

The transformation of the working world in the intelligent age and the response to the digitalization of vocational education

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Abstract: The high quality social and economic development in our country cannot be separated from the solid support of vocational education. Now, under the great changes of the working world in the intelligent age, vocational education should also keep pace with the same frequency. The characteristics of occupational substitution and supplement, total reduction of labor demand and structural shortage have become the status quo under the reform. Under this current situation, the digital transformation of vocational education is faced with such problems as slow curriculum setting, failure of construction to meet the needs of education, and barriers to collaborative education pattern. The digital transformation of vocational education in the intelligent era should accelerate the construction of digital curriculum system, build a digital internship and training platform, and improve the guarantee mechanism of digital collaborative education.

Key words: Intelligent age; Change of the working world; Vocational education; digitization

Introduction

Nowadays, the age of intelligence has arrived. The changes brought by the age of intelligence to human society are earth-shaking. The most obvious change is the world of human work. Occupational substitution and supplement, labor demand and structural changes are the significant characteristics of the change of the working world. They influence and interact with each other, and jointly announce the change of the working world in the intelligent era to the human society with obvious signals.

I. The characteristics of the transformation of the working world in the intelligent era

1. Occupational change: the substitution and supplement of occupational types

The application of digital production technology, the efficient operation of production process and the personalized customization of production mode are the products born under the change of the working world in the intelligent era. Due to the birth of such products, the changes of the working world occupation are triggered, and the simple and repetitive mechanical jobs are gradually replaced and supplemented by the new jobs created by the change of production activities. Firstly, according to McKinsey research, it is estimated that by 2030, more than 220 million Chinese workers (accounting for 30% of the labor force) may change their occupations due to the application of digital production technology. The application of new digital technologies such as artificial intelligence, big data and the Internet of Things in the working world of the intelligent era has realized the integration of production processes and replaced a large number of simple and repetitive mechanical work, especially in the production line, which will greatly reduce the manual labor force. The use of fully automated machines has become the main form for manufacturing enterprises to rapidly promote industrial transformation and upgrading. Thus improving the work efficiency of the production line. Secondly, the digitalization of production technology, the integration of production process and the individuation of production mode have spawned a large number of new types of work. The Ministry of Human Resources and Social Security recently released the Occupational Classification of the People's Republic of China (2022 edition), which saw a net increase of 158 new occupations, of which 97 were marked for the first time, including smart building manager, Internet marketer, agricultural digital technician and other new occupations spawned by digital technological changes. The World Economic Forum predicts that the "robot revolution" will create 97 million jobs globally by 2025. It can be seen that job substitution and job complement have become the most important forms of career change in the working world in the smart era.

2. Changes in labor demand and structure

The most direct consequence of occupational substitution and occupational supplement is the change of labor demand and structure. The working world in the age of intelligence has completely changed the relationship between labor force and machine production. The machine in the age of intelligence directly replaces the labor force and becomes the labor force itself, reducing the demand for human labor force and transforming from labor-intensive to technology-intensive.

The reduction in the demand for human labor in the working world in the intelligent era is only a representation of the change, while the shortage of high-quality technical and skilled talents is the essential problem under the change of the working world in the intelligent era. At present, in the working world of the intelligent age, enterprises of all countries, including China, generally have a structural shortage of high-quality technical and skilled talents. Therefore, in the labor market of the intelligent age, high-quality technical and skilled talents are favored.

3. Iterative changes in production technology

The transformation of the working world in the intelligent era is the integration of digitalization and intelligence, and the application of it in every link of production and manufacturing. Digital technology is projected into product production through the use of big data, Internet

of Things, VR, AR and other new generation digital media technologies to update product functions; Intelligent technology is based on the existing information resources and intelligent technology to further deepen the analysis and processing, to adapt to the dynamic change of the production environment. In the working world of the intelligent era, digitalization and intelligence complement each other, and finally realize the iterative change of production technology.

II. The difficulties faced by digital transformation of vocational education

1. The slow setting of digital curriculum

Although the intelligent age has brought many opportunities for the construction of the curriculum system of modern vocational education, the development of the curriculum system for the digital development of vocational colleges is still slow, and the dynamic adaptability of the curriculum is not strong.

First of all, the establishment of an integrated system for the integration of production and education in the digital transformation has not been fully realized, resulting in the failure of labor resources to meet the supply and demand docking after the adjustment of regional industrial structure, thus generating data islands.

Secondly, the current curriculum system of vocational colleges is still set at the early stage of the new semester, and there is a time mismatch between talent training and the rapidly changing industry development.

Finally, the curriculum construction of many vocational colleges is still dominated by on-campus teachers, and the participation of industries and enterprises is low. The lack of breadth and depth of cooperation between the two sides has resulted in the “platter” phenomenon of various courses.

2. Digital construction fails to meet the needs of education

The construction of vocational colleges needs to discuss, build and share digital resources with enterprises in terms of personnel, sites, technologies and courses, so as to ensure that vocational education can complete the digital transformation faster and better under the changes of the intelligent era. However, judging from the current trend of digital development of vocational colleges, it has not yet met the needs of vocational education in the intelligent era.

First of all, the construction of digital training bases in vocational colleges develops slowly. For example, there are problems such as shortage of funds, scarcity of talents and low degree of intelligence, resulting in the lack of digital professional skills of students.

Secondly, some teachers in vocational colleges are weak in digital practice teaching ability. In the future intelligent era, vocational education will integrate more digital elements and build digital practical training places. In view of this, teachers in vocational colleges should make preparations for a rainy day and constantly improve their digital teaching ability.

3. The digital divide hinders the pattern of collaborative education

In the dynamic process of vocational colleges’ cultivation of students’ digital quality and ability, based on the interests of different subjects and the rapid development of information technology, the deepening of digital divide will greatly hinder the transformation and upgrading of vocational education to support industrial structure. On the one hand, industrial transformation and upgrading is conducive to promoting the income generation of enterprises, and enterprises always pay attention to industrial transformation and upgrading. However, compared with industrial transformation and upgrading, vocational colleges have a “dull” sense of smell and have a certain lag, resulting in the digital transformation of vocational education not reaching the ideal state. On the other hand, industrial transformation and upgrading mostly from the perspective of economic benefits and technological innovation, to provide vocational colleges with digital technology support at the same time, there are certain digital technology sharing barriers, resulting in the emergence of digital information technology acquisition asymmetry, supply and demand docking is not accurate and other problems.

III. The response to the digitalization of vocational education

1. Accelerating the construction of digital curriculum system

Under the change of intelligent era, the construction of digital curriculum system of vocational education has not kept up with the dynamic development rhythm of regional industrial economy, and there is an obvious phenomenon of lag. In view of this, vocational colleges through the application of intelligent system to effectively monitor the market job demand, the construction of vocational education digital course system. First of all, vocational colleges should explore the talents needed for industrial economic development in the intelligent era through market research and application of intelligent auxiliary systems, and then build a digital course system according to the needs. Secondly, it is necessary to accelerate the construction of digital courses jointly developed by multiple subjects of schools, industries and enterprises, so as to promote the deep participation of industries and enterprises in the whole process of talent training.

2. Build a digital internship training platform

Vocational colleges have made great progress in the construction of practice and training platforms through school-enterprise cooperation, integration of industry and education, etc., but the use of digital technology into the construction of practice and training platforms is slow, and it is difficult to meet the daily digital practice and training teaching of students. In view of this, vocational colleges should speed up the construction of digital internship and training platform to adapt to the dynamic needs of industrial economic development in the intelligent era. First of all, vocational colleges should accelerate the construction of digital internship and training infrastructure together with enterprises and industries, use digital technologies such as AR and VR to build internship and training teaching

scenes, promote students' good emotional experience of internship and training in an "immersive" way, and expand the teaching dimension of vocational colleges. Secondly, industrial economic development has strong regional characteristics, therefore, vocational colleges should, according to the characteristics of regional economic development, through the use of big data, Internet of things and other technical means, build a digital analysis platform, sort out the supply and demand of talents for regional economic development, to achieve the integration of production and education, school-enterprise cooperation and high-quality development goals.

3.Improve the guarantee mechanism of digital collaborative education

The world of work in the smart era is an era of resource sharing and integration. The construction of modern vocational education also needs to conform to the development of The Times. The development of enterprises and industries has a strong guide, which can bring first-hand high-quality resources and promote the high-quality development of vocational education. First of all, based on the changes in the intelligent era, vocational colleges should speed up the introduction of enterprises and industries to participate in the construction of vocational education, break the information barriers, achieve the purpose of consultation, joint construction and sharing, and jointly promote the high-quality digital development of vocational education, the transformation of results and then boost industrial economic development, and finally achieve a win-win situation. Secondly, the authenticity and falsification of information records in the intelligent era lead to frequent trust crises. There will also be related problems when enterprises and industries participate in the digital construction of vocational education. Therefore, schools, industries and enterprises should build a diversified governance mechanism based on blockchain technology. Blockchain has two core features: first, data is difficult to tamper with, and second, it is decentralized. Based on these two characteristics, the information recorded by blockchain is more authentic and reliable, which can effectively solve the differences between schools, enterprises and industries in the process of collaborative construction of vocational education digitalization, and form a real situation of joint governance of multiple subjects.

Epilogue

How to realize the digital transformation of vocational education under the change of the working world in the intelligent era is the premise of high-quality development of vocational colleges, and an important issue to deepen the integration of production and education and improve the quality of talent training. The 20th report of the CPC proposed to "accelerate the construction of digital China" and stressed the need to "promote the digitalization of education". In this context, the rapid development of intelligent technology provides a major opportunity for the digital construction of vocational education, and provides personalized and diversified technical support for talent training in vocational colleges. Vocational colleges should firmly grasp the opportunity, drive endogenous variables under the intelligent change, improve the digital level from teaching, practical training and other aspects, and lead the digital development of modern vocational colleges.

References:

- [1] Yanli Xu,Wen Li. AI reshaping the World of Work and the Adaptation of Vocational Education Informatization [J]. China Audio-Visual Education, 2020(1):6.
- [2] Biyi He,Qinghai Li. Discussion on the quality evaluation System of Vocational Education Talent Training in the Era of Artificial Intelligence [J]. Hebei Vocational Education,2021,5(01):23-26.
- [3] Huiping Wu. Digital Transformation of German Vocational Education: Strategic planning, project layout and effect evaluation [J]. Foreign Education Research, 2021, 48(4):13.
- [4] Long Xiao. The Change of the working world in the Era of Intelligence and the response of Higher Vocational Education -- Based on the analysis of socio-technical system theory [J]. Higher Engineering Education Research, 2019(3):7.
- [5] Yong Yang,Xu Lin,Huan Kang. Information Technology Assisting ecological reconstruction of vocational education: endogenous logic, target direction and promotion path [J]. Educational Theory and Practice, 2021(9):24-30.
- [6] Dayong Yuan,Rumeng Liu,Xinyi Shen. British Industry 4.0 Strategy and Vocational Education coping strategies: Based on the analysis of the City of London [J]. Vocational Education Forum, 2021, 37(6):8.

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