Exploration and Practice of School-Enterprise Collaborative Education of Applied Talents

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Abstract. Aiming at the characteristics of applied undergraduate talent training in local colleges and universities, this paper puts forward the significance of school-enterprise cooperation in cultivating talents. Through the following aspects, such as investigating the school-enterprise collaborative education, revising the talent training program joint university and enterprises; researching the reform of the personnel training model; setting up a school-enterprise collaborative education teaching and research platform, this paper explores the mode of school-enterprise cooperation in training application-oriented talents, introduces the practical results of the school, and puts forward the existing problems in the process of school-enterprise cooperation.

Introduction

As China's higher education enters the stage of mass education, local colleges, which play roles of provincial, comprehensive and teaching universities, have gradually become the main force of undergraduate education in higher education in our own country. [1] They have locality as their foothold and rely on local economic and social development. They assume the important mission of cultivating talents for the local economy. However, most local colleges have a short history of school-running and their overall strength and funding ability are mostly weak. And companies can exactly make up for these. It will effectively promote the implementation of this training mode and improve the quality of applied undergraduate talents. It is also the main trend of modern education and teaching reform.

Therefore, schools should work with companies. It is necessary to start from the analysis of talent cultivation needs, let enterprises participate in talent cultivation, combine local university characteristics, and comprehensively analyze the school-enterprise cooperation talent training mode. It will effectively promote the implementation of this training mode and improve the quality of applied undergraduate talents. It is also the main trend of modern education and teaching reform.

The Significance of School-Enterprise Cooperation in Cultivating Talents

School-enterprise cooperation adapt to social and market needs

At present, the talent training mode of colleges and universities in China lacks coordination with the development of market economy. On the one hand, enterprises need applied and technical talents. On the other hand, college graduates have poor practical ability and are not suitable for the needs of enterprises. Through school-enterprise cooperation, schools can update educational content based on corporate feedback and needs. The school will train talents for the company in a targeted manner. They will combine market orientation and focus on student practical skills. They will cultivate a large
number of high-quality applied talents which are truly needed by society, thus solving the contradiction between talents supply and demand, and promoting the rapid development of local social economy.

School-enterprise cooperation is the only way to develop the connotation of local undergraduate colleges [2]

As a local undergraduate college, they are limited to short period of school-running, relatively weak faculty, low social awareness, and insufficient teaching investment. These restrict the training quality of applied talents in local universities. Only when schools and enterprises work together to educate people, industry, learning, and research, can they improve the quality of talents. Through this method, on the one hand, the personnel training is targeted, the resources of the enterprise are fully utilized, the shortage of college investment is made up, and the students' practice and training ability are improved. By setting up a comprehensive quality platform for school-enterprise collaborative education, students can take the post to practice and improve their comprehensive practical ability and entrepreneurial ability. On the other hand, it is conducive to the construction of the "one teacher at two posts type" team. Most of the college teachers lack enterprise work experience, and the practice teaching mode is single. This has led to a lack of hands-on practical skills. Through school-enterprise collaborative education, we can make full use of enterprise resources to train college teachers, improve teachers' knowledge structure, strengthen teachers' skills, and improve teachers' practical research and development capabilities. At the same time, the school can also hire engineering and technical personnel with rich practical experience to carry out teaching activities to carry out research and discovery of scientific research projects.

Broaden the vision of local colleges and universities and serve the local economy [3]

Due to their geographical location, resource conditions, and development foundation, local colleges and universities must be oriented to serve the localities, comply with the needs of local economic construction, and strengthen the school-enterprise collaborative education, so that they can increase the training of applied talents. School-enterprise collaborative education can set training objectives, adjust professional settings and enhance the pertinence and flexibility of running schools according to local market needs. Doing this can cultivate talents that meet the needs of local economic development, and can greatly promote the development of local colleges and universities. For example, our school is located in Zaozhuang City, which is called Coal City in Shandong Province. It is the core area of the Zhong, Su, Lu, Yu in seven coal chemical industry zones, which is determined by the National Medium- and Long-Term Development Plan of Coal Chemical Industry. It is the key coal-fired chemical zone in the Lunan Economic Zone Canal Economic Zone of Shandong Province. Here, the coal chemical industry is becoming the first emerging pillar industry to rise rapidly. In order to meet the needs of the industry, we had increased the direction of coal chemical industry in the talent training program of the mineral processing specialty of the Chemistry and Chemical Engineering Institute and Materials Science Institute. We actively adopt the talent training model of school-enterprise collaborative education to cultivate the coal chemical talents urgently needed in Zaozhuang.

School-enterprise collaborative education is a "win-win" model

School-enterprise collaborative education is a "win-win" model. Through school-enterprise collaborative education, we can give full play to the advantages of schools and enterprises. School and enterprise share information and resources, and support each other. Enterprises provide equipment for schools, and schools provide venues for businesses. They don't have to worry about all sorts of problems. Schools and enterprises have complementary advantages in equipment and technology. They share resources and benefits. This allows students to organically combine school knowledge with corporate practice. At the same time, it can also promote the development of enterprise productivity, speed up the training of self-owned talents, and save education and enterprise costs.
Exploration and Practice of School-Enterprise Collaborative Education Talents

In-depth study of school-enterprise collaborative education

Taking the opportunity of Shandong Lunan Coal Chemical Engineering Technology Research Institute, we investigated the cooperation between many coal chemical related enterprises in Zaozhuang City and domestic well-known research institutions. Taking the opportunity of the school's undergraduate qualification assessment, going deep into the school's teaching practice base, we conducted a series of visits, surveys and research. Through the survey, it is found that the school-enterprise collaborative education has more or less the following problems:

First, the effect of cooperation between enterprises and universities is not satisfactory. And the two sides have not yet established a true "win-win" physique and mechanism. [1] Second, the teachers' scientific research ability, scientific and technological development and transformation ability are not strong, which also affects the development of cooperation between enterprises and schools. Third, there is no long-term mechanism for cooperation between enterprises and schools. Schools are active and enterprises are passive, and few companies actively seek cooperation in running schools. Fourth, some colleges still have great blindness in terms of professional setting and personnel training. They do not understand the needs of all kinds of talents for industries and enterprises. The setting of disciplines is not compatible with the needs. [1]

The solution of the above problems depends on the joint efforts of both schools and enterprises to establish a long-term stable cooperation model and cooperation mechanism.

Schools and enterprises jointly build a profession and deepen the off-campus practice teaching base model

In order to give full play to the function of the off-campus practice teaching base, our school takes the opportunity of the construction of the off-campus practice teaching base to reform the talent training mode."Jointly build a professional, and jointly cultivate talents." According to the needs of enterprises, the school adjusts the professional training objectives. The two sides jointly formulated plans for cultivating talents, jointly compiled and revised syllabus and practical training syllabus, compiled and revised practical teaching plans, prepared and improved practical teaching project task books, and prepared practical teaching instruction materials in line with student characteristics and so on. So that the cultivated talents can actively adapt to changes in social needs and labor markets, and become application-oriented talents that meet the needs of the industry. In recent years, our school has signed joint agreements with a number of enterprises such as Lunan Fertilizer Factory, Yankuang Guotai Chemical Co. Ltd., Shandong Haihua Coal Industry Chemical Co. Ltd., Shandong Lunan Machine Tool Co. Ltd., Shandong Hai Te Electronics Group Co. Ltd., and China Mobile Zaozhuang Branch and so on. We achieved mutual benefit and win-win in the construction of student internship training base, enterprise staff training, scientific and technological research, and resource sharing. We have actively carried out the school-enterprise joint construction engineering major. We have cooperated with enterprises such as Qingdao Donghe Information Technology Co., Ltd. to open professional and professional directions such as Internet of Things, software outsourcing, mineral processing engineering, and photoelectric information engineering, and jointly carry out talent training. We cooperated with Qingdao Yujin Electronic Technology Co., Ltd. to declare the professional direction of financial and financial outsourcing, network business and logistics management. Through cooperation and joint professional communication and discussion, we have further enhanced the driving force of school-enterprise collaborative education, and gradually formed a good situation for the sustainable development of school-enterprise collaborative education. Due to the outstanding work of school-enterprise collaborative education, in 2009, 2010 and 2011, our school won the honorary title of “Shandong Province Enterprise School Cooperation and Cultivation of Advanced Units” for three consecutive years.
Strengthen the research on the reform of applied talent training mode, and strive to build a teaching and research platform for school-enterprise collaborative education

Our school relied on the newly established Applied Undergraduate Research Institute to strengthen the research on the reform of applied talent training mode. We have compiled the "Applied Undergraduate Talent Development Briefing". We have further deepened the research on the mode of school-enterprise collaborative training applied talents. Through the study of the general law of higher education, the relevant policies of higher education, and the related cases of the applied talents training mode reform at home and abroad, especially the training mode reform cases of the talents who receive school-enterprise collaborative and work-study combination education. This laid a good foundation for the establishment of an engineering professional training model for talents who have the characteristics of our school.

We have identified the school-enterprise cooperation with integration of industry and education as the overall thinking of transformation development. We have also identified the local, applied, distinctive and international development orientation. We began to actively meet the needs of regional economic and social development, and began the exploration and practice of platform construction for industrial and educational integration.

In the school-enterprise collaborative education, it is necessary not only to strengthen the hardware construction of the school-enterprise collaborative education internship and training platform, but also to pay attention to the software construction of the school-enterprise synergy and the win-win interactive operation mechanism, the adaptive mechanism for docking talent training and industry and the mutual engagement mechanism between school and enterprise personnel. [4]

School-enterprise collaborative education is an important way to train double-professionally-titled teachers. In recent years, our school has continuously hired engineers and technicians with rich practical experience to conduct teaching activities, guide students’ graduation thesis, trainee or internship, and jointly research and develop research projects with our school. At the same time, we also cooperate with local enterprises to carry out "college teachers into corporate activities". We select people from school professors, doctors, and young teachers to work and train themselves in the company. Through learning in the enterprise, they can accumulate production experience, improve their practical ability, and provide practical materials for theoretical teaching. And we also make full use of solid basic knowledge to help companies train employees. This can not only improve the professional skills of the school, train the college teacher team, but also apply the new knowledge and skills of the enterprise to the teaching practice, and better serve the enterprise and the local economy.

Actively carry out the reform of school-enterprise collaboration talent training mode

By summarizing the results of the previous school-enterprise collaborative education, combined with the reform of the talent training model of our school, around the "eight major industrial clusters such as coal chemical, machine tools and electronic information" established in the “Zaozhuang City National Economic and Social Development Plan", our school has continuously penetrated into the industry enterprises to explore new ways and new modes of school-enterprise collaborative education. Our school has initially formed a school-enterprise collaborative education model of talent cultivation, project cooperation, scientific and technological research, and resource sharing through the talent training system, internship training base, and laboratory, research and development center jointly constructed by school-enterprise. So that we can achieve the goal of mutual learning, mutual promotion, school-enterprise joint construction and school-enterprise win-win. This initially established a good mechanism for the joint construction of schools and enterprises, and effectively improved the quality and ability of the school's personnel training and service. In 2012, our school declared and approved an Innovation Experimental Area for mechanical design and automated talent training model faced to small and medium machine tools. In 2013, through the experts’ review, three majors, Mechanical Design and Manufacturing and Automation, Chemical Engineering and Process and Pharmaceutical Engineering, were approved as provincial-level outstanding engineer education and training programs.
Summary

In the past few years, our school’s application-oriented transformation path has gone through three stages of active, exploration and bold attempts, simple school-enterprise cooperation, deep integration of production and education, deepening the connotation. Our school has built a professional system of applied disciplines with reasonable structure, distinctive features and mutual support. The quality of education and teaching in our school has continuously increased. The professional quality of students and the ability to innovate and innovate have been improved in an all-round way. The role of demonstration and guidance has been continuously revealed. The two-way interactive international school model has taken shape. We have achieved remarkable results in enhancing the application-oriented school level, improving the quality of applied talents, and improving the ability of service economy and social development. However, our cooperation needs to be continuously improved in depth and breadth. In the future work, we need to further explore new modes, new ideas and new contents of school-enterprise collaborative education, and constantly summarize the new experiences of school-enterprise collaborative education. We need to solve new problems, and study new laws. We need to follow the "local, applied, and distinctive" school orientation of our school, improve the quality of applied talents and social reputation of schools, promote a virtuous circle of school-enterprise and school-site cooperation, and strive to bring the school-enterprise synergy to a new height.

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References


