

# Research on the Integration of Craftsman Spirit into Innovation Ability of Higher Vocational Students from the Perspective of Global Skills

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**Abstract:** With the rapid development of the global economy, traditional skilled jobs will disappear due to technological change, and a lot of new skilled jobs (including digital skills, soft skills, green skills, etc.) will be created. In the face of dramatic changes in global skills demand, higher vocational education is in an important transition period. The traditional skill education model can no longer fully meet the requirements of the new era. From the perspective of the integration of craftsman spirit into innovation ability of higher vocational students, this paper will discuss how to cultivate high-quality talents with craftsman spirit and innovation ability through in-depth analysis of the connotation of craftsman spirit and the reconstruction of the times, the characteristics of innovation ability and the difficulties of training, the necessity and urgency of the integration of the two and the challenges they face, and put forward specific integration and cultivation paths, which will provide reference for the reform of higher vocational education.

**Keywords:** Global Skills; Higher Vocational Education; Craftsman Spirit; Innovation Ability; Cultivation Path

## 1. Introduction

### 1.1 China's Skill Transformation in the Context of Globalization

In January 2021, the McKinsey Global Institute released its latest research report, "China's Skill Transformation: Driving the World's Largest Worker Team to Become Lifelong Learners." The report shows that by 2030, as many as 1/3 of the world's job and

skill changes will occur in China. As many as 220 million Chinese workers may change their occupations due to the impact of artificial intelligence. 331 million migrant workers may face the risk of 22-40 % of the work content being replaced by automation. This means that by 2030, China urgently needs to transform its skills effectively.

With the rapid development of the global economy, the boundaries of the industry are increasingly blurred, the nature of work is constantly changing, and knowledge and skills are outdated very quickly. Therefore, in order to meet the needs of the global market, it is necessary to enable students and workers to master a wider range of skills through skills development. More flexible capabilities and continuous updates. New skills mainly include interdisciplinary ability (such as critical thinking, innovation ability), soft skills (such as interpersonal communication ability, craftsman spirit) and digital skills. Table 1. shows some key data.

**Table 1. Skills key data**

Skill Types	Demand Growth Rate	Future Forecast	Demand
Digital Skills	25%	2025 will account for 70 % of all jobs	
Soft Skills	20%	80 % of the jobs will require good communication skills by 2030	
Interdisciplinary Ability	15%	interdisciplinary talent demand will increase by 50 % in the next five years	

These changes not only affect the requirements of enterprises for employees, but also pose new challenges to higher vocational education. Understanding the changing trend of global

skills demand has important guiding significance for the reform and development of higher vocational education in China.

## **1.2 Craftsman Spirit and Innovation Ability under the Guidance of Global Skills**

In the era of globalization in the 21st century, with the rapid development of science and technology and the continuous upgrading of industries, craftsman spirit and innovation ability have gradually become the key capabilities that have attracted worldwide attention. The relationship between craftsman spirit and innovation ability is not opposite to each other, but presents a complementary internal relationship. The craftsman spirit emphasizes the ultimate pursuit of concentration and detail, which often leads to deep innovation. In turn, the improvement of innovation ability also depends on the continuous promotion of craftsman spirit. Under the background of globalization, skilled talents should not only have creativity, but also need to have the concentration, patience and meticulousness in craftsman spirit to ensure the landing and implementation of innovative achievements.

More and more developing countries are also aware of the importance of craftsman spirit and innovation ability in enhancing industrial competitiveness and realizing technological upgrading, and have introduced corresponding policies to strengthen the cultivation of these two aspects. As a global manufacturing power, China has carried out a number of reforms in vocational education in recent years. The government has issued a number of documents to promote the integration of industry and education.[1] For example, the "National Vocational Education Reform Implementation Plan" proposes to cultivate high-skilled talents with craftsman spirit and innovation ability through school-enterprise cooperation. As an emerging economy, India launched the "Skills India Program" in 2013.[2] The program pays special attention to the combination of innovation and craftsman spirit, and helps young people adapt to the rapid changes in global skills needs by introducing modern skills training courses and promoting technological innovation. Vietnam attempts to enhance the country's industrial competitiveness by cultivating innovative skilled workers. The government has issued

the '2011-2020 Vocational Education Reform and Development Strategy'[3], which clearly requires that vocational education should not only pay attention to the cultivation of craftsman spirit, but also strengthen the cultivation of innovative ability. Brazil has vigorously promoted the cultivation of craftsman spirit and innovation ability through institutions such as the SENAI and the SESI [4]. SENAI provides technical and vocational training, focusing on the cultivation of craftsman spirit in practical operation, while SESI stimulates students' innovative potential through technical competitions and project incubation.

In the face of dramatic changes in global skills demand, higher vocational education is in an important transition period. The traditional skill education model can no longer fully meet the requirements of the new era. Although vocational education systems in various countries have achieved certain results in cultivating skilled talents, they still face many challenges in how to cultivate students' innovative ability and the integration of craftsman spirit. According to statistics (the data come from the full-text database of China National Knowledge Infrastructure), from 1983 to 2024, there are only 24 related literatures on the theme search with the index of "integration of craftsman spirit of innovation ability of higher vocational students". It is still an urgent problem to explain how craftsman spirit can be integrated into the cultivation of innovation ability of higher vocational students. This paper will discuss how to cultivate high-quality talents with craftsman spirit and innovation ability from the perspective of integrating craftsman spirit into innovation ability of higher vocational students, and put forward specific and feasible integration cultivation paths, so as to provide reference for the reform of higher vocational education.

## **2 The Necessity of Integrating Craftsman Spirit into Innovation Ability**

### **2.1 The Connotation of Craftsman Spirit and the Reconstruction of the Times**

Craftsman spirit, as a profound professional ethics and work attitude, originated in the era of handicraft industry. It refers to the spirit of concentration, meticulousness, pursuit of

perfection and excellence shown by craftsmen in the production process. The core elements of the traditional craftsman spirit include concentration, meticulousness, pursuit of excellence and perseverance. Under the background of globalization, the traditional craftsman spirit is gradually being endowed with new connotation. On the basis of retaining the traditional core values, the modern craftsman spirit is more integrated into the elements of new technologies and new industries. Especially in today's increasingly mature automation and artificial intelligence technology, a large number of traditional craftsmen's skills are being replaced by machines. At the same time, the skills of 'thinking' — those involving judgment, decision-making, innovation and complex communication — become necessary skills for modern craftsmen. Craftsmen in the new era are no longer just craftsmen, but experts who can think deeply and innovate continuously in their professional fields. From data scientists to environmental designers, they solve complex problems through the use of professional knowledge and creative thinking. Therefore, we can see that the change of craftsman spirit in the global skill perspective is not only the change of skill connotation, but also the reconstruction of overall work ethics and professional role[5].

The global skill vision also provides new opportunities and challenges for the modernization and innovation of the craftsman spirit.[6] On the one hand, craftsmen can learn from the design concepts and techniques of various places, create works with new styles and functions, and display and sell their works globally. On the other hand, the craftsman spirit must constantly renew and innovate itself to cope with the changing international environment and market demand. Higher vocational education and vocational training play a vital role in this process.

## **2.2 The Characteristics and Training Difficulties of Innovation Ability**

Innovation ability refers to the ability of individuals or organizations to put forward new ideas, discover new problems, and creatively solve problems in the face of new situations. This ability involves not only the intellectual activities that produce new ideas,

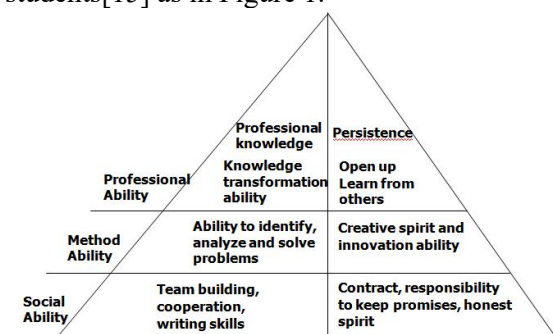
but also the ability to transform these ideas into practical applications. Its constituent elements mainly include creative thinking, practical ability, teamwork and adaptability. Under the background of globalization, innovation ability has become the core driving force to promote economic competition among countries, which puts forward higher requirements for higher vocational students in many aspects. Includes: cross-cultural understanding and cooperation skills to adapt to communication and collaboration in a multicultural environment[7]; sensitivity to the global market and rapid adaptability, timely grasp of international market dynamics and technological development trends; ability to master and apply cutting-edge technologies, such as artificial intelligence and new materials[8,9].

At present, higher vocational education faces many difficulties in cultivating students' innovative ability. First of all, the curriculum design focuses too much on fixed technical skills and lacks interdisciplinary and open content, which limits the development of students' creative thinking. Secondly, the teaching method is mainly based on traditional teaching, less interactive and project-based learning, and the evaluation mechanism fails to effectively measure students' innovation ability. In addition, teachers' training in innovative education concepts and methods is insufficient, and it is difficult to effectively guide students to carry out innovative exploration. The innovation practice environment and resources are often insufficient, which limits students' hands-on practice and innovative experiment opportunities[10-14]. To sum up, higher vocational education needs to improve students' innovative ability in an all-round way to meet the needs of global economic development.

## **2.3 The Global Skill Vision Calls for Integrated Cultivation**

Global skills vision refers to the changes and development trends of countries' demand for talent skills in the context of globalization. According to the International Labour Organization (ILO), it is estimated that by 2025, more than 85 million traditional skilled jobs will disappear due to technological change, and 97 million new skilled jobs (including digital skills, soft skills, green skills,

etc.) will be created. This change requires that higher vocational education must keep up with the pace of the times and cultivate high-quality skilled talents to meet the needs of the global emerging market. Craftsman spirit and innovation ability have become the two cornerstones of its core competitiveness. This paper draws on Raul Ernst's professional ability division method to define the quality structure of the craftsman spirit into the innovative ability of higher vocational students[15] as in Figure 1.



**Figure 1. The Quality Structure**

In the face of the rapid iteration of global skills, integration and cultivation have become an inevitable choice[16]. First of all, with the acceleration of industrial upgrading and transformation, emerging industries are constantly emerging, and the demand for talents has shifted from single skills to compound diversity. Integration and cultivation can enable students to better adapt to market demand. Secondly, the craftsman spirit and innovation ability are an important part of personal professional quality. Their integration helps to improve the individual's comprehensive professional quality and enhance the employment competitiveness. The urgency of integrated cultivation cannot be ignored. The global demand for skills changes rapidly, and new technologies and processes emerge in an endless stream, which requires talents to have the ability to learn and practice quickly. At the same time, the competition for talents is becoming increasingly fierce, and talents with craftsman spirit and innovation ability are more favored by the market. In addition, the trend of education reform also emphasizes the cultivation of practical ability and innovative spirit[17], and integration cultivation is an important measure to respond to this trend.

To sum up, the integration of craftsman spirit and innovation ability is of great significance

to higher vocational students, higher vocational education and social development. It can not only improve students' comprehensive quality and employment competitiveness, but also inject new vitality into the sustainable development of higher vocational education and promote the innovative development and progress of the global society. Therefore, it is particularly important to explore and implement effective integration cultivation strategies.

### **3. Challenges Faced by the Integration of Craftsman Spirit into Innovation Ability**

#### **3.1 Contradictions and Conflicts between Craftsman Spirit and Innovation Ability**

The contradiction and conflict between craftsman spirit and innovation ability are mainly reflected in the different attitudes towards tradition and change. The craftsman spirit emphasizes the pursuit of details, the persistence of quality and the excellence of skills. Innovation ability requires breaking the routine, daring to try and accept failure, emphasizing flexibility and adaptability. This opposition makes students face a dilemma in the learning process: whether to focus on the inheritance of traditional crafts or to dare to explore unknown fields. In higher vocational education, too much emphasis on craftsman spirit may lead students to lag behind in the face of rapidly changing market demand and unable to adjust their skills and ways of thinking in time. On the contrary, if the pursuit of innovation is too much, it may make students ignore the accumulation of basic knowledge, resulting in a shallow taste of skills.

This contradiction is not only reflected in the students' learning process, but also in the education system and social cognition.

#### **3.2 The Restriction of Higher Vocational Education System on Craftsman Spirit and Innovation Ability**

There are many constraints on the cultivation of craftsman spirit in the higher vocational education system, which are mainly reflected in the curriculum setting, evaluation system and teachers. The lack of practicality in the course content of many higher vocational colleges leads to students' inability to truly understand and master the core essence of the



craftsman spirit in actual operation. The current evaluation system is mainly based on test scores, which makes students often ignore the connotation understanding and practical application of craftsman spirit in the process of pursuing high scores. The lack of teachers is also an important factor restricting the cultivation of craftsman spirit. At the same time, the curriculum of some higher vocational education cannot meet the needs of emerging industries and technologies, which limits students' innovative thinking and vision. Insufficient heuristic and inquiry learning in teaching methods is not conducive to stimulating students' innovative potential and cultivating innovative ability. In addition, the lack of innovative resources is also a problem that can not be ignored to limit the development of students' innovative ability.

On the whole, the cultivation of craftsman spirit and innovation ability faces common constraints in the higher vocational education system, such as the disconnection between theory and practice, the single evaluation system, the rigidity of curriculum setting and the lack of innovation resources. Therefore, the reform of higher vocational education system must break these constraints and create a better environment for the cultivation of craftsman spirit and innovation ability.

### **3.3 The Influence of Social Cognition on Craftsman Spirit and Innovation Ability**

The influence of social cognition on craftsman spirit and innovation ability is far-reaching and complex. In the traditional concept, the craftsman spirit is often regarded as a persistent pursuit of details and quality, representing the value of stability and reliability. With the rapid development of social economy, innovation ability has gradually become an important standard to measure the competitiveness of individuals and organizations. This change makes the craftsman spirit marginalized to some extent, especially the younger generation is more inclined to pursue rapid success and instant return, ignoring the patience and persistence contained in the craftsman spirit.

The society's cognition of high-skilled occupations also affects the spread and practice of craftsman spirit. Many families and social environments are more inclined to pursue highly educated and well-paid

occupations, and lack of understanding of the professional values of technicians and craftsmen. At the same time, the society attaches great importance to innovation, which makes the cultivation of talents often focus on the improvement of innovation ability, while ignoring the cultivation of craftsman spirit. This one-sided pursuit may lead to students' shortcomings in mastering skills and unable to achieve real innovation in practical work. Craftsman spirit and innovation ability are not opposite. Society should re-examine the value of craftsman spirit and encourage young people to combine it with innovation ability to form a comprehensive professional quality.

## **4. Cultivating Path of Integrating Craftsman Spirit into Innovation Ability**

### **4.1 Higher Vocational Colleges to Update the Educational Philosophy and Educational Objectives**

Under the background of the rapid iteration of global skills, higher vocational colleges, as an important position for cultivating high-quality skilled talents, are facing unprecedented challenges and opportunities in their educational philosophy and educational goals. Higher vocational colleges should update the concept of running a school and deeply integrate the spirit of craftsmen with the ability of innovation as an important goal of educating people.[18] It aims to cultivate high-quality skilled talents with both exquisite skills and innovative thinking. Higher vocational colleges should be based on the basis of local and professional training, keep up with the national excellent higher vocational colleges and the global frontier vocational education, take the cultivation of craftsman spirit and innovation ability as the dual goal of educating people, guide students to establish correct professional outlook and values, and enhance their intention and determination to learn professional knowledge and skills. Higher vocational colleges should fully consider the dialectical relationship between craftsman spirit and innovation ability, and build a talent training mode in which the two are juxtaposed and mutually promoted. Specifically, when implementing the goal of educating people in higher vocational colleges, on the one hand, we should pay attention to tap the spiritual characteristics of the colleges themselves,

cultivate students' sense of identity with the craftsman spirit, and use campus cultural activities, cultural slogans, communities and other forms to let students feel the charm of the craftsman spirit in close proximity and stimulate their enthusiasm for learning; on the other hand, we should encourage students to explore and innovate, and provide students with a platform to show themselves and realize their values by setting up innovative education courses and innovative practice projects, so as to cultivate their innovative consciousness and practical ability.

#### **4.2 Reform of Practice Teaching and Curriculum System in Higher Vocational Colleges**

Practical teaching is an important starting point for the integration of craftsman spirit and innovation ability. In higher vocational education, individualized practical teaching is particularly important. According to students' skills, interests and innovation ability, customized differentiated learning module. Through project-based learning, work-study alternation, school-enterprise cooperation, etc., students can experience the craftsman spirit in real scenes, encourage them to use knowledge to solve practical problems, and stimulate innovative thinking. For example, the field engineer project[19] introduces real work scenes, allowing students to experience the charm of the craftsman spirit in the process of solving practical problems and learn to pursue excellence in details. At the same time, students are encouraged to propose innovative solutions and cultivate their ability to think independently and solve problems. Through such practice, students not only master professional skills, but also subtly form the dual qualities of craftsman spirit and innovation ability. The curriculum system is an important carrier for the cultivation of craftsman spirit and innovation ability. On the one hand, the craftsman spirit should be integrated into the education and teaching links. When higher vocational teachers teach curriculum knowledge, they can subtly infiltrate the craftsman spirit, such as explaining the major-related craftsmen's deeds through case teaching, and stimulating students' professional pride and sense of responsibility. On the other hand, the education of craftsman spirit and innovation ability should be

integrated into general courses and professional courses, and the relevant thematic education should not be less than a certain period of time. In the general curriculum setting, we can set up characteristic courses, school-based courses and career planning guidance courses to promote the craftsman spirit, help students deeply understand the connotation and value of the craftsman spirit, and guide students to form an upward career outlook. In terms of professional courses, we should combine professional characteristics, job characteristics and industry characteristics, analyze and integrate the elements of craftsman spirit that fit professional courses, encourage students to actively understand the craftsman spirit and transform it into innovative ability.

#### **4.3 Higher Vocational Colleges Integrate Ethics Education and Entrepreneurship Education**

The education of higher vocational colleges should closely focus on the goal of cultivating high-skilled talents with craftsman spirit and innovation ability, deeply integrate ethics education with entrepreneurship education, so as to meet the needs of rapid development of global economy and society, and create contemporary youth who not only meet the requirements of the development of the times but also have craftsman spirit and innovation ability. Through the effective integration of personal value realization and social needs, college students can fully show themselves in the process of practice. In the process of promoting the deep integration of ethics education and entrepreneurship education, higher vocational colleges should actively develop and utilize ethics education resources and platforms. Through various ethics education resources, students can deeply understand the connotation and value of Chinese excellent traditional culture and craftsman spirit. At the same time, we should make full use of the resources such as entrepreneurship center, training base, scientific research platform and social practice base established by the school, so that students can have the opportunity to find and solve problems in practice while receiving ethics education and entrepreneurship education, so as to improve their awareness and basic quality of innovation and entrepreneurship in practice.

Higher vocational schools should also increase the introduction of social resources in depth and breadth. Through cooperation with enterprises, students have the opportunity to practice in enterprises, and enhance their competitive advantage in employment and entrepreneurship through the improvement of practical ability. In this process, students can not only deeply understand the craftsman spirit and scientific spirit, but also establish a rich and three-dimensional carrier of innovation and entrepreneurship and ethics education, laying a solid foundation for their future development.

#### **4.4 Teachers with Double Qualities of "Introducing" and "Cultivating" in Higher Vocational Colleges**

In the era of globalization, cultivating high-skilled talents is the core mission of higher vocational colleges, and the cornerstone of this mission lies in "introducing" and "cultivating" teachers with the dual qualities of craftsman spirit and innovation ability. Such a group of teachers not only has profound theoretical knowledge and rich practical experience, but also has the characteristics of not being impetuous, pursuing excellence, being good at thinking, and being brave to try. It can make a good moral character demonstration for students and become a fertile soil for students' craftsman spirit and innovation ability. Therefore, higher vocational colleges need to adopt a two-pronged strategy of 'introducing' and 'cultivating'. In the aspect of "cultivating", a set of teacher cultivating, assessment and promotion mechanism suitable for the characteristics of higher vocational colleges is constructed. By improving the teacher's enterprise practice system, regularly dispatching teachers to go deep into the front line of the enterprise, learning and mastering the most cutting-edge operation technology, and closely following up its follow-up practice results, and closely linking the enterprise practice experience with the teacher's performance appraisal and professional title evaluation, so as to broaden the promotion channel of teachers, stimulate their enthusiasm and initiative to participate in practice, and comprehensively improve their practical ability. At the same time, the cultivation of craftsman spirit and innovation ability is integrated into every link of daily teacher

training, so that these two kinds of spirit become the necessary professional quality of every teacher. In terms of "introducing", higher vocational colleges should formulate policies in line with the laws of vocational education, abandon the prejudice of only academic qualifications, and adhere to the principle of equal emphasis on theory and practice. Actively introduce experienced and skilled teachers with profound theoretical knowledge, so that they can play a key role in guiding students' practical training. In addition, hiring excellent backbones of relevant enterprises as part-time teachers can not only bring vivid practical guidance to students, but also set up case lectures to broaden students' horizons and enhance students' practical ability.

#### **5. Conclusion**

To sum up, from the perspective of global skills, the integration of craftsman spirit and innovation ability is of great strategic significance to higher vocational students, higher vocational education and social development. It can not only improve students' comprehensive quality and employment competitiveness, but also inject new vitality into the sustainable development of higher vocational education and promote the innovative development and progress of the global society. At present, higher vocational education still faces many challenges in the combination of craftsman spirit and innovation ability. The rigidity of the education system, the single curriculum setting and the lack of social cognition all restrict the cultivation of "craftsman + innovation" talents. Therefore, we must take effective measures to update the concept of running a school, optimize the goal of educating people, build a diversified curriculum system, pay attention to practical ability, and cultivate a team of teachers with the dual qualities of craftsman spirit and innovation ability. Through systematic education reform and practical exploration, we are expected to cultivate higher vocational students with both craftsman spirit and innovation ability, and contribute to national economic development and social progress.

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## References

- [1] Liang Lanqing. An Empirical Study on the Impact of National Industry-education Integration Policy on Enterprise Innovation, 2022.
- [2] Tao Yuan. India's Skills Development Program Promotes Comprehensive Student Development. World Education Information, 2013, 26 (21): 75-75.
- [3] Liu Chen. Policy Analysis of Vocational Education in Vietnam under the Background of Digital Economy. Comparative Education Research, 2021, 43 (10): 47-54.
- [4] Hou Cuihuan, Qu Shujie. An Important Force in Adult Vocational Education - S-System in Brazil. Journal of Inner Mongolia University (Philosophy and Social Sciences), 2014, 46 (1): 108-112.
- [5] Ye Long, Wang Rui, Tang Wei. Living with "Thinking": the Essence of Skills and the Reconstruction of Craftsman Spirit in the New Era. Journal of Tsinghua University (Philosophy and Social Sciences Edition), 2019, 34 (4): 125-132, 202.
- [6] Tina. Chinese Craftsman and Quality Era. The First China Design Theory and the First National "Chinese Craftsman" Cultivation Summit Forum, Shanghai, 2017.
- [7] Gao Baoli, Wang Qi, Jin Dongxian. Intercultural Education in Higher Vocational Colleges under the Background of "the Belt and Road" Construction. Tsinghua University Education Research, 2024, 45 (3): 104-110.
- [8] Gao Wen. Analysis of Cutting-edge Technologies and High-quality Development of Artificial Intelligence. Xinhua Abstracts, 2024 (9): 126-131.
- [9] World Frontier Technology Development Report 2024. Electronic Industry Press, 2024.
- [10] Fang Jing, Xian Canbiao. Exploration and Practice of Talent Innovation Ability Training Mode under the Background of Higher Vocational Enrollment Expansion - Taking Food Specialty as an Example. Modern Food, 2024, 30 (1): 90-94.
- [11] Liu Shuiqing. Analysis on the Reform of Higher Vocational Teaching Management and the Cultivation of Students' Innovative Ability. Life Education, 2023 (18): 48-50.
- [12] Lu Mengxiong, Peng Yun. The Construction of Multi-dimensional Characteristic Platform for the Cultivation of Innovative Ability of Higher Vocational Students. Agricultural Machinery Use and Maintenance, 2024 (1): 140-144.
- [13] Hu Hong. Higher Vocational Students' Innovative Ability Training. Vocational Education Forum, 2010, 26 (14): 78-80.
- [14] Zhang Yu. Analysis on the Cultivation of Innovative Ability of Higher Vocational Students. Vocational Education Forum, 2012, 28 (2): 57-59.
- [15] Ye Zhao, Zhang et al. Research on the Path of "Three Spirits" Advocated by Higher Vocational Colleges-based on the Background of Skilled Social Construction. Journal of Ningbo Polytechnic, 2024, 28 (4): 43-49.
- [16] Kuang Ying. Outstanding Problems and Solutions in the Cultivation of Technical and Skilled Talents. People's Forum, 2022 (21): 73-76.
- [17] Zhang Jian. To Implement the "National Vocational Education Reform Implementation Plan", We Must Pay Attention to the Innovation of the Lower Level. Research on the Development of Vocational Education, 2019 (2): 13-16.
- [18] Zhang Jian. The High Standard of Vocational Educators: Innovation Ability, Craftsman Spirit and Professional Personality. Contemporary Vocational Education, 2020 (2): 31-37.
- [19] Wang Hengan. Research on the Application of Engineering Practice Innovation Project (EPIP) Teaching Mode in the Training of Field Engineers. Vocational Education Research, 2024 (7): 17-22.