

How to Implement Modern Apprenticeship under the Background of Multiple Sources of Students-thinking based on the Current Situation of Higher Vocational Enrollment Expansion

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Abstract

From 2019 to 2021, the enrollment of higher vocational colleges will increase by 1 million every year. As one of the types of enrollment expansion, the social source of students will bring great challenges to the talent training mode and teaching management of higher vocational colleges because of the great differences in learning and life experience between them and the fresh high school graduates. Since the pilot work of modern apprenticeship in China, it has provided a new education mode for the development of Vocational Education in the new period. Especially, it has put forward new requirements and caused new problems for higher vocational colleges to carry out "double subject" education practice after enrollment expansion. Based on the necessity, Dilemma and influencing factors of modern apprenticeship under the background of multiple enrollment expansion, this paper focuses on the methods and ways to get rid of the dilemma, in order to provide theoretical reference for the implementation of modern apprenticeship in the form of "government guidance, industry supervision, school enterprise participation" at the present stage.

Keywords

Multiple Sources of Students; Modern Apprenticeship; Higher Vocational Enrollment Expansion.

1. Introduction

The diversified social students of Higher Vocational enrollment expansion are mostly faced with multiple problems, such as retirement and job transfer, career transformation, employment difficulties, poor learning ability and so on. They need to master the technical skills that meet the requirements of employment in a short period of time to obtain re employment or promotion opportunities. Under the modern apprenticeship mode, the "Double Tutorial System" and the learning mode of work study alternation meet the internal needs of this part of social students. "Double tutor system" requires enterprise tutors (Masters) to participate in the revision of talent training program, curriculum reform and practical teaching in higher vocational colleges, match the learning arrangements of different students with flexible teaching guidance methods such as project practice, post following and post replacement, and give students (apprentices) corresponding salary according to the completion of post tasks, so as to solve the problem of social students It is difficult to unify with learning. Excellent enterprise tutors (Masters) can not only impart basic business knowledge and basic operation skills, but also impart excellent work style, noble professional ethics and safety production experience to their apprentices. They can patiently solve various problems raised by students (apprentices), regard leading apprentices as their responsibility and obligation, and effectively improve their skills Teach to students (apprentices), so that students (apprentices) lifetime benefit [2].

2. Interpretation of Core Concepts

2.1. Higher Vocational Enrollment Expansion

Since 2019, Premier Li Keqiang proposed in the government work report that we should reform and improve the examination and enrollment methods of higher vocational colleges, and encourage more high school graduates, retired soldiers, laid-off workers, migrant workers and other groups to apply for the examination. The enrollment expansion of higher vocational colleges has completed more than 1.16 million people. In the 2020 government work report, it is proposed again that the enrollment of higher vocational education should be expanded by 2 million in 2020 and 2021. In 2019, the Ministry of education and other six departments issued the "implementation plan for special work of Higher Vocational enrollment expansion", which clearly requires higher vocational colleges to do a good job in classified education management. According to the working experience, technical skills and learning needs of different students, we should innovate the practice management mode and carry out flexible and diverse practice teaching. At the same time, it is necessary to strengthen the construction of the teaching staff in higher vocational colleges, and speed up the supplement of urgently needed professional teachers through the integration of resources, the cultivation of special training, the cooperation between schools and enterprises, the supplement of "silver age lectures" and the part-time work of social forces. One of the impacts of this round of Higher Vocational enrollment expansion is that the types of students in higher vocational colleges are more complex and diverse. In addition to fresh higher vocational graduates, a certain number of social students have been added. There are great differences in their age structure, educational level, work and life experience, including laid-off and unemployed people, who need to obtain re employment opportunities through re employment post ability training. Multiple sources of students make higher vocational colleges need to make full use of all educational resources, comprehensively carry out the modern apprenticeship characterized by "double subject" education between school and enterprise, and combine the strength of industry enterprises in the formulation of training plan, construction of curriculum system, selection of teaching methods and determination of evaluation subjects and methods, so as to strive to build an ecological system of school enterprise integrated education.

2.2. Modern Apprenticeship

The formulation of "modern apprenticeship" can be traced back to 1883. Based on the research on the economic and social development of Britain, which had the highest degree of industrialization at that time, and referring to the industrial education situation in France, the society of social politics in Basel, Switzerland, first proposed the establishment of a New Apprenticeship mode combining school education with practical work. Apprenticeship real scene situational learning, apprenticeship learning by doing, teaching by doing, individualized teaching have advantages and values that other forms of education can not replace. All countries carry out modern apprenticeship according to their own economic, social and cultural background, with national characteristics, which are worthy of learning and reference [3]. On the whole, apprenticeship system is divided into two systems in the world, namely, Nordic system and Anglo Saxon system. However, the Nordic system represented by the "dual system" in Germany, with the characteristics of school and enterprise as the dual masters of sports, is also an important foothold of the modern apprenticeship system in China. At present, China has made clear the direction of vocational education reform to vigorously develop modern apprenticeship at the national level. Although the management mechanism of modern apprenticeship education mode has been initially established, on the whole, the system and mechanism related to modern apprenticeship in China have not been straightened out, and a smooth, rigorous, meticulous and efficient management system has not yet been formed.

3. Based on the Background of Multiple Students, This Paper Analyzes the Necessity of Implementing Modern Apprenticeship

3.1. Meet the Needs of New Technology Development and Application

At present, the development and application of new technology affect the reform of talent training mode in higher vocational education through different ways. The diversified source of students after the expansion of higher vocational education puts forward multiple challenges to the school's talent training work. There are many difficulties in the training objectives, training process and training subject in the reform of talent training mode. It is difficult to cope with the demand of new technology development for talent training, and it is urgent to change Reform and improve the personnel training mode [4]. The successful experience of modern apprenticeship in Vocational Education in developed countries can prove that it can also play an important role in the development of China in the new era. In the era of new technology, there are endless debates about "machine replacing people", which put forward higher requirements for talent specifications, The new technological change has also changed the work process, including the division of labor in the work process, the research of work methods, the integration of service and production, etc. the overall work process tends to be more comprehensive and complex, and the work that is only responsible for single post operation and only engaged in production according to standards will gradually decline [5]. Therefore, the talent training goal of modern apprenticeship system should be oriented to intelligent technical talents, and the training process should have a certain degree of convergence, so as to promote the realization of lifelong vocational education.

3.2. The Need of Constructing the Education System of School Enterprise Integration

December 25, 2020, Ministry of Education The people's Government of Zhejiang Province issued the opinions on promoting the integration development of vocational education and private economy and assisting the construction of "dynamic Wentai", which put forward clear requirements on stimulating enterprises to participate in the new kinetic energy of vocational education, innovating the mode of school enterprise cooperation in the integration of production and education, and promoting the efficient flow of production and education talents, so as to promote the integration development of vocational education and private economy in Wentai from the government level . One of the highlights of the "opinions" is to build a comprehensive data platform for Wentai school and enterprise, realize intelligent matching of talent supply and demand data between school and enterprise, and intelligent matching of training, internship and employment. Therefore, it is necessary to build a school enterprise integration education system and cultivate talents needed by enterprises through modern apprenticeship, order class and other school enterprise cooperation education modes.

3.3. The Need of Cultivating "Double Tutor" Teaching Team of School and Enterprise

After the enrollment expansion of higher vocational colleges, according to the relevant statistical data, some higher vocational colleges will have a short-term shortage of teaching resources, including the shortage of teachers on campus. There are also some difficulties in hiring part-time teachers off campus. The student teacher ratio, which represents an important indicator of the level of higher education, has been seriously impacted. In the existing school teaching staff, the proportion of "double qualification" teachers is generally low, the practical experience of teachers is not enough, most of the teachers have not participated in the front-line work of enterprises, and there are not enough technical backbones and business advanced personnel from enterprises, so they can not effectively carry out modern apprenticeship

teaching activities. Therefore, higher vocational colleges need to cooperate with enterprises to carry out project-based teaching and production practice activities, let teachers join the project team, participate in the whole process of project implementation, and accelerate the cultivation of "double qualified" teacher team. At the same time, through effective incentive and guarantee policies, we employ enterprise technical backbones as mentors of modern apprenticeship enterprises, so that students participating in apprenticeship projects can get first-hand technical skills guidance and master the ability to meet the needs of the post. In other words, the school can rely on the practice and training base inside and outside the school, and the small and medium-sized enterprises can set up the R & D Center for technological transformation and service upgrading in the training base. Through the productive project practice, the teachers' R & D and innovation ability and the ability of cooperation and communication with enterprise tutors can be enhanced, and the modern apprenticeship "double tutor" teaching team can be cultivated.

3.4. The Need to Cultivate "Great Power Craftsmen" in the New Era

At present, the fundamental purpose of comprehensively promoting the implementation of modern apprenticeship in China is to cultivate "big country craftsmen" who can solve complex problems in the field of work, have the ability to learn new technologies and adapt to the general ability of the new era. Craftsman spirit is "a kind of value orientation that is full of awe for profession, dedicated to work, pursuing excellence for products, advocating perfection for service, and ending in perfection for life.". In the individual craftsman, it is mainly manifested in the excellent quality of concentration, patience, perseverance, innovation and dedication; in the product and service, it is mainly manifested in the unique quality of people-oriented, excellence, perfection and perfection. What is different from the past is that the students (apprentices) participating in the apprenticeship project are either the "aborigines" of new technology or the "fans" of new technology. They already have the "gene" of new technology application. Coupled with the cultivation of modern apprenticeship craftsman spirit, they have formed the "craftsmanship" and "sticking neck" that can be engaged in high-end manufacturing, high-quality manufacturing and intelligent manufacturing industries "The "Craftsmanship" of the problem.

4. Facing the Dilemma of Modern Apprenticeship Implementation, This Paper Analyzes its Influencing Factors

At the level of modern apprenticeship management mechanism, although local governments and education authorities at all levels are responsible for the macro management of vocational education, the definition of rights and responsibilities of local governments and education authorities in promoting modern apprenticeship is relatively vague. In fact, the main body responsible for the implementation of modern apprenticeship management is higher vocational colleges themselves, while higher vocational colleges are mobilizing educational resources, especially the students. The ability of social education resources is not strong, and it is often inadequate in the process of implementing modern apprenticeship. At present, China's modern apprenticeship only exists as a supplement to vocational education, and has not yet formed an independent and influential education mode.

4.1. External Factors

4.1.1. The Government's Function of Encouragement, Supervision and Coordination has not been Brought into Full Play, Leading to the Loose Organization of the Pilot Work

Countries with better development of modern apprenticeship have set up special institutions to serve and manage modern apprenticeship, comprehensively coordinate the responsibilities

and rights of the government, industry associations, schools and enterprises, and ensure that students (apprentices) can obtain high-quality vocational education and training. At present, there is no special department responsible for the management, coordination and supervision of the implementation of apprenticeship in government agencies, industry associations and higher vocational colleges, which makes the modern apprenticeship in some higher vocational colleges can only be implemented in the form of organizing the application of teaching reform projects. Even if a certain project has achieved certain results, there is no special way to connect Intermediary agencies can not get the opportunity to cooperate with more enterprises. Schools and enterprises can only carry out the exploration of modern apprenticeship in order to complete the task because they are not supported and guided by the corresponding incentive policies at the government level. However, there are few cases that can continue to promote the modern apprenticeship. There are still empty generalization of the concept of modern apprenticeship, forming a disordered situation of "one expression, many practices" in practice.

4.1.2. The Rights and Responsibilities of Enterprises and Other Stakeholders are not Clear, Leading to Low Enthusiasm for Participation

At present, there is no clear legal provisions on the legal status of modern apprenticeship, the relevant main responsibilities and obligations, and the corresponding funding investment, which makes the system unable to be as binding as the law, so that the modern apprenticeship has no reliable force in the enterprise and no credibility in the society. Even at the government level, some policy documents have been issued, such as the "decision of the State Council on accelerating the development of modern vocational education" and "opinions on the pilot work of modern apprenticeship", but due to the lack of mandatory, the expected results can not be achieved in the process of system implementation. Moreover, when enterprises participate in the modern apprenticeship, they have to provide insurance, pay wages, and solve the problem of accommodation, etc., and the cultivation of talents has the characteristics of delay and potential. Therefore, enterprises do not receive direct benefits from the investment of these costs. In addition, the non-governmental incentive policies or the benefit supply of schools will inevitably reduce the enthusiasm of enterprises to participate in the modern apprenticeship, Finally, it leads to the embarrassing situation that enterprises are cold and schools are hot, not to mention the screening of cooperative enterprises, resulting in the low matching degree of cooperation, affecting the quality of modern apprenticeship, thus forming a vicious circle [7].

4.1.3. The Unbalanced Development of Regional Economy Leads to the Unbalanced Promotion of Modern Apprenticeship

A large part of the reason why German dual system has become the paradigm of modern apprenticeship is that Germany is in a leading position in the global manufacturing industry, and manufacturing in Germany is undoubtedly synonymous with high-quality products. The development level of regional economy is closely related to the development level of vocational education, which directly puts forward requirements for the supply side reform of vocational education. At present, although there are still various problems in the implementation of modern apprenticeship in China, the pilot work has achieved remarkable results in economically developed areas such as Guangdong Province. Relying on the development of modern apprenticeship standards, Guangdong province guides vocational colleges and enterprises with high-end talent demand to carry out modern apprenticeship cooperation for specific jobs by defining the access standards of cooperative enterprises, modern apprenticeship target positions and corresponding abilities, so as to enable students (apprentices) to become talents on the job, grasp the main line of "leading typical tasks" and implement it effectively" Both education and post "[8].

4.2. Internal Factors

4.2.1. The Lag of Modern Apprenticeship Management System Leads to Insufficient Guarantee

The implementation of modern apprenticeship personnel training, hierarchical design and implementation of a systematic and complete management system is the foundation, because the system is the foundation of organizational development, but also restricts the basis of individual rational choice [9]. At the national macro level, although the implementation of modern apprenticeship has not been regarded as a compulsory law to bind the relevant subjects, since 2014, the national level has successively issued policy documents with guiding role, and the local government has also responded positively. In the documents related to school enterprise cooperation and integration of industry and education, the implementation of modern apprenticeship has been put in a prominent position. However, in the micro implementation level, as one of the main responsibility subjects of modern apprenticeship, higher vocational colleges have lagged behind in the system construction of enrollment, teaching and student management, and lack of dynamic adjustment and supplement mechanism. The core element of modern apprenticeship is the "double subject" education between school and enterprise. However, due to the weak willingness of enterprises to participate, few of them can give opinions on the implementation and management of modern apprenticeship, and the cooperation between school and enterprise basically stays at the level of agreement.

4.2.2. Modern Apprenticeship "Double Tutor" Team is not Stable, Leading to Insufficient Teaching

Generally speaking, the teaching tasks of the courses related to the implementation of modern apprenticeship mode are jointly undertaken by school teachers and enterprise tutors (Masters), forming a double tutor system. At present, both school teachers and enterprise tutors (Masters) have "congenital deficiencies" in professional background or professional skills. School teachers lack practical experience, and enterprise tutors (Masters) lack teaching theoretical basis. In addition, there is a lack of cooperation and communication between school teachers and enterprise tutors (Masters), and enterprise tutors (Masters) do not understand the students' theoretical learning, so they can not achieve the goal of guiding practice, and they can not let school teachers adjust teaching in time, resulting in the poor effect of students (apprentices) learning by doing and doing by learning [10].

4.2.3. In Modern Apprenticeship, the Relationship between Teachers and Apprentices is not Stable, Which Leads to the Lack of Sustainable Development

Compared with school teachers, in the absence of relevant legislation in our country, the relationship between enterprise tutors (Masters) and students (apprentices) lacks legal constraints, which is manifested as a kind of teacher apprentice relationship under an implicit contract, and ethical responsibility becomes the link to maintain the relationship between enterprise tutors (Masters) and students (apprentices) [11]. In the traditional apprenticeship system, the master accepts only one apprentice at a time, or even only one apprentice within three, five or ten years. It is difficult not to have emotional relationship because of the stable, long-term and exclusive characteristics of the traditional apprenticeship relationship. In contrast, in modern apprenticeship, there are different masters in different grades and different courses. One master has to bring more than one apprentice, and there are school teachers besides the master. Frequent changes between teachers and apprentices make it difficult for them to establish a deep emotional relationship. In addition, the substitution anxiety of the master, including the future skill substitution anxiety and the reduction of the existing work efficiency, leads to the low enthusiasm of the participants of the modern apprenticeship mode, and the limited sustainable development of the pilot project [12].

5. Discussion on the Methods and Ways to Solve the Problem

5.1. Strengthen System Guarantee and Policy Support

First of all, the government should aim at the problems encountered in the process of modern apprenticeship pilot, based on the achievements, speed up the legislation and law revision of modern apprenticeship education. The legal status of modern apprenticeship in the field of vocational education and the rights, responsibilities and interests of each educational subject should be clarified through the legislation of national legal organs; secondly, local governments at all levels should formulate local laws and regulations and management regulations of modern apprenticeship, and provide guidance for each educational subject to regulate their own behavior through a sound legal system; thirdly, local governments at all levels should follow the regional economic development. According to the development of modern apprenticeship, we should organize vocational colleges, industry organizations and enterprises to jointly develop the operation mechanism of modern apprenticeship management, issue relevant system documents, and ensure that all aspects of modern apprenticeship work, such as enrollment management, teaching management, student management, teacher team building, assessment and evaluation, quality supervision, are carried out in a standardized and orderly manner; fourth, higher vocational colleges should aim at the development of modern apprenticeship education. Reform the educational management system. On the one hand, the modern apprenticeship has the characteristics of flexible educational process, alternative teaching sites and diversified teaching contents, so the educational management of higher vocational colleges needs flexibility; on the other hand, the modern apprenticeship is an educational model of cultivating students (apprentices) jointly by multiple subjects, so the reform of the educational management system of higher vocational colleges should pay attention to the definition and implementation of the rights and responsibilities of all parties involved. Coordination of benefits [13].

5.2. Stimulate the Enthusiasm of the Organization and Participants

The government and trade associations are the main bodies of modern apprenticeship, which must play their macro and meso functions. First, the government should do a good job in the top-level design of interest coordination, realize the functional transformation, from the single introduction of principled opinions or policies to guide the implementation of modern apprenticeship to the formulation of implementation rules, especially in the legal system to protect the legal status of modern apprenticeship, ensure the rights and responsibilities of schools, enterprises and other participants, and stimulate the enthusiasm of the participants to participate in the practice of modern apprenticeship; second, the government should strengthen the legal system of modern apprenticeship. It is to give full play to its macro-control function, reasonably allocate social resources, provide high-quality vocational and technical talent resources for social development, improve social productivity, and promote economic development and social stability [14]. As a kind of social intermediary organization with enterprises as the main participants, the industry association should, on the one hand, closely contact with enterprise operation and market dynamics, fulfill the responsibilities of publishing industry talent demand, promoting school enterprise cooperation, participating in guiding education and teaching, and carrying out quality evaluation, and establish a system of forecasting industry human resource demand and publishing employment status regularly; on the other hand, give full play to resource mobilization and management. In the process of promoting the modern apprenticeship education mode, the industry association takes the lead in organizing vocational colleges and enterprises to build an education platform [15]. Enterprises, schools and other participants should deepen the "double subject" education mechanism, and mobilize the enthusiasm of enterprise masters, school teachers and students.

First, enterprises can go deep into all aspects of modern apprenticeship personnel training through a variety of ways, such as participating in curriculum setting, formulating assessment and evaluation standards, so as to control the training quality of students (apprentices) in the whole process of talent joint training, so as to reduce the risk of substandard talent quality in students (apprentices) training projects; second, both sides of schools and enterprises can take a variety of measures to "double tutors" "To cultivate. The first is to send school teachers to enterprises regularly to participate in professional skills operation training and hold academic exchange activities, so that school teachers can learn advanced professional knowledge and practical skills; the second is to organize classroom teaching ability and professional theoretical knowledge training for enterprise tutors (Masters) regularly, so that enterprise tutors (Masters) can learn advanced education concepts and teaching methods and improve their teaching quality Third, in view of the adult nature of the enrollment expansion, we should highlight their demand for Vocational and technical skills training, fully consider the learning characteristics of multiple sources of students, respect their career accumulation and practical experience, and distinguish them from the original full-time students training in terms of teaching design, teaching implementation, management mechanism, etc., so as to stimulate the learning initiative of adult students.

5.3. Open up the Two-way Flow Channel of Teachers (Masters)

After the expansion of higher vocational education, the form of teaching organization in the school is more flexible, such as recruiting students in cooperative enterprises and setting up independent teaching classes. All students (apprentices) are employees of the enterprise, and the enterprise will bear the tuition fees of the employees. In order to ensure the balance between work and study, the teaching place of enterprise class is basically set inside the enterprise, and the class time is also adjusted according to the work and rest time of the enterprise. The teaching team of the enterprise class is composed of full-time and part-time teachers (Masters) jointly selected by the school and the enterprise. The teaching implementation of the enterprise class is: first, the school supervises and assesses the teaching process of the enterprise tutors (Masters) to urge them to improve their teaching skills and ensure the quality of teaching; second, the school issues the letter of appointment to the enterprise tutors (Masters) who meet the requirements of the teachers The third is to establish the personal file of enterprise Tutor (Master), which not only brings the teaching work of enterprise Tutor (Master) into the school's talent training program, but also feeds back the teaching workload and assessment evaluation of enterprise Tutor (Master) to the enterprise as one of the basis of enterprise personal workload assessment [16]. According to the performance of students (apprentices) brought by enterprise tutors (Masters) and their own knowledge contribution, enterprises should promote or promote excellent masters. In addition, they should also determine the level of salary according to skills and performance, so as to improve the salary satisfaction of enterprise tutors (Masters) and promote them to play the maximum apprenticeship function.

5.4. Implementation of Modern Apprenticeship and Supervision

In February 2019, the national vocational education reform implementation plan once again made it clear to strengthen the standard construction, and proposed to promote the teaching standards, qualification certification, teacher standards, teaching quality standards and other aspects as a whole. Therefore, it is necessary to formulate a unified quality standard and certification mechanism to ensure the normalization of modern apprenticeship. First, the government's human resources and social security departments should organize relevant institutions and industry enterprises to build a professional qualification certification system that can cover all occupations, reflect the ability requirements and have general effects. In order to make the vocational qualification certificate obtained by students (apprentices) meet the

requirements of industry and enterprises, and have a higher degree of social recognition, we should actively promote the convergence of academic certificate and vocational qualification certificate, and strengthen the internal connection and mutual recognition mechanism between them. The second is to build a multi-party process supervision mechanism. The government should strengthen the summative assessment mechanism of the implementation of modern apprenticeship, and give corresponding incentive measures according to the effect of the implementation of modern apprenticeship by schools and enterprises; enterprises should actively participate in the diagnostic and procedural supervision of modern apprenticeship projects in higher vocational colleges, and use the diagnostic supervision to correct the behavior of students (apprentices) and enterprise tutors (Masters) to achieve the goal of promoting reform by evaluation; enterprises should use the diagnostic supervision to correct the behavior of students (apprentices) and enterprise tutors (Masters) Process supervision ensures the implementation effect of modern apprenticeship and the legitimate rights and interests of students.

6. Conclusion and Prospect

The expansion of higher vocational education provides more sufficient internal requirements and external environment for the implementation of modern apprenticeship. The characteristics of modern apprenticeship, alternation of work and study, enrollment as recruitment, and "Double Tutorial System" meet the diversified needs of enrollment expansion. The adult group in the enrollment expansion is an important part of China's labor resources, and should have the technical skills to be competent for new technology application posts. The modern apprenticeship system trains students (apprentices) through close cooperation between schools and enterprises, and carries out systematic training for students (apprentices) before, during and after work. Relying on the national vocational qualification framework, 1 + X certificate system, credit bank and other important measures of vocational education reform in the new era, it supports the expansion and diversification of students, and obtains relevant qualification and skill level certificates through a variety of ways The learning achievements that are not in the education system will be transformed into the achievements recognized by the society, and then the stage learning of the school will be transformed into the lifelong learning, which will become the "Overpass" to communicate different types of education.

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References

- [1] Fu Bing, he Niannian, LV Zhenyang, Zhao pengjuan, Ma Chaoqun. Research on the mechanism of "double tutor cooperative education" in Higher Vocational Colleges under the background of diversified student sources [J]. Exploration of higher vocational education, 2020 (19): 54-62.
- [2] Xu Zhike. Research on the problems and Strategies of master apprenticeship in Guangdong Modern Apprenticeship enterprises [J]. Mall modernization, 2020 (15): 95-98.
- [3] Hu Na, Li Guozhen, Wang Yuling. The path selection and system construction of modern apprenticeship in China [J]. Vocational Education Forum, 2016 (1): 27-28.
- [4] Shi Weiping, Lin Yueru. Talent training mode reform of Vocational Education in the new technology era [J]. Vocational and technical education, 2021 (1): 34-40.

- [5] Xu Guoqing. Fundamental transformation of vocational education personnel training mode in the intelligent era [J]. Education research, 2016,37 (3): 72-78.
- [6] Zheng Yuqing. Research on the cultivation of craftsman spirit under modern apprenticeship [J]. Vocational education research, 2017 (5): 5-8.
- [7] Cao Meihong, Zhao Liping. Obstacles to the construction of modern apprenticeship in China: an analysis based on institutionalism [J]. Vocational Education Forum, 2017 (3): 44-48.
- [8] Huang Wenwei, he Beibei. Analysis and solution of typical problems of modern apprenticeship -- Based on the practical perspective of Guangdong Modern Apprenticeship standard development [J]. Vocational Education Forum, 2017 (4): 24-27.
- [9] Ouyang Li, Luo Jinbiao. Design and thinking of modern apprenticeship management system [J]. Vocational Education Forum, 2017 (4): 28-34.
- [10] Xiao Li, Zhou caiwen. Research on the current situation and Countermeasures of the implementation of dual tutorial system in Higher Vocational Colleges under the background of modern apprenticeship [J]. Theoretical research and practice of innovation and entrepreneurship, 2020 (17): 86-87.
- [11] Wang Zhenhong, Cheng Jun. modern apprenticeship: a new paradigm of high skilled personnel training. Research on China's Higher Education [J]. 2012 (8): 93-96.
- [12] Shan Xuelian. Research on Apprenticeship relationship in China [D]. Master's thesis of Shenyang Normal University, 2019.
- [13] Xiao Jing. Research on the Modern Apprenticeship of vocational education based on the cooperation of "school, government, industry and enterprise" [J]. Education and occupation, 2017 (15): 22-27.
- [14] Liu Xiao. Research on the reform of higher vocational education mode with the participation of stakeholders [M]. Hangzhou: Zhejiang University Press, 2015:135-137.
- [15] He Hong. Research on the practical strategies for the construction of teaching staff in the implementation of modern apprenticeship in Higher Vocational Colleges [J]. China Vocational and technical education, 2017 (13): 71-74.
- [16] Li Xiang. Research on the obstacles and action logic of modern apprenticeship in Higher Vocational Colleges [D]. Master's thesis of Hebei Normal University of science and technology, 2019.