



# Construction of Modern Apprenticeship System from the Perspective of Vocational Undergraduate Education

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**Abstract.** In vocational colleges, the advantages of modern apprenticeship system will far exceed the non-apprenticeship system. Vocational colleges combine the traditional apprenticeship training with the vocational goal education of modern vocational colleges, and realize a new type of high-tech vocational education system in which vocational colleges and enterprises actively cooperate in educating people. It embodies an educational thought of combining a new type of occupation and undergraduate education. It is based on the current rapid development of the market economy and the needs of modern enterprise positions, by the school and enterprise collaborative education, active cooperation, teach students (apprentice) basic theoretical knowledge and practical skills, fully embodies the government, school, industry, enterprises to participate in the modern apprenticeship school enterprise collaborative education operation mechanism and mode. Vocational undergraduate colleges through the establishment of modern apprenticeship training programs and models for the community to train high-quality high-end new applied talents to meet the needs of modern emerging industries for skilled personnel, to ease the severe social employment situation has a very important significance.

**Keywords:** vocational undergraduate · Modern apprenticeship · System construction

## 1 Introduction

In China's vocational colleges, the new education model is mainly based on the upgrading and transformation of higher vocational colleges. It is the main base for training new applied talents. In the process of vocational and technical skills education, it also pays attention to the upgrading and transformation of theoretical knowledge. Combined with the characteristics of the modern apprenticeship system in the original higher vocational colleges, this paper puts forward the construction objectives, contents and methods of the modern apprenticeship system in the vocational colleges, improves the governance structure of the modern apprenticeship system in the vocational colleges, combines the advantages of the modern apprenticeship system, constructs a good ecology of the

integration of production and education, and develops the advantages of the modern apprenticeship system from the perspective of vocational colleges.

Compared with the modern apprenticeship in the traditional sense, the modern apprenticeship in vocational colleges is very different. It is mainly an upgrade on the basis of the traditional apprenticeship, and there is a qualitative improvement in terms of students. The establishment of modern apprenticeship system in vocational colleges mainly aims to achieve the seamless connection between graduation and employment. It advocates government-led supervision, guidance from relevant industry organizations, platform building and active cooperation between schools and enterprises. Students should strengthen the combination of theory and skills, actively participate in new vocational education ideas, and fully reflect the modern apprenticeship system and operation mode jointly participated by the government, schools, industries and enterprises [1].

## 2 Research Significance

Through the collection and collation of relevant literature and data at home and abroad, we can further understand the current situation and existing problems of modern apprenticeship system under the guidance of professional talent training needs in vocational colleges. On this basis, we can construct modern apprenticeship system in vocational colleges according to the new industrial organization theory and work-based learning theory [2].

Through the relevant literature at home and abroad theoretical significance: 1. Enrich the connotation of modern apprenticeship vocational undergraduate. Compared with the traditional apprenticeship system, the construction of the modern apprenticeship system in vocational undergraduate colleges takes the enterprise as the master, takes the enterprise master as the main teacher of the student skill assessment, and the school teacher and the relevant industry personnel to the student. The diversified way of joint assessment is carried out. After the assessment, the students can obtain the corresponding certificate issued by the school and the enterprise, that is, to realize the 'double certificate' induction, and optimize the self-conditions of the students in vocational undergraduate colleges. 2. Further improve the construction of modern apprenticeship system in vocational colleges. In vocational undergraduate colleges talent training program, take the government regulation as the leading, relevant industry organizations to guide, schools and enterprises to build a platform, active cooperation, students strengthen the combination of theory and skills, and actively participate in new vocational education ideas. Fully reflect the 'government, schools, industry, business' four-in-one, top-down participation in modern apprenticeship and operating mode.

Practical significance: 1. To find an effective way to solve the problems existing in the operation of modern apprenticeship in vocational colleges, and to give some measures and evaluation for the construction of modern apprenticeship in vocational colleges. In order to fully realize the modern apprenticeship system and operation mode of the quaternity of government, school, industry and enterprise, 'four' is indispensable. Only by coordinating and integrating the functions of 'four' can the advantages of vocational undergraduate colleges be brought into play and the goal of training applied talents of vocational undergraduate be effectively completed. 2. It can provide some

basis for the construction of modern apprenticeship in vocational colleges and related enterprises. Due to the innovation of modern information technology, many enterprises are transforming to automation and big data, so the role of traditional manpower in enterprise production and social progress is decreasing. Combined with the current social economy and industry development needs, the cultivation of real high-end skilled talents is the main training direction of vocational undergraduate colleges, so how to realize the joint training of schools and enterprises, how to achieve the real goal of graduation is employment, we need to strengthen the function realization and initiative of “four”.

### **3 Analysis of the Status Quo of Modern Apprenticeship System for Vocational Undergraduates**

Modern apprenticeship itself is a research focus and hot topic in the field of vocational education. From the relevant information, relevant experts have made some analysis and research on modern apprenticeship in vocational higher education institutions, and have achieved certain research results. However, the research on modern apprenticeship under the demand of talent training in vocational undergraduate colleges is almost blank and is currently in a boom.

By looking up the relevant materials of modern apprenticeship, we can see that there are many researches on this topic at present. For example, in 2006, Sun Weihong proposed that modern apprenticeship is to combine enterprise production activities with school teaching activities to achieve school-enterprise collaborative education. The point of view is that the main way for schools and enterprises to actively cooperate is to combine the knowledge of ‘teaching’ in schools with the knowledge of ‘using’ in enterprises. In 2013 Yang Liming put forward the modern apprenticeship is mainly to cultivate enterprise ‘apprentice’; in 2015, on the basis of the traditional apprenticeship system, Zhao Yousheng proposed to allow students to enter the enterprise in advance to test posts, so as to achieve the purpose of joint training and cultivation between schools and enterprises. In 2011, Geng Jie believed that in order to truly implement the modern apprenticeship system, it is necessary to integrate the national government’s policies and put forward the necessity of policy support and capital investment. From this point of view, [3] the current domestic research scholars mainly study modern apprenticeship and modern apprenticeship separately. It can be seen from the data that the cooperation between many schools and enterprises is not deep enough, and there is still a big gap between the training objectives of schools and the interests pursued by enterprises. There is a certain phenomenon of information asymmetry, which leads to the disconnection between the school’s curriculum planning and setting and the needs of new application-oriented talents in enterprises, and can not meet the current social needs. According to the search results of related topics on HowNet, there are few research results that combine the two, and the research on modern apprenticeship and modern apprenticeship in vocational colleges is almost blank.

Through access to information, it can be seen that foreign researchers have some research on modern educational system. As early as 1962, the representative of the International Workers ‘Organization defined apprenticeship as’ mutual learning and

training in school theoretical knowledge and enterprise practical work skills training'. In 2010, some western scholars such as Ryan believed that modern apprenticeship is to formulate school curriculum according to the relevant skills training of enterprise practice. Serker, a foreign scholar, believes that modern apprenticeship has provided a large number of practical talents for economic development and market demand, but at the same time, it also puts forward the social environmental factors that stabilize modern apprenticeship. The main factors are: (1) good cooperation environment needs the policy support of government; (2) The school's personnel training objectives and the interests pursued by enterprises to a certain extent to achieve a balance of interests, and promote cooperation between the two sides. From this point of view, foreign scholars mainly study the relevant factors of modern apprenticeship, but the content of its operating mechanism is less information, research is relatively lacking [4].

Therefore, this paper finds a consistent point from the two aspects of the goal of vocational undergraduate education and the modern apprenticeship system, effectively supplements and improves the content of the two mechanisms, and combines the talent training objectives of vocational undergraduate education, focusing on vocational undergraduate colleges. The modern apprenticeship system research provides some theoretical and practical basis. Further explore the depth and breadth of modern apprenticeship research in vocational colleges, and provide a basis for the construction of talent training programs in vocational colleges.

#### **4 The Urgency of Constructing Modern Apprenticeship System for Vocational Undergraduates**

In 2018, the Ministry of Education designated 15 higher vocational colleges as pilot colleges for undergraduate-level vocational education. In 2019, the first undergraduate-level vocational education undergraduates began to enroll students. With the continuous improvement of China's requirements for high-skilled talents in accelerating the integration of urban and rural construction, new industrialization, building a new socialist countryside and an innovative country, in order to adapt to the national economic transformation and the transformation of the new economic growth mode. In order to meet the needs of various types of senior skilled talents, build an 'overpass' of modern vocational education and promote the development of modern vocational education. It is urgent to establish modern apprenticeship suitable for undergraduate vocational education.

China's manufacturing industry has begun to gradually shift to intelligence. Under the new normal, the structural adjustment of the manufacturing industry will bring great changes to the demand for social labor, which will lead to a temporary "labor difficulty" phenomenon [5]. The essence is that the supply of manufacturing workers does not match the current industrial structure, technological upgrading and production transformation. How to combine the vocational education of vocational undergraduate schools with the practical work of enterprises, cultivate high-quality and high-skilled talents for the society and enterprises, enhance the skills of workers, improve the initiative of enterprises and schools to cooperate in educating people, and establish a modern apprenticeship system led by the government, guided by relevant industry organizations, actively cooperated with school-enterprise cooperative education and actively participated by students is becoming more and more important. Relevant national documents and policies

also clearly point out that the integration of emerging industries and vocational education, the strengthening of collaborative education and cooperation between schools and enterprises, the further improvement of modern apprenticeship system, the cultivation of high-quality and highly skilled talents, the active implementation and development of modern apprenticeship pilot work, and the smooth operation of modern apprenticeship system are the major tasks of vocational education reform in the new era, and also the inevitable choice to adapt to the rapid development of social economy.

## **5 Objectives of Modern Apprenticeship System for Vocational Undergraduate**

According to the talent training program and objectives of vocational colleges, the courses for vocational undergraduate students are set. According to the training goal of vocational undergraduate colleges, it is necessary to take the all-round development of students as the orientation, focus on the cultivation of skills, and highlight the focus of students 'comprehensive quality and professional skills. Then, the construction of modern apprenticeship in vocational undergraduate colleges should focus on highlighting comprehensiveness and practicality, focusing on cultivating students' professional skills and developing students' professional ability for professional positions.

Modern apprenticeship, that is, "order training," is to provide employment information to the local labor department by the employing enterprise, including the required types of work, number of people, salary and technical requirements. Under the guidance of employment guidance teaching in vocational undergraduate colleges, the curriculum of vocational undergraduate colleges should be specific to the job, and the training should be carried out in the way of alternation of work and study, focusing on the transformation of students' learning mode from traditional undergraduate colleges and traditional vocational education, combining the advantages of the two, and striving to realize the zero transition of graduation and employment.

## **6 Basic Content of Vocational Undergraduate Modern Apprenticeship System Construction**

Based on the above construction goals, we will reform the curriculum of modern apprenticeship in vocational undergraduate colleges. The reform idea is mainly to effectively connect the curriculum setting goals and post capabilities, the content of the curriculum will be connected with the standards of the enterprise industry, the process of teaching implementation will be connected with the actual work flow, and the curriculum evaluation will be connected with the industry evaluation standards, so as to build a multi-faceted evaluation and diversified evaluation system [6].

### **6.1 Build a Platform Conducive to the Construction and Reform of Modern Apprenticeship Curriculum**

In the early stage of setting up the modern apprenticeship talent training program, vocational colleges should build with enterprises, match the content and objectives of the

talent training program with the modern apprenticeship system, carry out collaborative innovation with schools and enterprises as the main unit, and establish corresponding platforms or centers to ensure the implementation of the modern apprenticeship training model. At the same time, the modern apprenticeship training mode can be divided into pilot links, from the curriculum construction, curriculum content, curriculum implementation, curriculum evaluation and other aspects of the specific implementation strategy, and then carry out the corresponding training mode and evaluation institution reform, to maximize the adaptation to social and market demand [7].

## **6.2 Relying on School-Enterprise Cooperation, Establish Innovation Center Platform**

In a certain sense, the construction of vocational undergraduate is actually the further development of the advantages of school-enterprise cooperation in running schools. In order to ensure that the teaching work can be carried out in an orderly, standardized, systematic and scientific way, it is necessary to adhere to school-enterprise cooperation. On this basis, the use of modern apprenticeship will be conducive to the cooperation of industry, teaching and scientific research, make up for the lack of decoupling between school education and social enterprises, and promote the further innovation and development of enterprises.

## **6.3 Strengthening the Construction of Campus Training Base**

The construction of the training base in the school should match the latest requirements of the current industrial development, and build a training base with first-class facilities, complete functions, resource sharing, and international standards, so as to effectively guarantee the construction of modern apprenticeship in vocational colleges. According to the requirements of the teaching situation and the production process, the degree of real simulation of the construction of the training base in the school must be high. According to the relevant standards, investment and construction of training sites, focusing on building professional training platform and innovative training platform, all training platforms can be physical networking supervision or computer networking supervision, the establishment of three-dimensional training system, effective protection of vocational institutions to carry out modern apprenticeship.

## **6.4 Encourage Off-Campus Enterprise Field Training, Improve Off-Campus Training Base Construction**

In the initial establishment of the talent training program of vocational undergraduate colleges, the resources of school-enterprise cooperation enterprises should be fully considered, and a part of the training base can be considered to be built in the field of long-term stable cooperation enterprises. Through the apprenticeship into the enterprise field training, the students' post skills are trained to the greatest extent, and the students' practice of follow-up and post placement is assessed as part of the main graduation design. At the same time, on the basis of the existing off-campus training base construction, further standardize the construction and management of off-campus training bases,

and dispatch professional teachers to off-campus training bases for teaching guidance. On the one hand, it can promote the transformation of professional teachers to double-qualified teachers. On the one hand, it can promote further cooperation between schools and enterprises [8].

## **7 Measures and Evaluation of Vocational Undergraduate Modern Apprenticeship System Construction**

### **7.1 Improve the Management Mechanism, Reform the Training Mode**

To improve the teaching management mechanism of vocational undergraduate colleges and modern apprenticeship, the school party committee takes the lead in the examination and approval, formulates the teaching operation and quality control system of modern apprenticeship in vocational undergraduate colleges, standardizes the training process of modern apprenticeship talents in vocational undergraduate colleges, adheres to the combination of work and study, on-the-job training, implements the credit system management according to the production and apprenticeship learning content of market enterprises, actively explores the reform of training mode, and upgrades the training mode of “2 + 1” in traditional higher vocational colleges to “2 + 1 + 1,” that is: two years of theoretical study, one year of on-the-job training, and one year of graduation design. Focus on cultivating students’ professional spirit and craftsman spirit, and improve students’ vocational skills and employment and entrepreneurship ability. Further improve the quality evaluation mechanism of modern apprenticeship training jointly participated by government, industry, enterprise and vocational undergraduate schools. Vocational colleges can standardize the construction of teaching staff, strengthen the teaching connection between schools and enterprises, and improve the system construction of modern apprenticeship.

### **7.2 Recruitment Integration, Standardization System Construction**

According to the characteristics of modern apprenticeship, enterprises and vocational colleges can jointly formulate and implement enrollment and recruitment programs; can be set in advance at the time of enrollment recruitment, according to the enterprise recruitment plan for enrollment; can also be adjusted according to the enrollment situation of enterprise recruitment; clarify the multiple identities of employees, apprentices and students in vocational colleges to protect the legitimate rights and interests of students. At the same time, vocational undergraduate colleges should be seamlessly connected according to professional settings and industrial needs, the content of curriculum settings should be connected with professional employment, and the teaching process should be combined with the production and processing process. Schools and enterprises jointly develop professional teaching standards and training construction standards that conform to the characteristics of vocational undergraduate colleges, and increase efforts to encourage students to obtain vocational skill level certificates of corresponding majors during the period of following teachers, so as to improve themselves, expand employment and increase employment opportunities [9].

### **7.3 Update the Concept, Strengthen Curriculum Development, Improve the Vocational Undergraduate Level Apprenticeship**

Compared with higher vocational education, vocational undergraduate education is a qualitative improvement in talent skills. Combining the advantages of undergraduate specialty construction with modern apprenticeship system, on the basis of laying a theoretical foundation, we should not only strengthen the improvement of students' skills, but also increase the education and training of students' innovative consciousness, pay attention to the combination of theory and practice, and pay attention to the cultivation of students' innovative consciousness. According to the training objectives of vocational undergraduate talents, teachers and enterprise industry experts are encouraged to participate in curriculum development, implement order training and work-study alternating talent training based on modern apprenticeship system, fully reflect the advantages of industry-education integration and collaborative training, make full use of training bases and skill master studios, share the latest frontier information of enterprise development with school teaching resources in time, and integrate new processes, new norms and typical cases into teaching in time to form a teaching resource system of co-construction and sharing. Sharing is the sharing of teaching resources and the sharing of resources needed for enterprise development. The development of the government in vocational undergraduate education and the sharing of curriculum resources in school construction, that is, the realization of equal transmission of information as much as possible.

### **7.4 The Construction of Double-Qualified Teachers**

Whether the modern apprenticeship system can be successfully implemented focuses on the construction of school-enterprise teaching staff. The overall quality of school teachers is not limited to professional theoretical knowledge, but to strengthen teachers' professional practice ability; at the same time, the master of the enterprise also undertakes part of the teaching task, which requires the school to build a more comprehensive teaching staff, and requires the school teachers not only to undertake professional teaching tasks, but also to cooperate with the teaching tasks such as enterprise guidance post training [10].

Regulating the management system of double-qualified teachers can be regulated from the aspects of teacher access system, division of functions, teaching tasks, salary and performance appraisal. At the same time, combined with the characteristics of modern apprenticeship in the allocation of teaching staff, support enterprises to select skilled masters to enter the school teaching, encourage enterprise experts, craftsmen as part-time teachers into the school guidance; for the construction of double-qualified teachers, in addition to the strict selection and assessment in the recruitment process, it is necessary to train the original teachers, increase the intensity of teachers' enterprise practice, strengthen the practical training of teachers, and encourage teachers to study part-time in enterprises.

Whether schools or enterprises, the selection of teachers must build a minimum standard. The selection of enterprise masters is mainly completed in the enterprise, which often exceeds the authority of the school level. The enterprise needs to formulate



relevant training and teaching systems internally, and select the best masters of the enterprise for mentoring; the selection of enterprise masters can be completed by issuing the qualification certification of corresponding enterprise masters, training enterprise master candidates and corresponding incentive means to increase the attraction of teachers and apprentices. At the national and industry levels, enterprise masters can be standardized with corresponding incentives, training, and industry certification. The selection of teachers in schools must keep pace with the times. The requirements of school teachers are no longer teachers who are only responsible for teaching in schools in the traditional sense, but teachers with skills. Therefore, the national level should formulate relevant policies to encourage teachers to enter enterprises, run enterprises, and strengthen the improvement and cultivation of teachers' own skills.

## 8 Conclusion

In a word, the construction of modern apprenticeship system should be strengthened in vocational colleges, and the research should be carried out on the basis of modern apprenticeship system as the object of curriculum reform. In order to build a platform conducive to the construction and reform of modern apprenticeship curriculum, we should rely on the cooperation between schools and enterprises, establish an innovation center platform, strengthen the construction of on-campus training bases, encourage off-campus enterprises to carry out field training, and improve the construction of off-campus training bases. We should adopt a sound management mechanism, reform the training mode, integrate enrollment and recruitment, standardize the system construction, update the concept, strengthen curriculum development, and improve the construction of apprenticeship system at the vocational undergraduate level. It is of great significance to improve the curriculum system and content structure of vocational colleges by improving the construction of double-qualified teachers to promote the employment of vocational college students and the reform of modern apprenticeship system. The students graduated from vocational colleges with modern apprenticeship should be greatly improved in both professional skill level and professional quality. The construction of modern apprenticeship in vocational colleges is conducive to enhancing reputation and limited access to the fast track of sustainable development.

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