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On the School-Enterprise Collaborative Promotion Paths of Higher Vocational Education's Digital Transformation from the Perspective of Maslow's Hierarchy of Needs

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Abstract: The paper aims to explore the key role of platform enterprises in the digital transformation of vocational education, discusses the challenges and opportunities brought by digital technology, and how stakeholders from schools and enterprises can cooperate to improve the quality of digital transformation in vocational education. Guided by Maslow's hierarchy of needs, survey research method, case study method, element analysis method, etc. were adopted. (1) investigating the current situation of vocational education reform and innovation in C city, (2) analyzing the practical difficulties and needs of vocational education development, (4) conducting attribution analysis and element analysis were conducted on existing problems based on the hierarchy of needs, (4) proposing corresponding countermeasures and suggestions. By studying the current situation of digital construction in modern vocational education in C city and from Maslow's hierarchy of needs, the paper explores the practical difficulties and needs of the digital development of vocational education in terms of safety needs, social needs, esteem needs, and self-actualization hierarchy of needs, proposes countermeasures and suggestions to accelerate the digital transformation of vocational education, cultivate new types of labor force, and enhance technological innovation capabilities. From the perspective of the hierarchy of needs, the integration of industry and education in vocational education, as well as school enterprise cooperation, requires both parties to recognize the elements of safety needs, social needs, esteem needs, and self-actualization needs, and based on the mutual satisfaction of these needs, promotes collaboration and coupling. The paper proposes a series of optimization strategies, including consolidating the digital foundation of vocational colleges, reshaping the professional course training system, accelerating the teaching reform of vocational colleges, building a new high-quality talent highland, promoting the application of diversified scenarios, and strengthening the construction of digital ecological environment.

Keywords: Vocational Education; Digital Transformation; School-Enterprise Collaboration; Countermeasure; The Hierarchy of Needs

1. Digital Transformation of Education

With the rapid development of new generation information technologies such as big data, artificial intelligence, the internet of things and cloud computing, the application of digital intelligence technology in vocational education is becoming increasingly widespread and in-depth. [1] Developed countries in North America and Western Europe, represented by the United States and Germany, have identified the cultivation of digital capabilities in vocational education, the development and utilization of digital resources, and the construction of digital facilities and equipment as key initiatives for the digital transformation of vocational education. Germany has completed the top-level design of digital transformation in vocational education, and stakeholders such as schools and enterprises actively participate in digital transformation, exploring innovative digital practice models. Russia has established a legal and policy framework for the digital transformation of vocational education,

improved the digital foundation for the digital transformation of vocational education, enhanced the digital capabilities of vocational education teachers, and innovated the teaching and management models of vocational education. Japan is building "smart schools" with higher vocational education to cultivate professional talents capable of handling the digital transformation of society. Chinese scholars have proposed the concept of "digitalization", "networking", and "intelligence" based on their research. The transformation of educational digitalization is the combination of "digitalization" and "intelligence" in the field of education. [2]

2. Theoretical Basis for the Integration of Industry and Education

Maslow's hierarchy of needs, also known as Maslow's pyramid of needs, is a theory proposed by the American psychologist Abraham Maslow in 1954 to describe the hierarchical relationship and development order of human needs. This theory divides human needs into five levels, from low to high, namely physiological needs, safety needs, social needs, esteem needs, and self-actualization needs. These needs are gradually met in a certain order until they reach the highest level of the individual.

Industry-education integration, and school-enterprise cooperation refer to the deep cooperation between the industry and the education sector to jointly promote the coordinated development of education and industry. In the context of the digital age, platform enterprises and vocational colleges jointly promote the digital development of education, achieving a win-win situation between education and industry. In the process of transitioning from informatization to digitization, and then to the development of digital intelligence represented by AI, both schools and enterprises that industry-education integration, school-enterprise cooperation (especially those that serve the construction of digital platforms for schools) will also jointly experience the pursuit and satisfaction of security needs, social needs, respect needs, and self-actualization needs. Only when lower level needs are met, individuals of both parties will seek higher-level needs under the advancement of the development situation, thereby achieving their own growth and

development. [3]

Although symbiotic theory, input-output theory, knowledge economy theory, technology acceptance model, educational innovation theory, social capital theory, humanistic education theory, educational technology integration theory, and other theories are applicable to the research on the school and enterprise relationship in industry-education integration, and school-enterprise cooperation, the development of the ecosystem of school-enterprise cooperation communities is also, in a sense, like the hierarchy of human development needs, characterized by hierarchy, gradualness, inspiration, subjectivity, and satisfaction. Therefore the optimal paths for their growth and development can be explored from the perspective of Maslow's hierarchy of needs.

By analyzing the multiple relationships of school-enterprise cooperation, a clearer understanding of the interaction mechanism between platform enterprises and vocational colleges can be seen more finely. As representatives of the industry, platform enterprises' needs and development trends can directly affect the updating of educational content and methods, while vocational colleges, as providers of education, can cultivate talents that meet the needs of the industry. From the perspective of digital technology development and application, the ease of use and usefulness of technology are key factors that influence user acceptance and use of technology. The digitization of education has promoted the application and popularization of educational technology by improving the usability and usefulness of teaching. Platform enterprises explore new educational models with vocational colleges by introducing new technologies and concepts, and achieve innovation in educational content and methods. [4]

3. The Role of Schools and Enterprises in the Digital Transformation

3.1 Types of Symbiotic and Interactive Relationships

The platform enterprises in this research mainly refer to educational service institutions that provide technical services and platform construction in the construction of majors,

courses, textbooks, faculty, and digital campuses in schools. Establishing and maintaining a symbiotic and interactive relationship between platform enterprises and vocational colleges can achieve resource sharing, complementary advantages, and jointly promote the high-quality development of education and industry. [5]

3.1.1 Resource sharing type

Platform enterprises and vocational colleges achieve resource sharing, including teaching resources, training facilities, research and development platforms, etc. This interactive relationship helps vocational colleges improve their teaching quality and practical abilities, while also providing a base for talent cultivation and technology research and development for platform enterprises.

3.1.2 Course co-construction type

Platform enterprises jointly develop and optimize the course system with vocational colleges based on industry development needs. This cooperation helps ensure that the course content is closely aligned with market demand and enhances students' employability.

3.1.3 Mutual employment of teachers.

Professional and technical personnel from platform enterprises can participate in teaching activities in vocational colleges as part-time teachers, while vocational college teachers can also provide practical guidance to enterprises. This interaction helps to achieve the integration of theory and practice, and improve the quality of teaching.

3.1.4 Project cooperation type

Platform enterprises and vocational colleges jointly carry out scientific research projects or technology development projects to achieve the integration of industry, academia and research. This collaborative model helps promote technological innovation and knowledge transfer, while also providing students with opportunities to participate in practical projects.

3.1.5 Training base type

Platform enterprises provide training bases for vocational colleges, allowing students to learn and practice in real work environments. This interactive relationship helps improve students' vocational skills and job adaptability.

3.1.6 Information exchange type

To establish an information exchange mechanism between platform enterprises and vocational colleges to share industry trends, technological developments, market information, etc. This interaction helps both parties to timely understand industry development trends and make corresponding teaching and business adjustments.

3.2 The Role of Schools

In school enterprise cooperation, the role of schools can be analyzed from the perspective of Maslow's hierarchy of needs as follows.

3.2.1 Safety needs

Schools play an important role in ensuring student safety. Schools need to ensure the personal safety of students during internships and learning processes, and provide a healthy and safe learning and working environment. In addition, schools should cooperate with enterprises to provide vocational safety education and training for students, in order to meet their expectations for future career stability.

3.2.2 Social needs

The school organizes various team and social activities to help students establish and maintain interpersonal relationships and meet their social needs. In school enterprise cooperation, schools can promote communication between students and enterprise employees, enhance teamwork skills, and thus improve students' sense of belonging and social skills.

3.2.3 Esteem needs

Schools play an important role in cultivating students' self-esteem and confidence. By commending outstanding students and providing a platform to showcase their talents, schools can enhance students' sense of self-worth. At the same time, schools collaborate with businesses to provide students with practical opportunities, enabling them to gain recognition and respect from businesses and meet their needs for respect.

3.2.4 Self-actualization needs

Schools help students realize their personal potential and pursue personal growth by providing high-quality education and abundant practical opportunities. In school enterprise cooperation, schools can jointly develop courses with enterprises, provide internship and project practice opportunities, so that students can apply their learned knowledge in practical work, achieve self-worth and career development.

Thus it can be seen that the role of schools in

school enterprise cooperation is not only to provide education and training, but also to meet students' needs at different levels such as safety, socialization, respect, and self-realization, thereby promoting their comprehensive development.[6] In digital transformation, schools mainly involve the adoption of digital technology, curriculum development, teacher training, student engagement, and other aspects of work. For example, ①adoption of digital technologies. How schools are integrating digital tools and platforms into their curricula? ②curriculum development. That is, the adaptation of vocational curricula to meet the demands of the digital economy. ③teacher training, refers to the importance of equipping educators with the skills necessary to teach in a digital environment. ④student engagement. Pay more attention to the strategies to engage students in digital learning and prepare them for the digital workplace. The smooth achievement of these tasks will be based on meeting safety needs, social needs, esteem needs and self-actualization needs.

3.3 The Role of Platform Enterprises

In school enterprise cooperation, the role of platform enterprises can be analyzed from the perspective of Maslow's hierarchy of needs as follows.

3.3.1 Safety needs

Enterprises play a role in providing security guarantees in school enterprise cooperation. This includes ensuring the personal safety of students during their internship, providing a healthy working environment, and safeguarding their economic security, such as meeting their basic living needs through providing internship allowances or salaries. By complying with safety regulations and industry standards, enterprises can reduce the risks that students may face during internships, thereby meeting the safety needs of both students and employees.

3.3.2 Social needs

As a place for students to intern and work, enterprises provide a platform for social interaction. Students and employees can establish and maintain interpersonal relationships, satisfy their sense of belonging and social needs through team building activities, work groups, and social events organized by the company.

3.3.3 Esteem needs

In school enterprise cooperation, companies meet the respect needs of employees and students by providing career development opportunities, recognizing outstanding performance, and awarding honorary titles. Corporate recognition and rewards can enhance the self-esteem of employees and students, while also earning the respect of others.

3.3.4 Self-actualization needs

Enterprises provide opportunities for students and employees to realize their personal potential and pursue personal growth through school enterprise cooperation. By participating in the company's research and development projects, innovation activities, and leadership training, students and employees can realize their self-worth, pursue creativity, and personal development.

In summary, the role of enterprises in school-enterprise cooperation is not only to provide internship and employment opportunities, but also to meet the needs of students and employees at different levels such as safety, socialization, respect, and self-realization, thereby promoting the common development and progress of both parties.

In the process of digital transformation, enterprises are more concerned about key aspects such as workforce development, technology integration, internships and apprenticeships, innovation and research. For example, ①workforce development, that is, the role of enterprises in shaping vocational curricula to meet their workforce needs. ②technology integration. How enterprises are using technology to enhance vocational training and skills development? ③internships and apprenticeships. The value of practical, work-based learning experiences in vocational education has been followed. ④innovation and research. The contribution of enterprises to innovation has been focused on in vocational education through research and development. The smooth achievement of these tasks will also be based on meeting safety needs, social needs, esteem needs and self-actualization needs.

4. Research on the Current Situation of Vocational Education in C City

4.1 Overall Situation

C city has 8 vocational colleges with a total of 96400 students. 50% of provincial public vocational colleges are national "double high" construction units, and 100% are provincial double-high construction or cultivation units. There are currently 9 secondary vocational schools in C city, including 5 higher vocational and technical schools, 6 national key secondary vocational schools, 4 national demonstration schools for the reform and development of secondary vocational education, 5 pilot construction units for secondary vocational schools, 1 construction and cultivation unit for excellent secondary vocational schools, 7 modern demonstration vocational schools, and 3 high-quality characteristic vocational schools.

4.2 The Digital Ecological Construction

The research group takes the higher vocational colleges and secondary vocational schools in C city as the research objects, carried out research around the key areas of digital construction, such as professional teaching resource database, online teaching courses, online quality courses, new form textbooks, virtual simulation training base, Internet export bandwidth, and obtained first-hand data.

From the data collected, it can be seen that the digital construction of vocational education in C city has developed rapidly, forming a relatively strong foundation. The number of professional teaching resources in the national double-high universities, including the number of national –provincial-school level and the number of access to national smart education platforms, is generally higher than that of provincial high-level colleges and others. The number of online teaching courses and the proportion of online teaching courses to the total number of courses in the national double-high colleges are generally higher than those of provincial high-level colleges and others. The number of online quality courses offered by national double-high colleges, including the number of national-provincial-school level courses and the number of courses connected to national smart education platforms, is generally higher than that of provincial high-level colleges and others. The number of textbooks and new forms of textbooks compiled by national double-high colleges and provincial high-level

colleges is higher than that of other colleges. The number of virtual simulation training bases, including those at the national level, provincial level, and school level, as well as those connected to the national smart education platform, in national double-high colleges are significantly higher than those in provincial high-level colleges and others. Thus it can be seen that the vocational education in C city is facing some practical problems that must be addressed in the construction of a new digital education ecosystem where "application is king".

4.3 Existing Issues

Research has found that C city has strong vocational education capabilities, outstanding achievements, and is renowned throughout the country. However, there are still some difficulties and shortcomings in serving the high-quality development of cities through digital development. From the perspectives of safety needs, social needs, respect needs, and self-actualization needs, the possible problems in professional construction, curriculum construction, textbook construction, and base construction are as follows:

4.3.1 Professional development

(1) Security requirements. Professional development may not fully consider industry safety standards and regulatory requirements, resulting in students facing security risks during internships and employment. (2) Social needs. Professional settings may overlook the development of students' social skills, lack opportunities for interaction with industry experts and business personnel, and affect students' ability to establish professional networks. (3) Respect for needs. Professional development may not receive sufficient recognition from the industry and enterprises, resulting in graduates lacking competitiveness and respect in the job market. (4) Self-actualization needs. Professions may not provide sufficient opportunities for innovation and research, limiting students' ability to achieve personal career goals and development potential.

4.3.2 Curriculum construction

(1) Security requirements. The course content may lack training on industry safety operations, failing to meet students' needs for a safe working environment. (2) Social needs. The curriculum may be too theoretical, lacking in

the cultivation of teamwork and social skills, which can affect students' career development. (3) Respect needs. The curriculum may not reflect the latest developments in the industry, making it difficult for students to gain respect in the workplace. (4) Self-actualization needs. Courses may lack challenge and innovation, limiting students' opportunities to realize their self-worth and career development.

4.3.3 Textbook construction

(1) Safety requirements. Textbooks may not contain sufficient safety operation guidelines and cases, failing to meet students' needs for safety knowledge. (2) Social needs. Textbooks may overlook the cultivation of communication and teamwork skills, which affects the development of students' social abilities. (3) Respect needs. Textbooks may be outdated and fail to reflect the latest practices and standards in the industry, which can affect students' ability to gain respect in the workplace. (4) Self-actualization needs. Textbooks may lack practical and innovative elements, limiting students' opportunities to realize their potential and career goals.

4.3.4 Base construction

(1) Security requirements. The internship and training base may lack necessary safety facilities and training, failing to meet the basic safety needs of students. (2) Social needs. The base may lack platforms to facilitate communication between students and between students and business personnel, which can affect the development of social skills. (3) Respect needs. The base may not provide sufficient professional recognition and industry certification, which affects students' ability to gain respect in the workplace. (4) Self-actualization needs. The base may not provide sufficient practical opportunities and innovative projects, limiting students' opportunities to realize their potential and career goals.

4.4 Attribution Analysis

In the wave of digital transformation, although platform enterprises and vocational colleges have made significant progress in resource development and construction, there are still some shortcomings and problems.[7] Analysis suggests that the main reasons for these problems include the following aspects.

4.4.1 Inadequate cooperation mechanism

The cooperation mechanism between platform enterprises and vocational colleges is not sound enough. Both parties lack effective communication and coordination mechanisms during the cooperation process, which makes it difficult for the cooperation project to keep on smoothly, and affects the effectiveness of the cooperation.

4.4.2 Insufficient resource integration

Although platform enterprises and vocational colleges have achieved resource sharing in some aspects, overall integration is still insufficient. The technology resources and market information of enterprises have not been fully integrated into the vocational education system, resulting in a disconnect between educational content and market demand.

4.4.3 Lagged technological updates

Vocational education often lags behind industry development in terms of technological updates. Platform enterprises have advantages in the application and promotion of new technologies, but these technologies have not been timely transformed into teaching content, which affects students' technological adaptability and innovation ability.

4.4.4 Insufficient construction of teaching staff

The teaching staff in vocational colleges has insufficient digital teaching capabilities. Teachers lack corresponding technical training and practical experience, making it difficult to effectively utilize digital resources for teaching, which affects the quality of teaching.

4.4.5 Slow update of course content

The update speed of course content cannot keep up with the pace of industry development. Platform enterprises have foresight in the development of new technologies and business models, but these contents have not been reflected in vocational education courses in a timely manner, resulting in a disconnect between educational content and practical applications.

4.4.6 Insufficient training facilities

Vocational colleges have shortcomings in the construction of training facilities. Although platform enterprises can provide some practical training resources, the overall scale and quality of training facilities still cannot meet the practical needs of students, which affects their vocational skill development.

These issues may affect the depth and breadth of cooperation between platform enterprises

and vocational colleges. By identifying and addressing these shortcomings and issues, both parties can more effectively develop and construct resources, and promote the deepening of digital transformation in education.

5. The Direction and Strategy of School-Enterprise Collaboration in the Digital Transformation

5.1 The Direction of Accelerating the Digital Transformation of Vocational Education

In the context of digital transformation in education, the symbiotic relationship between vocational colleges and collaborative platform enterprises is particularly important. Vocational colleges and collaborative platform enterprises can achieve resource sharing and complementary advantages in the process of digital transformation of education, jointly promoting the high-quality development of education. [8]

Vocational education should actively respond to the trend of digital transformation in education, nurture new forms and paradigms of vocational education through the digital transformation of vocational education, explore new ways of cultivating high-quality technical and skilled talents driven by digital technology, and help vocational education continuously provide a source of innovative development to the economy and society. Vocational education should be based on the background of industrial digital transformation, exploring the logic of the co evolution of digital technology and digital value, promoting the integration of vocational college teachers, teaching methods, textbooks, and digital intelligent technology, thereby promoting the deep integration of industry and education, promoting the alignment of talent cultivation in vocational colleges with enterprise job responsibilities, and matching teaching processes with enterprise workflows.

Vocational education should focus on the future education driven by digital technology, deeply explore the dual connotations of "embedding and coupling of digital technology, innovation and transformation of education" in the digital transformation of education, clarify the logical framework of digital transformation of vocational education, promote the

integration of digital transformation into the entire process of vocational education, and promote vocational education to better grasp the key elements that are compatible with new quality productivity. [9]

In summary, the main directions that should be followed are as follows so as to meet with the needs of both parties in school-enterprise cooperation in terms of safety needs, social needs, esteem needs, self-actualization needs and other aspects. (1)To clarify the co-construction goals. Both parties need to establish the goal of co construction and symbiosis, which includes improving the quality of education, meeting industry needs, and promoting student employment. Clear goals can help guide subsequent collaboration strategies. (2) To develop a cooperation framework. Based on the goal of joint construction, both parties should develop a cooperation framework, including cooperation principles, scope, and duration, to ensure the stability and long-term nature of the cooperation. (3) To carry out resource sharing and integration. Vocational colleges and platform enterprises should share their respective advantageous resources, such as teaching resources, technical resources, market resources, etc., and integrate them through digital means to improve resource utilization efficiency. (4) To develop innovation in curriculum and teaching methods. Combining digital technology to jointly develop and update course content, adopting a combination of online and offline teaching methods to improve the interactivity and practicality of teaching. (5) To strengthen construction of teaching staff. To strengthen the construction of the teaching staff, and enhance their digital teaching ability and professional skills through enterprise training, industry certification, and other methods.

5.2 Strategies for School-Enterprise Collaboration in the Digital Transformation

The collaborative promotion of digital transformation in higher vocational education by schools and enterprises requires efforts in clarifying transformation goals and directions, strengthening digital infrastructure construction, promoting innovation in teaching content and methods, enhancing the digital literacy and abilities of teachers and students,

deepening industry education integration and school enterprise cooperation, and improving evaluation and feedback mechanisms. The implementation of these practical directions will help improve the quality and level of higher vocational education, and cultivate more high-quality technical and skilled talents for economic and social development. [10]

5.2.1 To consolidate the digital foundation of vocational colleges

The digitization of vocational colleges is a systematic project that involves systems, planning, technology, funding, academic affairs, student work, management, evaluation, etc. It requires a systematic thinking approach to plan and promote. The digital transformation of vocational education has very strict requirements for the overall level of hardware conditions, personalized customization, and safety elements. Vocational colleges should make "strengthening the construction of digital infrastructure" as a key task in digital transformation, strengthen campus network infrastructure construction, ensure high-speed and stable network connections, and provide hardware support for digital teaching. The construction of new digital infrastructure in vocational colleges includes continuous upgrading of digital infrastructure, comprehensive upgrading of the new generation of smart campus network, orderly upgrading of intelligent and three-dimensional campus security prevention and control system, upgrading and transforming smart classrooms and training rooms, accelerating the improvement of data governance capabilities, optimizing and upgrading the school's smart teaching cloud platform, and more access to the national smart education network platform. At the same time, it is necessary to strengthen the management of information network security, that is, to reconstruct a network security protection system that adapts to the trend of comprehensive digital transformation, attaches importance to the construction and improvement of network security guarantee mechanisms, and enhances network security guarantee capabilities. [11]

5.2.2 To reshape the professional curriculum training system

Vocational education should continuously deepen cooperation between schools and enterprises, integrate industry and education, keep up with the trend of industrial development and the demand for industry talents, explore and improve effective mechanisms for promoting construction through application, co-construction and sharing, open construction, and dynamic updates, and reconstruct the professional curriculum training system of "integration of five-skill and progressive abilities". Vocational education should continuously align with job requirements, introduce enterprise engineering project case resources, combine new technologies, processes, and standards of enterprise development, improve curriculum standards, and update teaching content. Based on the curriculum standards, vocational colleges should actively analyze the professional work process, design modular courses according to the progression of job abilities and the learning process of learners, and develop curriculum level resources, module level resources, knowledge and skill point level resources. Based on professional standards and typical job (group) competency requirements, vocational colleges should develop digital course resources, and develop new forms of teaching materials such as loose leaf and workbook formats that are both illustrated and diverse. Following the concept of "integrated design, structured curriculum, and granular resources", vocational colleges should continuously update the national teaching resource library. Based on the "national-provincial-school level" virtual simulation base, vocational colleges should build smart training platforms of "virtual simulation and practice platform", and construct practical teaching systems of "integration of digital economy and real economy" consisting of three parts of digital twin training scenarios, digital course resources, and virtual resource teaching and management platform. [12]

5.2.3 To accelerate the teaching reform in vocational colleges

At present, the future workplace in the advanced manufacturing industry urgently needs application-oriented talents with "digitalization of production equipment, intelligent production workshops, networked production factors, and intelligent enterprise management". Vocational colleges should take effective measures to promote educational and teaching reforms through "appropriate

education" and effectively enhance the attractiveness of vocational education. Starting from digital transformation, the digitization of the entire process of student recruitment, student management, teaching resources, teaching environment, and teaching evaluation should be promoted. The reform of talent training mode should be promoted, and the school and enterprise will jointly develop professional curriculum resources integrating "theory, falsehood and reality". The reform of the "online and offline" hybrid teaching mode should be carried out based on "Internet+", and new professional talents such as artificial intelligence talents cloud-computing engineering technicians should be trained, so as to provide technical talents and complex technical talents for economic and social development.

5.2.4 To build a highland for cultivating new quality talents

Based on the key positions and core technologies of advanced manufacturing and modern service industries in the city, dynamically adjust and optimize the setting and structure of majors (groups), form a professional group structure system with "moderate quantity, moderate scale, and reasonable layout", and build a professional cluster that is coupled and coordinated with advanced manufacturing and modern service industries.[13] Closely connect with the new demand for technical and skilled talents in "intelligent and digital transformation" of enterprises, and solve the problem of shortage of digital and skilled talents in enterprises. According to the needs of enterprise development, high-level intelligent manufacturing majors such as intelligent manufacturing equipment technology should be added. Starting from the professional talent training plan, the requirements for enterprise digital skills will be included in the talent training objectives, and enterprise digital skills courses will be added or integrated. Joining hands with leading intelligent manufacturing enterprises in urban pillar industries, "order-classes" should be established through school-enterprise joint training, and industrial colleges should be jointly built to provide guarantees for students' skill development.

5.2.5 To promote the application of diverse scenarios

At present, the digital transformation of vocational education increasingly focuses on soft elements such as systems, standards, platforms, resources, and literacy. Vocational colleges should also attach great importance to establishing and improving software foundation such as standard specifications, organizational guarantees, teachers' digital abilities, and students' digital literacy. Starting from the six stages of "preparation, teaching, approval, assistance, practice, and testing" for teachers, the "online and offline" hybrid teaching model is constructed using digital technology. Flexible and open teaching organizational models such as course selection, inter school collaboration, and school enterprise cooperation are carried out to promote the classroom revolution and better serve students' personalized growth. Actively exploring the use of new technologies such as artificial intelligence (AI) and virtual reality (AV), expanding new scenarios for networked, immersive, and intelligent technology skill learning applications, accelerating the application of new technologies such as intelligent study companions and teaching assistants, and further enriching resource matching and service support. A technical backbone team also needs building that not only has good digital professional technical literacy, but also understands the actual teaching business of vocational colleges, and effectively enhances our technical support and guarantee capabilities.

5.2.6 To enhance the construction of digital ecological environment

The ecological environment construction for the digital transformation and development of vocational education needs to be continuously strengthened. Vocational colleges should build a smart campus system architecture, construct high-speed ubiquitous infrastructure, and create an intelligent ubiquitous application system. Vocational colleges should build a smart teaching environment that integrates "smart classroom, virtual simulation, and online teaching", create a three-level digital resource system of "school, province, and country", and practice smart teaching model of "the integrated innovation, data empowerment". Vocational colleges should build an intelligent data management platform, explore the value of data, and serve various businesses of the school. Vocational colleges should connect with the national vocational

education intelligent brain platform, build a national benchmark school for vocational education informatization, and serve the connotative development of the school.[14] Vocational colleges should fully implement the credit system and student enrollment reform, and implement personalized talent cultivation. Vocational colleges should build a "one-data, one-source, same source sharing" data center, establish a teacher development platform and student development platform based on big data, and provide standard data support for intelligent teaching and management. By constructing a diversified teaching evaluation methods for schools and enterprises, real-time collection of learning process data, data mining and analysis, core link data visualization, intelligent push, which is convenient for teachers to carry out learning intervention, intelligent tracking and early warning of the learning process, and based on process data intelligent analysis should be formed to accurate process evaluation, so as to achieve diversified evaluation methods integrating school-enterprise, processes and results.

Acknowledgments

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