional talents, the development of The Times requires higher and higher talents, and more and more compound applied talents are needed. However, these construction modes have one thing in common, that is, the utilization of resources is limited to regional or university-enterprise cooperation. However, the development of The Times requires us to make full use of everything, and the "open and circular" base construction mode can break through this limitation and enable the resources of political, industrial, academic, research and investment parties to cooperate and use each other. Obviously, the focus of the "open loop" mode of base construction is "open" and "cycle", for closed exclusive type base construction development model could make the base vigorous development in the short term, but long-term development, the base is good enough to communicate with the outside world cannot get all kinds of resources and collision, and cannot be updated for the base model of development innovation, the development of the base will be more and more slow, therefore, must follow the requirement of sustainable development and cycle development of base construction. However, with the rapid development of information technology such as Internet, cloud computing, the professionals in the field of the mutual exchange of learning, and carries on the innovation on the basis of this, which requires the base construction must not is closed or exclusive,

can only be "open" and "cycle", and pay attention to the inner quality of construction of the base and innovation, in the process of construction, actively seeking for more depth cooperation with enterprises, cultivation of talents adhere to the "going out" and "introduction", in order to implement base for the construction of the "open loop" mode.

4.3 Forming a three-dimensional teaching resource system of "learning, teaching and research"

Three-dimensional teaching resources are based on traditional teaching resources and subject curriculum as the center. By using network technology, a variety of teaching services are carried out to digitize teaching resources, realize education informatization and networking, and constantly optimize the allocation of educational resources.^[4] Since the concept of three-dimensional teaching resources came into being, the Ministry of Education, together with colleges and universities, has been committed to continuous improvement and reform, building a "learning, teaching and research" three-dimensional teaching resources system, to help achieve the deep integration of industry and education.

The three-dimensional teaching resource system of "learning, Teaching and Research" integrates the school's educational resources and scientific research resources, and the construction of the system not only strengthens the school's infrastructure and maximizes teaching resources, but also enriches the learning content. Although the construction of three-dimensional teaching resources system of learning, teaching and research has its unique advantages, it still needs to give full play to its role in teaching and research. Revise the teaching method, rely on the network teaching advanced technology, combine the modern teaching method, establish the system study website, and make full use of it to strengthen the book basic knowledge, expand the student's practical ability; Single textbook teaching has been deeply behind the development of The Times, timely update teaching content, cultivate and guide students' independent thinking and scientific research spirit, consolidate theoretical knowledge, exercise practical ability; It integrates data resources, connects and integrates disciplinary knowledge system, integrates scientific research disciplines and technologies, and connects knowledge into a network. Meanwhile, it guides students to participate in scientific research learning and training more, and cultivates students' learning passion and scientific research thinking.

4.4 Relying on the base to build a cloud platform for industry-education integrated teaching service

A good teaching service platform can inspire teachers to innovate teaching methods and improve teaching quality. Based on a service cloud base construction integration education teaching platform, can greatly arouse the enthusiasm of enterprises to participate in the school of professional education, and then deeply involved in the process of professional personnel training to, and in accordance with the universal law of modern education and the basic rule of the market, between the two sides respective advantage, foster strengths and circumvent weaknesses, realize the win-win situation of mutual benefit. Moreover, the construction of this platform can enhance the interaction between schools and enterprises, form a sense of sharing high-quality resources, and has far-reaching significance for promoting the sustainable development of education in China.

The cloud platform of industry-education integrated teaching service will integrate the real scene of enterprises into the actual teaching, so that students can have a relatively intuitive initial experience of the future job market. Meanwhile, information transmission and achievement transformation will be adopted to consolidate the communication and cooperation bridge between school-enterprise cooperation parties and build the benefit distribution platform. Service cloud platform based on fusion education teaching base construction, first of all, with the analysis of large data collection, integration in the process of production and education of the main subjects to the demand information, to update the teaching function of cloud service platform, build communication platform of cooperation, strengthen information service function, instant release production administration and research information and all information, realize information of open communication and interaction between different subjects; Secondly, we should constantly update the outdated and inappropriate resources in

the existing teaching system, organically integrate all kinds of superior resources, such as education, enterprises, market and society, and integrate them into the teaching knowledge system of the base to form emerging cultural resources and build a resource integration and sharing platform. Then, using the Internet to + enterprise production process, such as artificial intelligence technology reconstruction and internal details, rich base teaching methods, set up training ladder difficulty, training the students' thinking ability, increase students' learning interest, build enterprise employees, teachers, students learning and mutual assistance among the platform, the introduction of a third party online tools, increasing the interaction between the three parties; Finally, construct the fusion production and education scientific research achievement transformation platform, service in the integration of production and education main body joint research achievements of scientific research to overcome various conversion, output economic profits and social benefits, stimulate study interest and participation enthusiasm of each subject and more scientific research achievements conversion, services for the development of social economy.^[5]

5. Suggestions for response

5.1 Promoting the dynamic optimization of academic disciplines in universities through the integration of industry and education

Before building a base for the integration of industry and education, universities must be aware of the impact of such integration on educational reform and economic and social development. Importance, clear personnel training is the ultimate purpose of education, schools should focus on the national education policy, analyze the market development situation, in the Under the guidance of the market, change the concept of talent training and the way of talent training, combine with modern industry to set up majors and cultivate social market economy. Development Human resources needed to meet the needs of the times. At the same time, the school should think about how to deepen the ties with stakeholders and insist on interacting with various cooperative entities to understand the local industry In addition, it should also make use of the advantageous resources from all walks of life to cultivate talents with the development trend of local characteristic industries. In addition, in the construction of the base, it should also be combined with the needs of industrial transformation and upgrading of enterprises, the use of modern information technology, simulation enterprise Production process and the environment of fierce competition among market industries.

5.2 Increasing investment in human resources training through base construction

The purpose of building a base for the integration of industry and education is to smoothly implement the integration of industry and education and to better serve universities in cultivating quality talents. Maximum support must be given to ensure adequate funding for the construction of bases and to properly guide the implementation of the integration of industry and education. Not only that, the government must clarify that a sound policy system is indispensable to the philosophy and teaching purpose of universities, and universities must also To clarify the distribution of benefits and division of responsibilities among multiple subjects in the process of integration of education and industry is also important for their own development and talent training. Very important. The construction of the base of integration of industry and education and the training of talents cannot be carried out without the great input of all kinds of excellent resources. In addition, the Government should provide policy support and financial investment for the construction of the new facilities, do a good job in the top-level design of the integration of production and education, realize the joint participation of multiple sectors in the integration of production and education, and deepen the integration of production and education. (ii) Integration of industry and education.

5.3 Synergy of interests to achieve maximum co-construction by all parties.

Schools and enterprises are the main force in the integration of education-industry, and both of them must be involved in the process of integration of education-industry and fully reflect the power of participation. It is also important to prevent the "abortion" of the various implementation measures

for the integration of industry and education. Therefore, both schools and enterprises must respond to the call of the state and focus on long-term development to truly understand the importance of fusing production and education to cultivate high-quality talents. The importance of national economic development. In addition, the subjects and their stakeholders in the process of integration of industry and education should actively cooperate with the university and actively participate in the integration of industry and education. The construction process of the base to go, and in the implementation of the construction of in-depth integration of industry and education to give full play to the main role in the process of training talent for the school to make Contribution. The school shall also rationally distribute the social and economic benefits thus generated with the various subjects, in terms of both spiritual, cultural and material benefits. Drive the various practice owners to collaborate with the school to maximize co-creation.

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