

# *Research on the Training Model of Through Undergraduate Talents in Secondary Vocational and Higher Vocational Education*

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**Keywords:** Secondary Vocational College; talent training model; visual analysis

**Abstract:** Undergraduate training in secondary vocational and higher vocational schools is the basic path for the sustainable development of education. Using "secondary vocational and higher vocational undergraduate" as the key word to carry out literature search and analysis on CNKI, we found that researchers mainly conduct research from the aspects of training objectives, model selection, curriculum reform, implementation path, and implementation guarantee. However, there are few comprehensive studies on the path and system construction of the talent training model. Therefore, this article provides a model path that can be referred to by classifying and summarizing the literature.

## **1. Introduction**

From an international perspective, modern technologies such as the Internet, cloud computing, big data, and intelligent robots have profoundly changed human thinking, production, life and learning methods. International competition is becoming increasingly fierce. The United States, Europe, Japan, South Korea, Russia, India and other countries In enhancing international competitiveness and developing the real economy, regions have taken the improvement of higher education and modern vocational education systems as strategic choices, and talent training and competition have become the focus. As a highland for the cultivation of innovative talents, colleges and universities are the key to realizing sustainable development to strengthen the research of multi-level and cross-cutting talent training models between middle and high schools.

From a domestic perspective, the "National Medium and Long-term Educational Reform and Development Plan (2010-2020)" <sup>[1]</sup> pointed out: "The international financial crisis has further highlighted the importance and urgency of improving the quality of the people and the cultivation of innovative talents. Education should provide students with long-term and diversified considerations, in particular, provide necessary channels and system guarantees for the further study and development of skilled talents, build a "overpass" between secondary vocational education and higher vocational education, and open up secondary vocational skills. Channels for talents to continue their studies and advance to higher vocational colleges". The "Notice of the State Council on Printing and Distributing the National Vocational Education Reform Implementation Plan" (Guo Fa [2019] No. 4) proposes to "construct a connected school-running pattern and promote the comprehensive, coordinated and high-quality development of vocational education." Six

departments including the Ministry of Education proposed in the "Modern Vocational Education System Construction Plan (2014-2020)" Jiaofa [2014] No. 6 "Improve the vocational talent connection training system, and actively promote the training goals, professional settings, curriculum The connection of teaching process and other aspects"<sup>[2]</sup>. According to the "Guiding Opinions of the Ministry of Education on Actively Promoting the Reform of the Enrollment System for Higher Vocational Education Examinations" (Teaching [2013] No. 3), the Guangdong Provincial Department of Education has launched a pilot project for the third- and second-level training of vocational colleges and universities, and proposed "The school system for the pilot majors in the third and second segment is 5 years. The pilot vocational colleges and corresponding vocational schools, and industry enterprises, jointly formulate a five-year integrated talent training program. The admitted junior high school graduates are based on the "three-two pilot class Classes are arranged separately in the name of ", first studied in a secondary vocational school for 3 years, and those who have passed the transfer assessment and meet the relevant conditions and requirements will enter the corresponding vocational college for 2 years; among them, the pilot program that meets the relevant regulations of the Provincial Department of Education For pilot majors in colleges and universities, the two-year teaching work in higher vocational schools can be carried out in pilot vocational schools."

The promulgation of the policy has created a good policy environment for the development of the talent training model for secondary and high vocational education. The integration of the talent training system for secondary and high vocational education has become a trend in the reform of talent training in colleges and universities. "Implementation Opinions on Innovation and Entrepreneurship Education Reform" pushes the innovation work and reform of talent training mode into a boom [3]. At present, the researches conducted by universities have reached a certain depth and breadth in both theory and practice. However, most of them carry out abstract theoretical analysis from the macro level, while ignoring the deepening of the micro level, especially the training goals and specialties of the middle and high school. There is very little research on setting, curriculum system, teaching process, teaching standards and curriculum standards, and the connection with undergraduate higher education is in the ascendant.

How to integrate the national qualification framework into the talent training system, and build a talent training model through middle to high school, is a problem worthy of research. This topic is based on the innovative research of the mechanism of the training mode of middle and high-level talents, through theoretical combing and practical research on the interrelationship of the training goals, professional settings, curriculum system, teaching process, etc., to explore the construction of the new era An effective way to reform the talent training model. With a view to better resolve the disputes over the disconnection of talent training.

## **2. Academic history combing and research of foreign related research**

The world is paying more and more attention to the dual talent training model of vocational and technical education and training. By consulting relevant documents, we understand that the current internationally typical vocational education models mainly include:

The Australian Qualification Framework (AQF) <sup>[4]</sup> is the "first generation" qualification framework established in 1995. Its purpose is to establish a "comprehensive, nationally unified but flexible framework" for all qualifications in the field of compulsory education and education. It covers all post-compulsory qualifications in Australia, including high school certificates, vocational education and training (VET) qualifications, and higher education qualifications. It has had the greatest impact on vocational education and training. It plays a key role in establishing a national vocational education and training system and obtaining nationally recognized vocational education

and training qualifications, but it has less impact on universities. In a study, the results of the (AQF) qualifications (certificates I and II) for young people aged 15 to 24 were investigated in order to develop basic vocational skills or pre-acquisition skills. Level I and II certificates can be used as a continuation Ways of study or employment <sup>[5]</sup>.

The core of Competency Based Education (CBE), represented by the United States and Canada, is to determine competency goals based on the needs of professional positions. A group of representative experts in the industry are hired by the school to form a professional committee. According to the needs of the post group, the professional committees are broken down to determine the abilities necessary to engage in the industry and clarify the training goals. Then, the school organizes relevant teaching staff to target these abilities, set up courses, organize teaching content, and finally assess whether these ability requirements are met <sup>[6]</sup>.

CBE arranges the teaching and learning education system and learning plan according to the special abilities listed in the professional analysis table, breaking the traditional education system that organizes teaching and learning by subject as the subject. A study in the United States pointed out that vocational education is an important part of secondary education courses. It is not that students with low ability choose to enter vocational courses. Students choose vocational courses to focus on in-depth development rather than breadth <sup>[7]</sup>.

Germany's vocational education model is a dual system model. Interoperability is the overall characteristic of its education system. The core is to highlight vocational in the professional talent training program, requiring students to receive vocational education and systematically learn theoretical knowledge and practical skills. At the same time, they can regularly get the opportunity to participate in enterprise vocational skills training [8]. The biggest feature of the dual system of vocational education is that it is combined with production. Enterprises are widely involved in vocational education and run through various forms of education. After the completion of basic education, students can enter vocational schools from ordinary schools or enter colleges and universities. Double choice.

The British "work-study alternate mode" is also the so-called "Sandwich Program" mode. Starting in the 1980s, the UK has provided students with different education modes through the three certificate equivalence and exchange mechanisms of NVQ, GNVQ and technical certificate courses. The model is flexible and can support students' segmented learning and continuous learning. The professional qualification level is linked to the level of the job and the certificate (university degree), usually "1+2+1", "1+3+1", "2" +1+1" and other alternate modes of engineering and learning. It can be seen that the entire education process generally lasts 4-5 years. In the first year, apprentices will go to the training center of the Continuing Education College or the "Industry Training Committee" to study. In the following years, apprentices can use the corporate study day one or two and a half days a week Paid to study at the Continuing Education College, or go to the Continuing Education College to learn some part-time courses of "phased full-time learning". Apprentices can complete the entire apprenticeship training program and successfully pass relevant assessments, and they can also obtain corresponding vocational qualification certificates.

### **3. The academic history combing and research of domestic related research**

This study uses CNKI as the source of the literature, and the search time is from 2012 to 2020. Retrieved documents are used as research samples, combined with quantitative and qualitative methods for analysis.

#### **(1) Analysis of overall growth trend**

The publication status of papers is usually considered to be an important indicator to measure the level of discipline development and scientific and technological output, as well as a measure of

scientific research achievements and contributions. Cited documents are documents that guide the use of this article. The continuation, application, development or evaluation of the research work in this article. The increase in the amount of scientific knowledge and its laws are closely related to the increase and its laws of the literature, and the changes in the amount of literature directly reflect the changes in the amount of scientific knowledge.

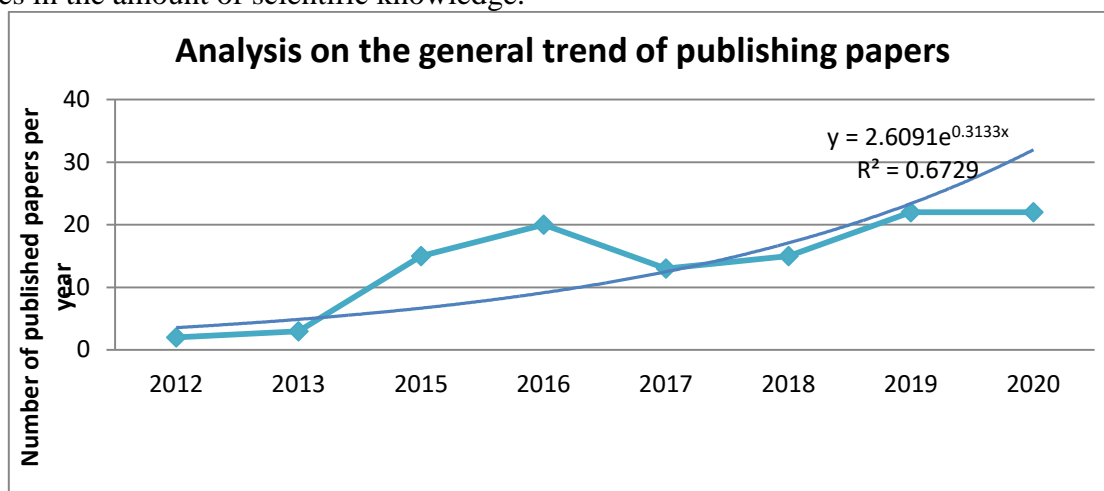


Fig. 1 Statistics of the number of papers published in each year

Figure 1 shows the statistics of the number of papers published in each year. It can be seen that the large increase in the literature of the middle and high books is after 2019. This is in line with the scholars' enthusiasm for the research of the middle and high books. A total of 5 articles were published in 2012 and 2013, and 15 articles were published in 2015. , Published 20 and 13 articles in 2016 and 2017 respectively, 15 articles in 2018, 22 articles published in 2019, but the number of cited articles reached the current peak in 2020, containing a total of 225 articles. The number of papers issued in recent years reflects the continuous attention of the academic community to the education of middle and high education in recent years, but it has not yet reached the level of high attention.

Figure 1 also reflects the rapid increase in the number of citations related to the middle and high school books. In the literature sample, the most cited one is the literature[9], which is aimed at the low recognition of vocational education, insufficient development motivation, and source of students. A series of problems such as uneven quality and overall planning. (Fu Jie, 2016) It is advocated that the government should strengthen policy guidance, make overall plans, improve mechanisms, and scientifically set up the professional layout of secondary vocational, higher vocational, and undergraduate courses to provide guarantee for the implementation of integrated talent training for secondary-high-level integration. As of 2020, the article has been cited 16 times and downloaded 678 times. It is a groundbreaking research achievement in this field of the high school. Secondly, the document [10] has the highest download volume, which has been downloaded 847 times and has been cited 43 times. Based on a comprehensive analysis of the development status and talent needs of my country's e-commerce industry, it focuses on the positioning of talent training at different levels and innovates secondary vocational e-commerce. Professional 3-4-2 talent training model practice teaching talent training model to open up the upward channel of vocational education (Hou Guang et al., 2015).

## (2) Identification of research hotspots in middle and high schools

Through the analysis of the co-occurrence of key words in the literature, the highest number of occurrences of "talent training" with the largest node is 38 times. It can be seen that the research field of middle and high schools regards talent training as a very important measurement standard;

the hot words that follow are "vocational education", The "convergence between middle and high school" and "professional setting" fully illustrate the importance of talent training in the link between middle and high school.

There are other hot spots, such as vocational education system, vocational education group, curriculum system, training model, etc. The high centrality indicates that the keyword plays a role as a bridge in the research. The keywords with a high degree of centrality mainly include talent training, connection between middle and high school, professional setting, and vocational education.

### (3) Research on the talent training model that links the middle, high and undergraduate levels

Research on the talent training model of the link between middle and high schools. The main points are: ① "2+2+2" model<sup>[11]</sup>. It is believed that in cultivating the "Furong Craftsman" integrated talent training model of the clothing profession that connects the middle and high schools, the undergraduate applied talents will be cultivated, and the students will study in the secondary vocational school for the first to the second year, and the third to the fourth year. I studied at Hunan Vocational College of Arts and Crafts in 1 year, and I went to Malaysia undergraduate university for undergraduate study in the 5th to 6th year (Li Jie, 2018). ②The seven-year consistent system model<sup>[12]</sup>. It is believed that the collaborative innovation "seven-year consistent system" of football talent training model is an important choice for the optimal allocation of secondary vocational, higher vocational and undergraduate resources, and an important measure for colleges and universities to highlight the characteristics of running a school. (Xu Chengjian et al., 2017). ③ Integrated talent training model<sup>[13]</sup>. It is believed that the specific performance is the integration of training goals, the integration of training methods, and the integration of practice and training (Zhang Hongrui, etc., 2017).

In general, my country's local middle-level, middle-high vocational and higher-level models mainly include: through-type training model, professional group connection model, and integrated model. Through training mode, secondary vocational education and higher vocational education enroll students, sign training agreements, and conduct professional integration. During the transfer period, there is basically no entrance examination, such as "3+2", "3+3", "3+2" +2", "3+2+3", "3+4", "5+2" and other modes; professional group connection mode, graduate students studying in secondary vocational colleges enter the higher vocational colleges with their professional counterparts The school continues to study the mode of obtaining a diploma of secondary education, such as "3+2", "3+3", "3+2+2", "3+4", "5+2", "3+4+2" "And other models; the integrated model refers to the merging of multiple schools into one school to achieve multiple levels of vocational education. At present, the most typical representative is the "five-year consistent system" of secondary vocational or higher vocational colleges<sup>[14]</sup>, " Five-in-one training for middle, high school, undergraduate, master and doctorate"<sup>[15]</sup>.

### (4) The teaching standards and curriculum standards for the integration of secondary, high and undergraduate majors.

The integration of professional teaching standards and curriculum standards is the difficulty and breakthrough point of the education of middle and high school. The content of the curriculum lacks level and progressiveness, and the content is repetitive. It does not meet the ability requirements of segmented training. The main reform views are: "Leather art design integrated professional standards"<sup>[16]</sup>, according to "supply and demand research-professional ability analysis-curriculum system construction-standard preparation" to compile professional standards with implementation value (Duan Na, 2018). "Mechanical and Electrical Integration Technology Professional Standards"<sup>[17]</sup>, taking the mechatronics technology application major of secondary vocational schools, the major of higher vocational mechatronics technology, and the undergraduate automation major as examples to discuss the implementation process of through-type talent training (Cao Kegang, Shan

Ying, 2018). The "Electrical Engineering and Automation Specialty Intermediate-Higher Undergraduate Convergence Plan" <sup>[18]</sup>, takes the training of "technical skills, compound skills, and knowledge skills" talents as the starting point for system design. (Zhu Xiaohui, 2018). "Construction of a thorough system for machinery manufacturing and automation" <sup>[19]</sup>, from deepening the analysis of segmented training, implementing operation modes and operating standards, and improving the rationality of the multi-module system. (He Wenjuan, 2019). The "Hotel Management Major"<sup>[20]</sup> improves the quality of training by clarifying talent training goals, formulating professional curriculum systems that reflect differences and continuity, implementing a professional qualification certificate system, and strengthening top-level design. (Qi Enzhou, 2020).

In summary, it can be seen that there is a "triple and three lightness" in the academic research on the intermediary education of the secondary and upper education: ①The emphasis is on the affirmation and emphasis on the breadth of the training model for intermediary talents, such as the enrollment examination system, training objectives, professional settings, course materials, etc. Certainly involve, lighter than the evaluation and in-depth study of the talent training model for the middle and high education, and less attention to the connotation of the talent training for the middle and high education; ② The focus is on the discussion on the construction and development of a certain major in the education The overall study of the education professional group; ③The emphasis is on the individual research on the "convergence of middle and higher vocational education", "the connection of higher education", and the "collaboration between schools and enterprises". This provides research directions and research space for this topic.

In view of this, this research intends to seek breakthroughs in the following three aspects: ① Research perspective. This research is based on the penetration mechanism of the secondary and high-level talent training model as the main line of research, and then explores the relationship between the training objectives, curriculum system, and guarantee system of the secondary and high-level talent training model; ②Research methods. It is planned to conduct research from data analysis methods and case studies; ③ Path construction: Through analysis of the path of "the current situation and characteristics of the cultivation of middle-high-level talents → the reasons for formation → the construction of solutions → the construction of the system for the cultivation of middle and high-level talents".

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