

Study on the Talents Training Mode Promoting of the Integration of Industry and Education in Application-oriented Colleges and Universities

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Abstract—The integration of industry and education and the cooperation of education are beneficial to the cultivation of applied talents, and are also an important means for the transformation and development of applied undergraduate colleges and universities. In the process of promoting the integration of industry and education, the application-oriented universities should take positive and effective measures, change educational concept, optimize professional structure and curriculum system, strengthen the construction of double-qualified faculty, reform teaching methods and evaluation methods, set up the education platform of integration of industry, construct the guarantee mechanism of integration of production, run through the whole process of talent training, and explore the new mode of talent training of applied undergraduate colleges and universities so as to meet the requirements of the construction of “new engineering discipline”.

Keywords—Application-oriented colleges and universities; New engineering subjects; Integration of industry and education; Collaborative education; Talent training model

I. INTRODUCTION

The adaptability of the new engineering education system to the new economy and new industry must be based on the openness, integration and innovation of the talent training system. The integration of production and education is the basic requirement of the construction of the new engineering subject. It is important for the construction of “new engineering subject” is to raise the practice to an unprecedented height, to combine with the times and social development, and to embody it in the practice of talent training. It is necessary to give full play to the respective advantages of both schools and enterprises in school-enterprise cooperation to achieve mutual benefit and win-win results, to realize school-enterprise cooperation towards integration of industry and education, to build a talent training model of work-learning integration.

On the one hand, we can grasp the development trend of

industry through school-enterprise cooperation in a timely manner, understand market demand, continuously promote the reform of the teaching content, teaching methods, teaching mode and other aspects; On the other hand, we can make full use of the cooperation platform between schools and enterprises, promote the combination of education and production, theory and practice, comprehensively promote the reform of education and teaching for engineering majors, and constantly enhance students’ comprehensive quality and the ability to adapt to the society. To improve the level of education and teaching of engineering majors and the quality of talent training. The integration of production and education should be embodied in the whole process of talent training and the all-round training of talents, the ways and objectives of school-enterprise cooperation should be diversified, and the characteristic development of the school should be highlighted [1].

II. THE SIGNIFICANCE OF TALENTS TRAINING MODE OF THE INTEGRATION OF INDUSTRY AND EDUCATION

The application-oriented colleges and universities should train talents through application-oriented education, so that the applied talents not only have basic theoretical knowledge, but also have certain practical knowledge; not only have general knowledge, ability and quality, but also have professional knowledge, ability and quality. To acquire the knowledge, ability and quality of this kind of applied talents, it is necessary for the cooperation between the school and the enterprise, which should be in the whole process of talent training.

The local undergraduate colleges and universities should take the integration of production and education as one of the basic concepts of running school, to take deepening the integration of production and education as the guide, strengthen the deep integration of school teaching and enterprise production, and deepen the reform of training mode of applied talents, so as to promote the scientific development of local undergraduate colleges and universities and the improvement of the training level of applied talents..

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A. Integration of industry and education is an effective way to cultivate talents of "new engineering discipline"

As an important part of the higher education system, the local applied undergraduate colleges and universities bear the important mission of cultivating high-quality applied talents and serving the regional economy and industrial development. The applied engineering talents are the embodiment of a national industrial core competitiveness, and the basic orientation of engineering talents training is to train technical application and innovation talents oriented to engineering production, construction, management and service.

With the development of technological innovation and industrial upgrading, the demand of professional quality for engineering talents in the economic society is higher and higher. It is necessary to increase the training quantity and cultivation quality of the engineering talents. The implementation of the deep integration of production and teaching in application-oriented universities can shorten the growth cycle of application-oriented talents, make the training aim of schools meet the needs of industry, and enhance the pertinence and adaptability of the training of application-oriented talents [2].

B. Integration of industry and education is the fundamental way to improve the quality of talents training

The integration of industry and education is the basic way of cultivating applied talents, which is not only the need to promote the development of industry enterprises, but also the need to raise the quality of talents training in applied universities. In order to improve the training quality of applied talents in local undergraduate colleges and universities, the thinking of school running must realize four transformations: to serve the development of local economy and society, to integrate of industry and education, and the cooperation with schools and enterprises, to the cultivation of applied technology and skills, and to the enhancement of students' ability of innovation and entrepreneurship.

As a symbol of the transformation to application-oriented universities for local undergraduate colleges, it is necessary to further clarify the orientation of running school, adjust the specialty setting, improve the teaching quality and strengthening applied research, to improve the level of teachers, etc.

It is need to emphasize the reform of the curriculum system with competence as the core, so as to form teaching environment commination with engineering and learning, that is, the integration of "production" and "teaching" in the whole educational process. In this new model, students can gain real experience and enhance their ability to integrate theory with practice, so as to improve the training quality of applied talents.

C. Integration of industry and education is the realistic need of educational service for economic and social development

In order to achieve the goal of "mutual benefit and win-win result" in the integration of industry and education, we should fully mobilize the enthusiasm of local governments, enterprises and industries to promote integration of industry and education.

The local undergraduate colleges and universities should set up the idea of serving the development of local industries in the process of implementing the integration of industry and education. We should make full use of intelligence and talent advantages, set up corresponding technological research and development institutions, carry out targeted applied technology research, promote the development of local emerging industries.

The colleges and universities should organize efforts to actively investigate and study the needs of local economic and social development, understand the needs of enterprise talents, and determine the orientation and development of running schools according to the local economic and social development and the needs of enterprise talents. It is need to take the initiative to build collaborative innovation center with local enterprises, jointly carry out new product development and technology research, and promote the development of local enterprise and the cultivation of applied talents in colleges and universities.

D. The Integration of industry and education is the internal requirement of promoting the development of applied colleges and universities

With the acceleration of the economic transformation and development of our country, and the upgrading of the industrial structure, the university graduates employment becomes a social problem, but the shortage of high-quality applied talents in the region is becoming more and more obvious, and the contradiction between the two aspects is becoming more and more obvious. By the implementation of industry-education integration, local undergraduate colleges and universities can actively communicate with the enterprise industry according to their own service orientation, establish cooperative relations, share resources, and enable enterprises to participate in the whole process of talent training in depth. The schools and businesses construct and share the practice base, design talent training plan, bear the task of curriculum teaching and practical teaching together, so as to forms a sustainable development mechanism of "joint construction of platforms, sharing of resources, and sharing of achievements". It can not only provide teachers with the opportunity to go to enterprise practice and transform scientific research achievements, but also improve the professional skills, the ability to apply and adapt to the workplace for college students. Therefore, strengthening the integration of industry and education can not only serve the local economy better, but also realize the characteristic development of applied undergraduate universities [3].

III. COUNTERMEASURES TO PROMOTE THE MODE OF TALENTS TRAINING IN THE INTEGRATION OF INDUSTRY AND EDUCATION

In the process of promoting the construction of "new engineering subject", the application-oriented colleges and universities should establish the concept of integration of production and education, implement the whole process of talent training, and truly establish the application-oriented talent training mode of "integration of production and education, cooperative educating".

A. Set up the educational idea of the integration of industry and education

The goal of engineering specialty is to train the talents adapting to the industrial technology and skills in the new era. Therefore, the education reform of engineering specialty should closely meet the needs of socio-economic development and industrial transformation and upgrade, and establish the educational concept of “new engineering subject”.

In the process of promoting the construction of “new engineering subject” in application-oriented colleges and universities, it is necessary to put practical ability training into the whole process of education and teaching, and to establish the application-oriented talent training mode of “integration of production and education and cooperative educating”. The enterprises need to fundamentally change their ideas, combine the cultivation of technical personnel with their own development strategies, make use of the market information advantages of the industry, do a good job in connecting and interworking with schools, and cooperate with each other.

B. Revise and optimize talents training scheme

In order to promote the teaching mode of “integration of production and education”, it is necessary to revise and optimize the talents training scheme which adapts to the construction of “new engineering subject”. The formulation of the talents training scheme should be based on the standard of training applied talents, and focused on the outstanding application, so as to pay attention to the cultivation of students’ professional ability, comprehensive ability and innovative ability. At the same time, in the training scheme, we should set up the matching mechanism between the local industry and the school specialty, so as to connect the talent training and the working demand. It is need to insist on facing the industry front and the industry demand, renew the teaching content, and strengthen the practice teaching [4].

C. Promote the construction of double-qualified faculty

In order to promote the collaborative education, integration of production and education, and improve the training quality of applied engineering professionals, it is important to build a high-quality double-qualified teaching team.

Under the background of new engineering subjects, in order to construct the teaching staff in applied undergraduate colleges and universities, we should adopt the way of combining introduction and part-time work, and set up a mechanism of interworking and flexible flow of talents between schools and enterprises to solve the problem of the insufficient number of double-qualified teachers.

Through the establishment of special posts, part-time posts and other flexible personnel policies and corresponding salary conditions, we can attract excellent professional and technical personnel, management personnel and high-skilled personnel from the universities, industries, enterprises. In order to improve the part-time teachers’ education and teaching ability, the part-time teachers’ resources bank should be established and adjusted dynamically, and the part-time teachers’ education and teaching ability should be trained before working.

D. Establish a teaching base suitable for the integration of industry and education

The difficulty of construction of practical teaching base and the shortage of construction quantity are the important factors that restrict the improvement of the training quality of applied talents in local undergraduate colleges and universities. Through the deep integration of production and education, local colleges and universities can construct knowledge education system, technical skills training system and experimental training and practice environment according to the requirements of combining engineering with learning, combining knowledge with practice, and according to the real technology and process of production and service.

Through the investment or donation of the cooperative enterprises, the co-construction of the university and the enterprise, we can speed up the construction of the experimental training practice. In order to improve the ability and level of school practical teaching, we should coordinate all kinds of practical teaching resources in schools and cooperative enterprises, construct intensive functions, share resources, open and fully operate large-scale experimental teaching platforms of professional or cross-professional classes with high efficiency [5].

E. Promote the teaching mode of the integration of industry and education

According to the talent training program, we organize and implement the training process in which the school is the main body and the enterprise participates take part in the whole process. In the teaching of specialized courses, we should actively carry out the way of combining work and study, and can also carry out teaching in the way of project. When conducting professional cognition, employment situation analysis, career planning and employment guidance education for students, we can use the way of lectures or organize students to the enterprises. When setting up training courses, students can be equipped with guidance teachers from enterprises to strengthen the teaching guidance of professional skills.

For the innovative and entrepreneurial projects of college students, especially the subject competitions related to majors, the enterprise personnel can be arranged as mentors to achieve the combination of knowledge and application and the cooperation of enterprise production and school education [6].

F. Construct the operation mechanism of guaranteeing the integration of industry and education

If the cooperation between the local application-oriented university and the enterprise is to be more in-depth and lasting, it is necessary to construct the long-term mechanism of the school-and-enterprise cooperation, integration of production and education, mutual benefit and the cooperative development mechanism and the guarantee mechanism of the talent training mode and the teaching operation of the production and education.

The school and enterprise should strengthen the system construction and quality standard system construction in

accordance with the cooperation contents and the basis of investigation. We should construct the quality assurance system, set up and reform the professional talents training scheme, construct the curriculum teaching material, build the laboratory, and construct the double-qualified teaching staff.

IV. CONCLUSION

The integration of industry and education is the basic way of classified development, connotation development, transformation development and cooperative development of higher education in our country. It must become the new normal of higher education teaching reform, and is also an important strategic measure to promote the cultivation of applied talents. It is an important way for the transformation and development of local undergraduate colleges and universities to deepen the teaching reform.

For the local undergraduate colleges, we should improve the understanding of the integration of industry and education, and deeply study the background, significance and implementation path of the integration of industry and education. Through the discussion of education teaching thought, we can unify the thought, renew the idea, so as to make the integration of production and education to become the foundation of specialized talented person training. At the same time, we should actively explore and innovate the mode and path of integration of industry and education, formulate systems and measures conducive to integration of industry and education, establish a long-term mechanism for integration of industry and education.

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