

# Research on the Innovation Path of Production-Education Integration in Higher Vocational Colleges Based on the "1+X" Certificate System

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**Abstract:** The piloting of the "1+X" certificate system is a must for the development of vocational education in China, and it is in line with the connotation of industry-education integration in terms of the demand for vocational talents, talent training mode, vocational education curriculum construction, practical training system reform and talent evaluation mechanism. At present, the integration of industry education under the "1+X" certificate system still faces difficulties such as insufficient depth, bi-directionalities, lack of advanced concepts and misconceptions, etc. It is necessary to adopt the "talent training model reconstruction as a fundamental, school-enterprise dual-coordination education, 'school, enterprise, certificate Three mutual integration, 'enrollment, teaching, management, employment' four common" model of innovative integration of industry and education development.

**Keywords:** "1+X" certificate system; Integration of production and education; Higher vocational education; School-enterprise cooperation.

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## 1. The necessity of the integration of production and education in higher vocational colleges under the "1+X" certificate system

In 2019, the State Council issued the "National Vocational Education Reform Implementation Plan" (Guo Fa [2019] No. 4, referred to as "Vocational Education 20 Articles"). In the same year, the Ministry of Education, the National Development and Reform Commission, and the Ministry of Finance jointly issued the "About Colleges and Universities Implement the "Educational Certificate + Several Vocational Skill Level Certificates" System Pilot Program", pointing out that vocational colleges and application-oriented undergraduate colleges and universities have begun to launch the "Educational Certificate + Several Vocational Skill Level Certificates" system, so that the occupations of current higher vocational colleges Education is facing brand-new challenges, and it is also a new opportunity for the development of vocational education in the new era. By participating in the construction of socialized vocational skill level certificates, we will promote the teaching reform of higher vocational education, build a platform for school-enterprise cooperation to cultivate high-quality talents, and make talent training more compatible with industry needs, thereby enhancing social recognition of vocational education and cultivating graduates. Composite technical talents who can successfully enter social positions will provide excellent talents for local economic construction.

The "1+X" certificate system is the abbreviation of the academic certificate and several vocational skill-level certificate systems. "1" is an academic certificate, "X" is several vocational skill level certificates, and "+" indicates the organic connection and mutual support of academic certificates and vocational skill level certificates. Academic certificates are the basis for obtaining vocational skill level

certificates. Only when students have a solid professional foundation, they can expand their vocational skills in other fields. The academic certificate is the feedback on the quality of the school's talent training, and the embedding of the "X" certificate is to directly meet the enterprise's employment needs. The school-enterprise collaborative education reflects the essence of vocational education.

Vocational education is characterized by "professionalism", which emphasizes professional attitudes, professional ethics, professional skills, and professional skills in the educational process, and "professionalism" cannot be fully realized purely by a college education. From the "Pilot Program", it can be seen that the country hopes that enterprises will participate in the implementation of vocational education because, in the entire process of organizing the "1+X" certificate, enterprises play a central role and are responsible for the development of certificate content. , Teacher training, assessment plans, certificate issuance, etc., the enterprise will develop close ties with the school, and carry out more in-depth cooperation in personnel training, course certificate integration, and training base construction.

The "1+X" certificate system mainly draws on the practice of advanced countries with developed vocational education such as Australia, Germany, and the United States to realize the integration of domestic vocational education and internationalization. The advanced foreign vocational education experience points out that the sustainable development of vocational education is inseparable from in-depth school-enterprise cooperation. In recent years, my country has vigorously promoted the development of vocational education considering China's national conditions. There are a lot of beneficial attempts, and the most effective way is to insist on school-enterprise cooperation and integration of production and education.

Regardless of the importance of national policies, the development of vocational education itself, and the internationalization of vocational education, the integration of

production and education is the only way for vocational education, and the "1+X" certificate system has boosted this process.

## **2. Analysis of the fit between the "1+X" certificate system and the connotation construction of the integration of production and education in higher vocational colleges**

The integration of industry and education is a model formed by vocational colleges as the main body, with the support of the government, to promote the development of the economic industry and cooperate with enterprises. In this model, the government builds a platform for the integration of industry and education, and provides various Provide policy guarantee, economic support, and play the role of supervision and management for the realization of the interests of the parties; industry enterprises provide practical teaching places and practical teaching cases for talent training in higher vocational colleges, and schools play the functions of talent training and social services, through innovative training models, Realize the docking of school talent training and social employment needs, and provide intellectual support and talent services for technological innovation of enterprises. The "1+X" certificate system is a vocational skill certificate developed under the leadership of the state, to cultivate talents that meet the needs of industrial development and enterprises, and according to the characteristics and requirements of actual positions. Under the system, students are guaranteed to have knowledge, skills, and certificates. Therefore, the design of the "1+X" certificate system is logically one of the manifestations of the integration of production and education, which is specifically manifested in the following connotations:

### **2.1. The Connotation of the "1+X" Certificate System and the Connotation of Industry-Education Integration Professional Talent Demand**

With the continuous development and progress of my country's economy and science and technology, the contradictions in the demand for talent in enterprises mainly lie in the demand for compound technical talents and the reality that college students lack complete scientific and technological skills, and the "1+X" certificate system can effectively to alleviate this contradiction, it provides a solution to the contradiction between social employment needs and academic education. It can not only help the improvement of academic education but also adapt to the current ever-changing social talent needs and provide professional counterparts and technically consistent practice. Talents are very consistent with the connotation of the talent needs of the integration of production and education.

### **2.2. The Connotation of the "1+X" Certificate System and the Construction Connotation of the Industry-Education Integration Talent Training Model**

The "Pilot Program" proposes that the pilot work of the "1+X" certificate is integrated with the construction of majors,

courses, and teachers. This is consistent with the training of professional talents in higher vocational colleges. The goal is to meet the needs of local production, management, and service frontlines, and to cultivate technical and skilled talents required for economic, social, and industrial development with majors as the main body. In the process, the standards and assessment requirements of the "X" certificate are implemented in all aspects of school-enterprise cooperation, and the optimization and perfection of the school-enterprise collaborative education mechanism are realized. Enterprises can integrate new standards, new methods, new technologies, and new processes in the professional field of the industry into the talent training standards of colleges and universities. Schools and enterprises can jointly carry out talent training goal formulation, curriculum system design, etc., and project-based and task-based post work Decompose and sort out the corresponding training content of the vocational skill level certificate, to carry out the integration of course certificates, school-enterprise joint training of teachers, development of supporting teaching materials, construction of training venues, reform of teaching methods and methods, and realize high-level training from the connotation construction of talent training mode. The professional transformation of the quality of talent in vocational colleges provides high-quality talent for enterprises.

### **2.3. The Connotation of the "1+X" Certificate System and the Curriculum System Reform of Industry-Education Integration Vocational Education**

Traditional higher vocational education implements a unified curriculum standard, which corresponds to a single standardized professional position, and the professionalization of the curriculum is imminent. However, the "1+X" certificate system corresponds to multiple different curriculum standards, corresponding to multiple different occupations This requires higher vocational colleges to continuously innovate the curriculum system through the integration of production and education, turn to compound training goals, and provide students with diversified career development channels. In addition, the curriculum content construction under the "1+X" certificate system should include the skills and training content required by the professional standards corresponding to the "X" certificate, emphasizing the integration of courses and certificates. The combination of course knowledge and job content, and the structure of course content gradually shifted from subject logic to work logic, all of which are in line with the connotation of the reform of the curriculum system of higher vocational education. The implementation of the "1+X" certificate system can effectively promote the development of higher vocational colleges. The innovation of the school's curriculum system cultivates the professional skills of higher vocational students.

### **2.4. The "1+X" certificate system fits with the connotation of the reform of the industry-education integration training system**

Higher vocational education focuses on the cultivation of practical ability. The construction of practical training rooms is the basic condition to ensure the practical teaching needs and cultivate the talents who adapt to front-line occupations. Several Opinions on Improving the Quality of Talent

Training" and other documents point out that the construction of practical training should turn to a high-level vocational education training system that integrates practical teaching, social training, real production of enterprises, and social technical services. Under the "1+X" certificate system, enterprises give full play to their dominant position. According to job skill requirements, enterprise training bases and school training centers jointly build school-enterprise public training bases, which are conducive to training content, training places, and training. The transformation and optimization of the organizational form create "full-true, full-job, full-process" training conditions, builds an integrated learning and certification system of "learning-practice-test-evaluation", introduce real projects of enterprises into the teaching process, and build a real production environment for enterprises. The characteristics of real productive training are conducive to the reform and transformation of the training system of higher vocational colleges.

### **2.5. The Connotation of the "1+X" Certificate System and the Talent Evaluation Mechanism of Industry-Education Integration**

The "National Vocational Education Reform Implementation Plan" proposes "to establish and improve the vocational education quality evaluation and supervision and evaluation system, and to improve the government, industry, enterprises, vocational colleges, etc. to participate in the talent quality evaluation mechanism", which is also the transformation of the higher vocational education talent evaluation mechanism. goals and directions. However, it is well known that the quality evaluation of vocational education with multi-party participation faces many difficulties and problems, such as the difficulty in setting up the multi-party evaluation mechanism system, the difficulty in the implementation of multi-party participation in the evaluation organization, and the imperfect multi-party collaborative quality evaluation index system. The 1+X certificate system has changed the current situation in which talent evaluation is dominated by governments and universities. The introduction of third-party evaluation organizations is generally a leading enterprise in the industry, and the evaluation standards of enterprises focus more on whether students are qualified for the position and complete related tasks. And achieve the relevant skills to ensure the professional quality of the evaluation. This enriches the professional talent evaluation system, and at the same time greatly increases the participation of enterprises and industries in the evaluation of higher vocational talents. Finally, the corresponding professional courses and modules can also be exempted through credit replacement. This method also improves the flexibility of talent evaluation, which fully matches the connotation of the transformation of talent evaluation mechanisms in higher vocational colleges.

## **3. The Real Dilemma of the Development of Industry-Education Integration in Higher Vocational Colleges under the 1+X Certificate System Conclusion**

For a long time, vocational education in our country has shouldered the important task of cultivating high-quality

skilled talents for society. However, as far as most of the current phenomena are concerned, the current situation of talent training in my country's higher vocational colleges has not reached the level that meets the needs of enterprises. It just shows that it only pays attention to academic education and neglects the cultivation of vocational skills itself, which is out of touch with market demand. Specifically, in the following aspects:

### **3.1. The integration of production and education in higher vocational education is not deep enough**

The construction plan of the modern vocational education system requires a connection between the professional setting and the industry demand, the connection between the course content and the professional standard, and the connection between the teaching process and the production process. However, the reality is that industry companies are not enough involved in the development of vocational education standards, and the integration of production and education in higher vocational colleges is not comprehensive enough. Judging from the "1+X" certificate, the communication and cooperation between higher vocational colleges and certificate training institutions mostly stay on the surface, mainly focusing on Certificate declaration, teacher training, test center declaration, student assessment, and other processes, and the teacher training for the "X" certificate is mainly based on online teaching and self-study. Vocational teachers who participate in teacher training only need to participate in the teaching and complete the task to pass the exam to obtain the qualification certificate, but teachers' mastery of knowledge and skill proficiency of certificates cannot be guaranteed, and the training of students is also in a similar way. Finally, relevant qualification certificates are obtained through the online examination platform, and "X" certificate companies are rare. Colleges and universities inspect and understand the certificate assessment situation on the spot. At the same time, most of the current professional teaching standards for higher vocational education do not match the corresponding "X" vocational skill level standards, and the certificate standards have not yet been integrated into the curriculum system and training content of professional training.

### **3.2. The two-way integration of production and education in higher vocational education is not enough**

In the process of integration of production and education, there is a common problem of low participation of enterprises. The cooperation between schools and enterprises in higher vocational education is not ideal. Enterprises focus on economic benefits, while schools focus on social benefits. Participating in the "1+X" certificate system pilot requires enterprises to spend a lot of manpower, material, and financial resources. If the economic benefits created cannot bring certain business and profits to the enterprise, it will not be conducive to the enthusiasm of enterprises to participate in the training evaluation organization. In addition, there are concerns about the quality of "X" certificates such as the fact that the talent training of higher vocational colleges cannot meet the needs of enterprise talents, the post adaptability is not strong, the training characteristics are not obvious, and it is difficult to meet the needs of enterprises. , incentive

documents to promote enterprises to participate in vocational education and training, and promote the deep integration of production and education, but in the current actual situation, it is difficult to implement and the effect is not satisfactory. Similarly, for higher vocational colleges, there is not enough theoretical research on the system, insufficient understanding of the spirit of document policies, and lack of initiative in the implementation process. They often just follow the arrangements of certificate institutions for student training, practice guidance, and assessment procedures. In the process of implementing the "1+X" certificate, it is in a passive position, and the motivation of higher vocational colleges is insufficient.

### **3.3. The concept of integration of production and education in higher vocational colleges is not advanced enough, and there are cognitive deviations**

The integration of production and education is an inevitable requirement for vocational colleges to actively adapt to the new economic era in which new industries, new formats, new technologies, and new models emerge in endlessly. However, many higher vocational colleges still stick to the traditional concept of educating people. They have an insufficient understanding of the teaching mode, operation method, and mechanism construction of the integration of production and education under the new situation, and are not innovative enough, resulting in a single form of school-enterprise cooperation and unobvious benefits. question. Although the "1+X" certificate system focuses more on the training and assessment of vocational skills and skills, the traditional teaching mode is still used in the teaching of certificate assessment in higher vocational colleges, focusing on ideological and theoretical education, which is seriously out of touch with enterprise production practice, unable to keep up with the new situation and new changes in time, it is not conducive to the school's professional construction and personnel training, and it cannot highlight the effect of the "X" certificate.

## **4. Innovation of the integration path of production and education under the "1+X" certificate system**

From the perspective of the law of talent, the talent training model of the integration of industry and education is the only way to vocational education. Only when the integration of industry and education is further deepened and closely can there be innovation and development of vocational education. Deepening the integration of production and education and school-enterprise cooperation, increasing the enthusiasm of enterprises to participate in vocational education, and promoting the organic connection of the education chain, talent chain, industry chain, and innovation chain are urgent requirements for comprehensively improving the quality of vocational education, employment, and entrepreneurship, and promoting economic reform. and modernization and promote new drivers of economic development. Aiming at the current situation and difficulties of the integration of production and education in higher vocational colleges under the "1+X" certificate system in my country, a breakthrough will be made with the innovative path of "one foundation, two synergies, three mutual integration, and four commons".

### **4.1. Based on the reconstruction of the talent training program, promote the quality upgrade of talent training for the integration of production and education**

The "1+X" certificate system re-proposes new ideas for talent training from the perspective of training objectives, course structure, course content, and course implementation. Higher vocational colleges should accurately position the training goals of compound talents trained by vocational education. Adjust the logic of talent training, optimize the "Certificate" system, with public basic courses corresponding to "1", "professional basic courses + professional skills courses" corresponding to "X", based on the existing teaching content, integrate the content of vocational skill level standards, and form course modules into course teaching content. Construct the education situation of the integration of production and education, organize teaching with the teaching method of guiding learning as the main part and teacher supervision as the supplement, and deepen the reform of the three educations by reconstructing the talent training plan, and promote the upgrading of the quality of talent training.

### **4.2. School-enterprise double-collaborative innovation reforms education allocation and enhances the depth of industry-education integration education**

As the main implementer of the "1+X" certificate system, the professional quality and ability of front-line teachers in higher vocational colleges are very important, so it is necessary to focus on improving the professional level, professional quality, and ability structure of teachers. First, it is necessary to incorporate the "X" technical skill level into the teacher assessment standard and build a sound teacher post-assessment system. Second, it is necessary to strengthen teachers' development of professional supporting teaching materials and curriculum demonstration work. Teaching materials and courses are the tools to realize talent training under the "1+X" certificate system, and train teachers to complete the compilation of specialty-related characteristic teaching materials. , Lay a solid foundation for higher vocational colleges, connect the production process with the teaching process, connect the industrial development with the teaching content, connect the professional standards and professional requirements in the new era with the teaching standards, and constantly improve their own "double teacher" skills.

### **4.3. "School, enterprise, and certificate" are integrated, and the combination of production, education, and research is implemented**

The synergy between vocational colleges and enterprises can be realized in various forms. Through close cooperation with industrial companies, we will cultivate and build an expert service team that can serve the local economy and industry companies among the excellent teacher teams and provides relevant services for companies in the area where the school is located.

On the one hand, college teachers can sort out and transform the "1+X" certificate knowledge requirements and skill standards according to the professional position

requirements and abilities of enterprises and formulate certificate types and certificate levels that meet the abilities of higher vocational students, to help enterprises obtain a better match. On the other hand, colleges and universities can be market-oriented, actively encourage students to obtain relevant "1+X" certificates, and help students choose the appropriate certificate type according to their career planning. At the same time, colleges and universities should actively establish industry-university-research cooperation with the government and enterprises, undertake scientific research projects entrusted by enterprises, and provide consulting services and solutions.

#### **4.4. Jointly build an industrial college to achieve four common and harmonious development**

Taking the "1+X" certificate as an opportunity, we will build an industrial college with high-quality enterprises in the industry, innovate and practice the four common long-term development mechanisms of "enrollment, teaching, management, and employment", and solve the problem of insufficient participation of enterprises in the process of integration of production and education. High, teaching content, training conditions, management methods, and professional post-ability cannot fully match other issues.

First, joint enrollment ensures the matching degree of supply and demand between students and enterprises from the source. Higher vocational colleges need to take the initiative to strengthen communication with enterprises, understand the status of enterprises in the regional economic industry, and understand the operating status and scale of major counterpart enterprises. They can conduct joint enrollment with enterprises, and jointly formulate Enrollment plans to achieve precise matching of student sources, plans, and needs.

Second, joint teaching and training, to ensure the match between students and the company's post ability in terms of training quality. Most of the teachers in higher vocational colleges are from colleges and universities, and often lack front-line production experience. In enterprises, the division of labor is clear, and the requirements for technical skills are detailed and accurate. "Apprenticeship" and other models promote the communication and exchange between higher vocational teachers and corporate mentors. Through joint teaching and joint training, we can ensure the complementarity of allocation in the process of talent training, and better promote the improvement of the comprehensive quality of students' vocational skills and technologies.

Thirdly, joint management ensures the matching between students and the standardization requirements of enterprise management from the system. The joint construction of industrial colleges requires the joint management and supervision of both the school and the enterprise. By improving the organizational structure, rules and regulations, and real-time rules of the industrial colleges, the division of labor and collaborative management are clearly defined, and the quality monitoring and management of the integration process of industry and education are carried out to ensure that this system The students trained under it can seamlessly adapt to the standardized management requirements of enterprises.

Fourth, co-employment ensures that students and enterprises match the talent gap from the position. The employment quality of talents is the test standard for the benefits and achievements of the construction of industrial

colleges. Vocational colleges train students, and enterprises recruit talents. The cooperation between schools and enterprises to promote employment can fundamentally ensure the smoothness of talent employment channels. Through the integration of production and education, Co-employment can turn the enterprise from passive to active and become a guide and leader in employment.

## **5. Conclusion**

The "1+X" certificate system is a combination of academic education and non-academic education, which is conducive to the cultivation of compound professional and technical talents and deepens the integration of production and education and school-enterprise cooperation. However, the integration of industry and education under the current "1+X" certificate system still has problems such as insufficient depth, insufficient two-way degree, insufficiently advanced integration concept, and cognitive bias. Innovate the path of industry-finance integration and school-enterprise cooperation and increase the enthusiasm of enterprises to participate in vocational education. The depth of education integration and education, the integration of "schools, enterprises, and certificates" simultaneously, the combination of production, learning, and research, and the establishment of industrial colleges at the same time, to achieve the harmonious development of the four commons.

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