

# Exploration on Collaborative Innovation Education of the integration of production, teaching and research in Higher Vocational Colleges

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**Abstract:** under the supply side structural reform, higher vocational colleges shoulder the responsibility of cultivating a large number of innovative and highly skilled application talents for social development. In order to strengthen the organic combination of higher vocational education and enterprises, integrate market and social needs, promote the synchronous improvement of school education and enterprise education, and cultivate innovative talents, one of the effective methods is the deep integration of school enterprise production, teaching and research, This is also a win-win vocational education mode for both schools and enterprises. Through the active practice of schools and enterprises, we can cultivate more innovative high skilled application talents needed by national construction.

**Key words:** higher vocational education; Integration of production, teaching and research; innovate

Cultivating applied talents with innovative thinking is the responsibility of modern vocational education. At present, there are still some practical problems in higher vocational colleges, such as the lack of in-depth cooperation between colleges and enterprises, the inaccurate positioning of talents, and the lack of innovative teachers' team. The trained talents can not serve enterprises and society well, and the integration of industry, teaching and research between colleges and enterprises needs to be reformed and innovated.

## 1. Development status of production education integration education in Higher Vocational Colleges

### 1. School enterprise cooperation is not thorough enough

At present, higher vocational colleges are enthusiastic about the integration of production and education, but the enthusiasm of enterprises is not high. The main reasons are as follows: first, the initial investment cost is high. It takes a long time to cultivate people through the integration of production, teaching and research between colleges and enterprises, and a lot of human, material and financial resources are invested. However, the trained talents may not be employed in the enterprise, and the loss of talents will cause losses to the enterprise; Second, the purpose of school enterprise integration is different. The purpose of the enterprise is to maximize the benefits in a short time, while the school hopes to carry out long-term scientific research and education; Third, the concerns of schools and enterprises are inconsistent. Enterprises implement innovative schemes around the highest profit, but the effect of innovative schemes in enterprises is not practical because schools' grasp of the market lags behind; Fourth, school education is out of touch with the actual needs of enterprises. The professional setting and discipline construction of the university are not closely related to the development of industry, and the professional teaching content lags behind the development of enterprise technology. These reasons make enterprises unwilling to conduct in-depth cooperation with higher vocational colleges.

### 2. Deviation from talent training objectives

Due to the influence of traditional education and the imprecision of research efforts, the talents cultivated by vocational colleges lack the ability to serve the society and enterprises. First of all, the professional settings do not take into account the needs of enterprises, and they cannot meet the requirements of each other. Secondly, although the talent training plan of the school is revised regularly, it still does not adapt to the development of the enterprise, the specialty does not adapt to the needs of social development, and it is difficult for the trained graduates to obtain employment, which leads to the deviation of talent training objectives of Vocational Colleges from social needs. On the basis of accurately positioning the talent training program, vocational colleges should also keep in mind the purpose of serving the society and enterprises.

Schools and enterprises must thoroughly implement the concept of integration of production and education into the practice of regional economic development, and coordinate the relationship between schools and enterprises. Vocational colleges should provide a steady stream of talents for social and economic development. The key to the competitiveness of enterprises is to have innovative talents. With the transfer of national economic strategy, the industrial value chain has shifted from low-end to high-end. China is changing from a manufacturing power to a manufacturing power, and then to a smart manufacturing power. The service level has also changed from technology following to technology leading, Society and enterprises need innovative skilled application talents with higher education and professional skills. The task of vocational colleges is to cultivate skilled and innovative talents to meet the needs of society and enterprises.

### 3. Poor scientific research ability of Teachers

The development of economic globalization makes the industry face transformation and upgrading, forcing enterprises to constantly improve the level of skilled talents. The scientific research ability of teachers in higher vocational colleges is limited. Although teachers have a master's degree or above, they generally enter teaching positions after graduation from colleges and universities, have no working experience in enterprises or scientific research institutions, and have few opportunities to contact with production practice. Although they have solid theoretical knowledge and are good at teaching professional courses, they lack the ability of scientific research practice. To cultivate innovative talents, teachers must first have innovative quality and ability. Only with innovative teachers can we cultivate innovative

talents. Therefore, as one of the main bodies of the integration of school enterprise production, teaching and research, higher vocational colleges, which cultivate innovative talents, need to position the talent training plan, formulate policies to stimulate teachers' scientific research consciousness and improve teachers' scientific research ability.

The teachers in vocational colleges are rich in theoretical knowledge, but due to the lack of practical experience in enterprises, they can not really grasp the market trend and understand the actual needs of enterprises, and the talent training does not adapt to the needs of enterprises and society, so they can not help enterprises solve some practical problems. The cultivation of innovative applied talents is a long-term and arduous task, which requires a comprehensive innovation from teaching ideas to teaching methods. The existing curriculum content in vocational colleges is not suitable for the goal of cultivating innovative talents, and the curriculum system needs to be reconstructed. At present, due to the old school scale and training equipment, it is difficult to set up innovative courses in Vocational Colleges' practical courses, and it is not conducive to the cultivation of applied skilled talents in terms of class hours and method design. Schools should really pay attention to practical teaching, and should stop discounting practical class hours and other practices that discourage teachers' enthusiasm in time. In addition, vocational colleges generally use the last year for students' unified internship, which is not conducive to the consolidation of knowledge and practice, and it is difficult to cultivate the application ability of knowledge in time. If conditions permit, the method of theory practice integration teaching or work study alternation can be adopted, and the effect will be significantly improved

## **2. Suggestions and measures to improve the talent training mode of school enterprise industry education integration**

### **1. build a collaborative education mechanism and reasonably position personnel training**

Higher vocational colleges undertake the task of cultivating and transporting high-quality talents with both high skills and innovative ability for enterprises and society. To complete this task, higher vocational colleges must closely contact and cooperate with enterprises. At the same time, relevant government departments are required to issue corresponding incentive policies to promote enterprises to play their due social responsibilities and responsibilities in the process of talent training. With the goal of cultivating innovative talents to meet the development of enterprises, higher vocational colleges and enterprises jointly discuss talent training methods, formulate talent training programs, and explore innovative curriculum education. In the process of innovation course education, we can teach the latest scientific research achievements at any time according to the needs of development, grasp the development trend of the industry, exercise students' innovation consciousness from the subtle point, and improve their innovative thinking and ability.

Higher vocational colleges should strengthen teaching reform to stimulate students' creativity. Increase the proportion of practical courses in the curriculum, so that students can find deficiencies in the process of practice, put forward ideas of creative improvement, improve students' practical ability and comprehensive application ability, enhance students' ability to analyze and solve problems, turn the cultivation of students' ability to learn to the cultivation of students' ability to innovate, and cultivate professional talents to meet the needs of industrial development, Inject new energy into the transformation and upgrading of regional economy.

Schools and enterprises carry out in-depth integration of production, teaching and research with scientific research projects as the carrier. In the process of cultivating innovative talents, scientific research projects are used as teaching resources. Students can face the most cutting-edge technology, rather than general theories, and cultivate students' scientific literacy and innovation ability in the process of scientific research training. It is an effective method for higher vocational colleges to jointly cultivate innovative skilled talents by schools and enterprises. If enterprises want to develop at a sustained high speed, highly skilled innovative talents are an indispensable weapon. Only when higher vocational colleges cultivate innovative talents to meet the development of enterprises can they survive and develop. Therefore, in order to cultivate innovative talents, higher vocational colleges and enterprises must make use of their respective advantageous resources to achieve win-win cooperation

### **2. promote the construction of university enterprise cooperation platform for industry university research integration**

Under the new situation, the original talent supply and demand structure can no longer adapt to the development of society. It is necessary to build a new win-win mode of mutual integration of education and industry, form an education state of deep integration of schools and enterprises, and further integrate the talent training supply and demand structure, so as to better serve the national development strategy and promote the development of industry and regional economic construction. Higher vocational colleges should set up specialties on the basis of investigating local pillar industries, identify the difficulties faced by enterprises' development through in-depth integration with enterprises, build a scientific research service platform, jointly discuss projects such as new technologies, research and development of new products or achievement transformation, and promote the cultivation of innovative and applied skilled talents through project cooperation, Schools and enterprises work together to improve the effectiveness of innovative talent training, and adhere to the principle of win-win cooperation and achievement sharing.

Higher vocational colleges generally have on campus training workshops for the integration of theory and practice classroom teaching, and some relatively stable off campus training bases for students' on-the-job practice in enterprises. These practice and training places are generally not further developed into the production teaching research integration innovation base to cultivate students' innovation ability. Therefore, colleges and enterprises should further strengthen cooperation, and build these stable training and practice places into innovation bases with deep integration of production, teaching and research, so as to facilitate the development of teaching and research activities and the cultivation of innovative talents. These innovation bases can serve as bases for cultivating students' innovation and entrepreneurship,

and understand the development status of the most cutting-edge enterprises and industries; It can also be used as a platform for teachers to carry out research, help enterprises solve some difficulties, overcome production technology problems, develop new products, and make the innovation base truly become an integrated platform for production, teaching and research, so as to achieve the purpose of cultivating innovative high skilled talents through the deep integration of production, teaching and research8]

### 3. establish an innovative teaching team integrating production, teaching and research

It is the task of higher vocational colleges to cultivate high skilled talents with innovative ability for social development, and the implementer of this task is teachers. In the mode of deep integration of production, teaching and research, the role of teachers is very important. Teachers undertake the task of stimulating innovative consciousness and completing innovative teaching. To cultivate innovative application talents, we must have an innovative teaching team, put theory and practice teaching in the same important position, strengthen the training of double qualified teachers, and improve the defects of insufficient practical teaching ability8] to establish an innovative teaching team, first, to provide practical training opportunities for cultivating innovative teachers. Higher vocational colleges improve teachers' practical ability by cooperating with enterprises to organize teachers' learning and communication or taking exercises in enterprises; The second is to broaden the employment mechanism of teachers in higher vocational colleges, employ the craftsmen of enterprises as part-time teachers, and give full play to their potential in practical teaching advantages and technological innovation; The third is to stimulate teachers' scientific research ability. On the basis of improving their teaching ability, teachers are encouraged to participate in the research and development of new products or scientific research projects of enterprises, so as to promote teachers' progress and stimulate their innovation ability by relying on scientific research projects. The innovative teaching team should regularly go deep into the enterprise to understand the development status of the enterprise, integrate the development needs of the enterprise into the teaching, cultivate talents with more pertinence, and students enter the professional counterpart enterprises to practice, so as to organically combine the theoretical knowledge and professional knowledge, and enhance the adaptability of the post. Teachers carry out academic exchanges with technical experts of enterprises, carry out subject research, and constantly improve teachers' practical skills and scientific research level.

In short, the key to the in-depth integration of production, teaching and research is the joint efforts of both schools and enterprises, and the goal is to enhance their development competitiveness through cooperation. In the process of cultivating innovative and highly skilled talents, higher vocational colleges should make good use of relevant national policies, grasp the demand trend of enterprises for skilled talents, improve school running conditions, and improve the construction of innovative teachers. Enterprises should actively participate in Vocational Education from a long-term perspective, so as to achieve win-win development between colleges and enterprises.

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