Research on Challenges and Optimization Suggestions for Digital Transformation of Education in China

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Abstract. The development of today's world has entered a completely new historical process, and carrying out the digital transformation of education is an important basic condition for building a high-quality education system in China. This paper analyzes the connotation of education digitalization, studies the achievements made in the process of education digital transformation in China, finds out the challenges faced in the work, and puts forward three suggestions to improve strategic planning, strengthen infrastructure construction, and improve the digital literacy of teachers and students, to promote the work of digital transformation.

Keywords: digitization of education; digital transformation; strategic planning; digital literacy.

1   Introduction

In the field of education all over the world, the essence of education digitization is the high-level evolution of education informatization in the new era of improvement and upgrading, which is in line with the development trend of the digital era. The change and innovation of education digitization can open up and develop a brand-new form in the field of education, and it is an important support and main driving force for realizing the modernization of education. This paper reviews the research on education digitalization in China since the 21st century, organizes and summarizes the reality base, analyzes the characteristics of its development, summarizes its main achievements, analyzes the realistic challenges it faces, and puts forward suggestions for the transformation of education digitalization in China.[1]

2   The meaning of digital transformation in education

2.1   Basic concept

The concept of digital transformation in education has its origins in digital transformation, which means the integration of digital technology into various fields of activity and the systematic and comprehensive change and reshaping of the way human beings

carry out their activities. This process of change is not simply upgrading systems, collecting data, or updating equipment, but rather, on the basis of digital conversion and upgrading, systematic planning at the strategic level to comprehensively enhance the digital awareness, thinking, and capabilities of different subjects. Digital transformation in education is a process that deeply changes business models and promotes innovation in production methods or organizational forms and is characterized by long-term development and evolution and continuous iterative upgrading.[2]

2.2   Core features

In the age of intelligence, China has carried out a series of explorations on the digital transformation of education. At the present stage, China's digital transformation of education mainly presents the following core features: Learning environment-based pedestal; Deep Integration of Intelligent Technology Clusters and Education Theory; Emphasize the cultivation of multi-subject digital literacy.[3]

3   Realistic basis

Digital transformation of education is an all-round, multidisciplinary, and broad-level process of systematic innovation and change, which has an important impact on the cultivation of talents in China and has a far-reaching impact on the digital transformation work of the whole society as well as on the national competitive advantage in the new era.

3.1   Development overview

Digital transformation of education is an all-round, multidisciplinary, and broad-level process of systematic innovation and change, which has an important impact on the cultivation of talents in China and has a far-reaching impact on the digital transformation work of the whole society as well as on the national competitive advantage in the new era. First, the stage of education digitization infrastructure construction. Second, the stage of development of education digitalization applications. Third, the stage of digital innovation development. [4]

3.2   Development characteristics

Since 2000, the digitalization of education in China has taken more than 20 years to develop, and we have identified a path of digitalization of education that is in line with China's national conditions. The details are as follows: coordinated and systematic promotion; literacy first and people-oriented; application-driven and integrated innovation; and strengthened assurance and efficient implementation. During these 20 years of development of education digitization, the healthy development of education digitization in China has been strongly promoted through the establishment of target assessment, the improvement of supervisory mechanisms, extensive publicity through multiple

channels, the piloting and then promotion of applications, and multifaceted participation. [5]

3.3 Major achievements

Over the past 20 years or so, with the full cooperation of all sectors and all levels, the digitization of education in China has achieved leapfrog development and made historic development achievements, and explored and formed a road of development for the digitization of socialist education with Chinese characteristics in line with China's national conditions. Specifically, the following has been achieved: the digital infrastructure has been basically built and continuously improved; digital technology has facilitated the smooth implementation of education and teaching reforms; a system of governance for the digitalization of education has been established; and the international influence of the digitalization of education has been greatly enhanced.[6]

4   Challenge

With the development of the times and the continuous innovation of technology, all fields of society are continuously transformed and upgraded in the direction of digitization and intelligence, and as an important foundation for the development of the national economy, education must also keep pace with the development of society. The digitization process of education has ushered in great opportunities for development under worldwide changes of a scale unseen in a century, and at the same time, it is also facing great challenges.

4.1 Uneven digital development

During the epidemic, online education and digital technology provided educators with countermeasures and guarantees to cope with the epidemic, but they also exposed the reality of the unbalanced and insufficient development of education digitization in China at the present time. Such as the geographical imbalance in the construction of education digital infrastructure and online network quality can not be guaranteed, digital quality education resources can not be equitably shared, and other issues. The phenomenon of unbalanced development of educational digital technology between regions and between urban and rural areas is extremely serious, and the digital teaching literacy of teachers and the digital learning literacy of students also suffer from a lack of capacity due to the imbalance of geographical resources.

4.2 Lack of infrastructure

The new infrastructure for education is a fundamental force in the digital transformation of education, and accelerating infrastructure development is an important strategic initiative to accelerate the modernization of education and build a strong educational nation. However. There are still many shortcomings in the current infrastructure

construction that can be compatible with the digital transformation work. For example, data security and privacy issues cannot be guaranteed; there are few applications for the integration of digitalization and teaching work; and the governance system, evaluation index system, and service system of education digitalization are not perfect enough. In addition, quality educational resources that can meet the needs of digitized teaching and learning still suffer from a long updating cycle, imperfect planning and design, and an imperfect mechanism for sustainable quality enhancement.[7]

4.3   Lack of digital literacy

The Fourteenth Five-Year Plan for the Development of the Digital Economy proposes to vigorously develop the digital economy and enhance the level of digital industrialization. However, at present, teachers and students in some areas of China do not have enough mastery of the content of digital work and learning, and students' self-control and cooperation ability in online learning are too poor to adapt to the needs of learning and life in a digital society, and it is difficult to meet the requirements of online learning. At the same time, in the face of the high-quality parenting model and digital teaching concepts, the digital professionalism of many teachers has yet to be improved, especially the professionalism and skills required for teaching have yet to be upgraded.

5   Suggestion

Xi emphasized that there can be no modernization without informatization. In the report of the 20th Party Congress, the important assertion that "education, science and technology, and human resources are the basic and strategic support for the comprehensive construction of a socialist country" was put forward for the first time, which demonstrates that education, science and technology and human resources occupy a very important position in the development process of the Party and the country's cause. In order to accelerate the construction of a strong education, science, and technology country and a strong talent country, it is necessary to deeply promote the digital transformation of education.

5.1   Enhancing design and planning

In the process of promoting the strategy of digital transformation of education, it is necessary to strengthen the pivotal role of the national center, the unified distribution of digital education resources, and the establishment of a unified leadership agency. Unified leadership to conduct research work on theories, policy practices, standards, and norms to accelerate the functional, service, and systematic upgrading of China's digital education. Continuously improve China's education digitization policy system, for education digitization of new concepts, new strategies, implementation paths, standards, monitoring systems, supervision, and evaluation system to assess the guarantee. At the same time, we should also pay attention to the protection of intellectual property rights and privacy protection in the process of digital education, and introduce perfect

laws and regulations for these aspects, in order to promote the all-round, full-coverage digital transformation of education.[8]

5.2   Accelerating infrastructure development

Sharpening your axe will not delay your job of cutting wood. In order to successfully promote the digital transformation of education and the reform and development of education, it is necessary to accelerate and improve the construction of a new type of educational infrastructure. Through the use of 5G technology, artificial intelligence, big data, virtual classrooms, and other new-generation digital technologies, we will accelerate the construction of new digital infrastructure in education information networks, platform systems, digital resources, smart campuses, and innovative applications, and establish a support system for the digital transformation of education. Through the sharing of digital resources and the construction of platform systems, digital campuses have been realized, and the construction of "cloud classrooms" between weak rural campuses and high-quality urban campuses has been strengthened, so as to realize the sharing of genuine digital teaching resources and build a digital teaching network for the interoperability of learning at all levels and in all categories.[9]

5.3   Insist on improving the digital literacy and skills of teachers and students

The digital literacy and skills of teachers and students are the basis for teaching and working in the digital age, so we need to develop a system for developing students' digital literacy and skills. For example, students are guided to develop their digital literacy in the basic education stage, and corresponding courses are formulated and regular training is carried out. Formulate a digital competence development system for education administrators, train education administrators in digital literacy through systematic courses, and improve the digital leadership ability of education leaders. Make full use of the teacher training function of the national smart education platform, and encourage teachers to carry out online and offline integrated teaching to improve their digital literacy skills in work practice.[10]

6   Conclusion

In the course of nearly 20 years of development of informatization, modernization, and digitalization of work, we have achieved significant results. However, the world landscape is now quietly changing, putting forward higher and newer requirements for our economic development, and education work, as the basis for economic development, needs to keep pace with the times. Accelerating the digital transformation of education can effectively improve the degree of integration of our education with the new era. In the process of education digital reform, we should adhere to openness and cooperation, draw rich experience from the education digital transformation work of countries around the world, and create a system of education digital transformation with Chinese

characteristics, so as to provide strong support for the cultivation of talents, scientific research, economic development and other important work in China.

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