

Innovation and practice of production-education integration in private higher education under the background of new engineering

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Abstract. The integration of production and education plays an important role in the cultivation of talents in higher engineering education. By reading literature, this paper studies the current situation of the development of production-education fusion of private higher education under the background of new engineering, analyzes its achievements and problems in the aspect of production-education fusion of private higher education. Based on the requirements of new engineering and private education, this paper puts forward the construction of a model fitting the actual situation of our country. From the education goal, training content,

1 The introduction

With the development of the new round of Industrial Revolution, the process of higher education popularization and marketization is accelerating. It has become a common understanding to bring into full play the joint efforts of various parties and to educate people in coordination. However, the integration of education and industry in the process of development, but also encountered a lot of problems. For civilian-run applied undergraduate colleges and universities, the students can not meet the requirements of employers. It may lower the reputation of our school, but also do harm to the stability of the students. At the same time, because of the lack of an effective standard of evaluation. It is difficult to measure the results of the integration of industry and education. So that universities, enterprises to participate in the coordination of the enthusiasm is not high. Most of it stays on the surface. The integration of industry and education, education, is a two-way interactive process. In this process, a third party is needed to organize the development and implementation of collaborative education activities, and this role is currently lacking in the country. The new engineering curriculum was proposed on the basis of the national development strategy. Therefore, the government should give full play to its Macroeconomic regulation and control role in the process of integration of industry and education, so as to promote the collaborative education of people towards the desired direction. Under such background, it is of great significance for private colleges and enterprises to study the integration of industry and education.

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At present, there are generally the following problems in the model of production-education integration in private higher education in colleges and universities:

(1)The mechanism of production-education integration and collaborative education is not deep enough. At present, most colleges and universities in China have practical training courses, which are usually in cooperation with relevant new business enterprises or training companies, so as to strengthen the cultivation of students' practical operation ability. However, due to the disunity of the cooperation mechanism, fewer class hours and limited funds, the collaborative education mechanism is not deep enough.

(2)The link between production and education is weak. In many colleges and universities, the collaborative education between production and education only stays at the simple level of cooperation, and there is no deep integration of talent training programs and personalized teaching methods.

(3)Traditional evaluation methods and non-standard evaluation standards. The quality of collaborative education between production and education ultimately needs a talent evaluation system and evaluation criteria. However, at present, all colleges and universities are under development. The policy continuity is not maintained, resulting in a single evaluation method or evaluation system is backward.

2. The significance of implementing the new engineering strategy

The Ministry of Education requires universities to innovate the training mode of higher education under the background of the development of the scale of higher education training. In order to cope with the new round of scientific and technological revolution and industrial transformation, and to promote China's transformation from a major country in engineering education to a powerful one in engineering education, the Ministry of Education proposed to promote the construction of new engineering. The Fudan Consensus, Da Da Action and Beijing Guidelines have been formulated successively, exploring and forming the Chinese model and experience, leading the global engineering education and helping the construction of a powerful country in higher education. The new engineering major uses intelligent manufacturing, cloud computing, artificial intelligence and robotics to upgrade and transform the traditional engineering major. Compared with the traditional engineering talents, the emerging industries and the new economy in the future need high-quality composite new engineering talents with strong practical ability, innovation ability and international competitiveness. How to innovate, how to really reflect innovation in the concrete training practice? It is a problem worth thinking and researching put forward by the Ministry of Education for colleges and universities: take the new concept of engineering as the guide to gather more consensus; Under the traction of demand, diversified exploration; Strengthen exchanges and cooperation on the platform of project clusters; To integrate internal and external resources as a way to increase the project support.

3 Construction path of production-education integration education model for private higher education oriented to new engineering

Through the analysis of the current situation of the integration of industry and education in domestic private higher education oriented to new engineering, the opportunities and challenges facing the integration of industry and education are clarified. Meanwhile, based on the domestic situation, Shandong Union College is selected as the main research object to analyze its effectiveness and shortcomings in the development of the integration of

industry and education, and focus on some difficulties commonly existing in domestic colleges and universities. Then, it looks outside the region and summarizes the experience of the integration of industry and education in foreign countries.

(1) Research on the talent training program and collaborative education path of the integration of industry and education

The goal of personnel training is the foundation of all educational reform. As the base of personnel training, colleges and universities are responsible for the important task of cultivating advanced and elite talents for the country. Therefore, all the major construction, subject reform and personnel training of colleges and universities are formulated around the goal of personnel training.

We should build the practice teaching system jointly by schools and enterprises, jointly build laboratories and practice bases, and improve the quality of personnel training. Taking Shandong Union College as an example, the software engineering major has established many laboratories and student practice bases jointly with Bosai Technology Co. , Ltd. . In the course design and practice teaching, invite enterprise project manager or senior accountant to participate in the whole process, effectively improve the application and guidance of course design and project practice. In addition, the software engineering profession also works closely with many companies, through the multi-party joint construction laboratory, the practice base and the characteristic class, enhances the talented person raise the quality effectively.

(2) Determine education objectives based on multiple stakeholders

The goal of talent training is the logical starting point of all educational reforms. The political function of education determines that the goal of talent training must fully reflect the national will. The development of engineering education promotes the transformation of economic structure and upgrading of industry. In turn, it affects the improvement of national comprehensive strength. Education policy requires education to serve socialist construction. Train socialist builders and successors. Under the new situation, it is more clear that education must serve the party and the country, red and professional engineering innovative talents. First of all, red specifically means that engineering students should not only have a correct political direction, but also have a correct world outlook, outlook on life and values. Support the leadership of the Party, and have a wealth of professional knowledge and technology. Secondly, engineering innovative talents are scientific and technological talents with engineering innovation ability cultivated for the realization of national strategies such as "Made in China 2025" and innovation-driven development strategy. These talents can provide the support of human and intellectual resources for national development and construction.

(3) The specialty reflects the industry, and the curriculum reflects the interdisciplinary

Specialty setting determines the future employment direction of engineering students. In the context of new engineering construction, specialty adjustment and layout is an important issue. In the course of construction of "New engineering", industry demand has become an important basis for the construction of engineering specialty structure. The relationship between educational development and economic development, in essence, has always been mutual coordination and mutual promotion of the interactive relationship. A new round of industrial transformation and upgrading has given birth to a large number of new industries, such as bioengineering, Big Data, internet of things, etc. . Shandong Union College also promptly set up a Smart City College, with its outstanding characteristics of the industry advantages, for the new engineering construction to help. At the same time, in the course of the integration of curriculum resources, we can establish a dynamic adjustment mechanism of curriculum, through the assessment of students and feedback of employers, timely eliminate outdated curriculum, improve the quality of curriculum. In a

word, the curriculum should match the standard of engineer, so that engineering students can grow into a qualified engineer from the curriculum.

(4) Make full use of rich educational resources online and offline to promote project-based and case teaching

The choice of teaching method is also very important. With the development of information technology in education, online education is developing on a large scale. MOOC, SPOC and flip classroom have reshaped people's cognition of teaching methods, and improved the teaching effect and the interaction between teachers and students. For some wide-span and difficult courses, "Online + offline" teaching can deepen students' learning experience and improve learning quality through more abundant and convenient forms. The Peking Union Medical College has stepped up efforts to build an information-based education platform. Such as the use of a learning curve. Love the classroom and other network platform interactive teaching system, to reverse the classroom, online learning and online discussion and answer questions organic combination. Greatly improve the efficiency of teaching, through the online form of assessment, but also to let the teacher understand the knowledge of each student to make timely adjustments to teaching activities.

(5) Improve the campus and off-campus practice teaching system, break through the development barriers of industry, university and research

The practicality and comprehensiveness of higher engineering education require universities to always put engineering practice teaching in an important position, fully combine the internal and external practice teaching systems, and break through the development barriers of industry-university-research. The integration of production and education can effectively combine the teaching activities with the production process, and students can apply and transform the knowledge in the learning process, thus improving the engineering practice and innovation ability. It should be realized that engineering practice education at or above the undergraduate level is different from the simple hands-on operation in higher vocational colleges. It is a combination of theoretical knowledge and practical production. Practical education that can produce a number of innovative results is the combination of production-oriented and research-oriented. In view of the lack of relevance of practice teaching inside and outside the school, both schools and enterprises can design from the formulation of practice teaching program. Make full use of school-enterprise collaborative platforms such as school-enterprise joint laboratory and engineering practice education Center, combine basic experiment and comprehensive experiment with enterprise production practice, and combine innovative competition with engineering project design, as a powerful supplement to classroom teaching.

(6) Improve the teaching management system to ensure the integration of production and education in in-depth teaching activities

The smooth development of the integration of industry and education, system guarantee is the premise. Xidian University, as a university of science and technology with distinct discipline characteristics, should improve its teaching management system and ensure that enterprises play a greater role in teaching activities if it wants to integrate production and education. In addition to a certain proportion of enterprise training practices in the training program of the pilot class of the excellent Engineer education and training program, it should also be expanded to other classes. Increase the teaching time of enterprise training, increase the proportion of credits of enterprise courses in the study allocation ratio, so as to give full play to the education function of the integration of industry and education. In the examination and evaluation of students, student self-evaluation, enterprise evaluation and teacher evaluation are combined. Based on the present, facing the future, with the development of students' ability as the focus, comprehensive evaluation of students' learning and technical performance. The teaching quality monitoring system can be modeled after the United States and Japan, and a feedback information system can be

established to record students' learning at each stage and feed back to universities and enterprises, such as students' comprehensive practice performance, professional quality, innovation consciousness, etc., so as to pay attention to students' overall physical and mental development.

4 Summary

The integration of industry and education is a basic school-running mode of our higher education and vocational education, and deepening the integration of industry and education is an important way to effectively improve the quality of national personnel training. Although the integration of industry and education in our country has achieved certain results, there are still a series of problems in the practice of deepening the integration of industry and education. Starting from the concept of integration of new engineering, non-governmental higher education and industry and education, this paper selects Shandong Xiehe University as the research object, analyzes its achievements and problems in the aspect of integration of industry and education and educates people, and makes an analysis of the reasons, carry out the integration of industry and education, school-enterprise cooperation experience and summarized. Finally, the paper puts forward the construction path of integration of production and education in the new engineering background. Put forward the government, industry, enterprise, university“Four-in-one” cooperative education mechanism strategy, school-enterprise deep cooperation is the basic premise of deepening the integration of industry and education, the close linkage of administration, administration, school and enterprise is the fundamental way to deepen the integration of industry and education.

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