Digital transformation of higher vocational education in the context of the new era

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Abstract: The digital transformation provides unprecedented opportunities for the development of new quality productivity in vocational education services. The digital transformation of vocational education is not only the application of digital technology in the field of teaching, but also a fundamental change in the ecology, mode, methods, and value of vocational education. Vocational education should accurately identify new opportunities for digital transformation, stimulate the vitality of vocational education development with innovative concepts and methods, and form a new education model that is suitable for the characteristics of the digital era. At present, the digital transformation of vocational education in China faces problems such as cognitive misconceptions, regional differences in transformation and development, lack of recognition of transformation characteristics, and difficulty in evaluating transformation maturity.

Keywords vocational education; Digital transformation; digital technique

Digital technologies represented by 5G, metaverse, digital twins, and the Internet of Things are fully integrating new concepts, architectures, and technologies into the human socio-economic system and social structure, bringing comprehensive and lasting changes to people's lives. Currently, digitalization is leading the wave of change and innovation in the field of education, giving birth to emerging forms of digital education, promoting innovation in educational concepts, teaching methods, and management models, and reshaping a new ecosystem of education. On a global scale, some developed countries and regions have taken the lead in seizing the development opportunities of the digital age, successively launched relevant policies, issued education innovation measures from the national strategic level, and formulated education reform and future plans from different directions and efforts. They actively seek new models of education and teaching innovation, develop new education products that meet the needs of the times, and rely on new technological means to promote the widespread application of digital technology in all fields of education, thereby promoting its integration and development with various aspects of the economy and society. The 14th Five Year Plan for National Economic and Social Development of the People's Republic of China and the Outline of Long Range Objectives by 2035 clearly state: to welcome the digital age, activate the potential of data elements, promote the development of a strong network country, accelerate the construction of the digital economy, digital society, and digital government, and comprehensively drive the innovation of production methods, living habits, and governance models through digital transformation.

（1） Deepen the awareness of digital development literacy in vocational education

The main body of the digital transformation of vocational education lies in "people". Only by increasing the power of the main body and guiding the participation of multiple subjects can we promote the success of the digital transformation of vocational education.

As a teacher who leads vocational education teaching, it is necessary to establish the concept of big data-driven classroom management, possess the ability to use digital technology for classroom teaching, and be rich in digital literacy. Fully utilize the advantages of digitalization in teaching, conduct professional, technical, and innovative classrooms, and improve one's skills in applying digital technology and carrying out digital teaching through skill training, in order to serve teaching and meet the development of students.

2. School leaders need to enhance their understanding of digital transformation in teaching, set goals and plans for transformation, establish relevant organizational structures, introduce relevant policies and regulations, build a support service system, and provide students with a digital learning environment. Promote the construction of digital facilities, clarify the goals and tasks of infrastructure investment in vocational schools, professional qualifications and abilities for professionals facing the future digital world, implementation plans and curriculum systems for digital education and teaching, teacher professional ability training, educational content and digital media, and internal management of schools.

3. As the main body of learning, students should independently learn information technology knowledge and improve their digital learning abilities. Combining the knowledge of informatization with practical life, utilizing the convenient and fast advantages of information technology, searching for relevant learning materials, and improving self-learning ability. At the same time, breaking away from traditional single professional training, utilizing information technology platforms for practical training, and improving digital skills.

（2） Improve the digital management model of vocational education

The key to the development of vocational education lies in the management of schools, including talent management, technical management, and teaching management. Standardized management mode is an important guarantee for the high-quality development of vocational education. Therefore, vocational colleges must combine the needs of the times, the current socio-economic and educational development situation, continuously update education management models, strengthen the intelligence of management, and improve the scientificity of evaluation.

1. Vocational education should keep pace with the development of the times and establish diversified innovative teaching management models. Innovation in vocational education management should focus on students and strengthen talent management. Vocational colleges serve as training bases for practical, technical, and innovative talents, delivering versatile talents to society and meeting the needs of social development. Therefore, in terms of talent management, vocational education should continuously update its management mode, utilize information platforms, strengthen institutionalized management, improve management efficiency, promote the significant development of the education management system, and significantly improve the level of education management.

2. Vocational education should increase intelligent management, introduce information technology and intelligent technology into management models, save management costs, improve management efficiency, and avoid blind management. In teaching management, teachers can rely on information technology support, collect student information through digital management systems, improve teaching modes, analyze learning behaviors, and handle teaching issues. At the same time, teachers can also use digital technology platforms to strengthen the management of daily behaviors such as students taking leave and going to bed.

3. Vocational education should strengthen the diversity, systematicity, and scientificity of evaluation. By utilizing digital evaluation systems, students can analyze and evaluate their learning outcomes, practical training operations, and intelligent structures. Strengthen standardized management processes, innovate supervision and evaluation models, and promote the digital transformation and upgrading of vocational education.

（3） Improve digital guarantee measures for vocational education

At present, vocational education is receiving increasing attention from the country, and increasing the path of vocational education towards digitization and intelligence has become the current trend. The digital path of vocational education cannot be separated from a sound digital guarantee system for vocational education. However, currently, China's specialized digital guarantee system for vocational education has not been well promoted. Therefore, it is urgent to improve the vocational education guarantee system and provide institutional, management, technological, and resource guarantees for the development of vocational education from the perspectives of the government, schools, and teachers.

1. As the leader and decision-maker of education development, the government formulates relevant vocational education development strategies, constructs a blueprint for vocational education development, establishes vocational education development goals, and other measures to provide institutional guarantees for the development of vocational education. While providing institutional guarantees, it also provides financial support and technical resources for the development of vocational education, in order to establish a new trend of digital transformation in vocational education.

2. Vocational schools should provide training and management support for digital transformation. By organizing professional and technical teachers to provide professional, intelligent, and diversified training to other teachers, we aim to improve the information technology teaching staff of vocational education. In terms of management, vocational colleges should combine the actual situation of the school, expand

the scope of intelligent management, increase the intensity of intelligent management, provide a platform for the digital transformation of vocational education, and ensure a good development environment for the management system.

3. Digital Empowerment, Constructing a Maturity Evaluation Model for Digital Transformation of Vocational Education

The maturity model for digital transformation of vocational education is a strategic planning and evaluation tool based on the maturity model theory. It can systematically define and measure the development level of vocational education in the process of digital transformation, evaluate the construction capacity of digital new infrastructure, provide analysis and capability diagnosis of digital transformation status for vocational education, guide vocational colleges with different regions and types of characteristics to formulate digital transformation plans that meet their own characteristics and development needs from a systematic and global perspective, and select suitable digital transformation paths based on their own conditions and expected goals. Clarify the evaluation criteria, operational guidelines, goals, and directions for the digital transformation of vocational education, achieve systematic management and effective guidance for the digital transformation of vocational education, and promote theoretical innovation and application expansion of vocational education in the digital process.

The digital transformation of vocational education is not only the application of digital technology in the field of education, but also a fundamental change in the ecology, mode, methods, and value of vocational education. At present, vocational education in China is in a new stage of "dual phase superposition", which is a period of opportunity for improving quality, enhancing value, and empowering, as well as a critical period of reform and overcoming obstacles. It is also facing a key point from quantitative to qualitative change. Therefore, it is necessary to understand the connotation of digital transformation in vocational education from three dimensions: accurate identification of change, scientific adaptation, and proactive pursuit of change, and to grasp the new development opportunities brought by the digital era to vocational education.

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