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Digital Reform of The Education Industry in The Post-Epidemic Era

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ABSTRACT

In response to the outbreak of COVID-19 epidemic, an unprecedented online education practice was launched nationwide, accelerated the education transformation. At present, epidemic prevention and control has entered a stage of normalization. How to promote the continuous and in-depth development of digital education in the "post-epidemic era" is a matter of great concern to the education system and the entire society.

Digital application has changed the traditional education management system, from offline to online, so that the learning of the master is no longer restricted by region. Word-based education has promoted education and teaching reforms in different aspects, bringing more and more experience and enlightenment to the construction of digital campuses in the future, and also providing a strong guarantee for students' home learning. At the same time, digital application training promotes teacher professional development, is spawning a new teacher professional role and ability structure.

Keywords: *Education, Online, Offline, Epidemic, Digital.*

I. INTRODUCTION

The outbreak of COVID-19 epidemic since 2020 has caused an unprecedented impact on the country's economic and social development, and has also had a greater impact on the education field. The direct impact of the epidemic on education mainly includes three aspects.

The first is "Suspension of classes without cessation of teaching, suspension of classes without cessation of schooling" during the epidemic, which has demonstrated the reality of science and technology promoting the fair development of education. The online education campaign has improved educational equity in three aspects: urban and rural equality, curriculum sharing, and resource sharing. It is also the value and advantage of the development of digital education in the "post-epidemic era".

The second is course sharing. During the epidemic, many regions have opened air classes and online classes to present excellent courses from key schools and famous teachers to all students. Students can easily obtain free high-quality courses on the internet on the whole country, which is consistent with the online classes provided by schools. Educational services have formed complementary effects, breaking the monopoly of high-quality resources by famous schools and educational institutions, and greatly promoting the process of education equity.

The third is the sharing resources. Through video transmission, courseware dissemination, case sharing, and other methods, many children from disadvantaged families can obtain these information and knowledge that they could not so easy get before. At the same time, the professional development of teachers in non-quality schools has also benefited a lot. Many teachers upload their results to the digital platform. Teachers from different regions, schools, and disciplines learn from each other and learn from each other, which greatly promotes the professional exchange and professional development of the teacher group.

At present, the rise of artificial intelligence, big data, Internet of things, 5G and other digital technologies are reshaping our world. The digital economy and artificial intelligence are developing vigorously. Information technology is advancing education reform in all directions and accelerating.

II. RESEARCH METHOD

This paper is qualitative research, the post-epidemic era has brought a huge impact to education industry and also brought new opportunities for the transformation and development of education industry from informatization to digitalization. There are five suggestions for the digital reform of education.

2.1 The education department should continue to strengthen policy guidance and guarantee.

During the epidemic, online education was a large-scale education experiment to test the digital education. Many actual educations needs and specific issues were presented to us.

In many schools during the epidemic period, just simply moved the "classroom" to the Internet, and the teaching mode has not undergone essential changes. This means that the quality evaluation and assessment mechanism for online teaching needs to be established as soon as possible. In some remote areas, teachers and students still lack the technical support and resource guarantee for online teaching, which means that the technical support for online education is still weak, and curriculum resources need to be expanded. Therefore, education departments should analyze the outstanding problems and successful experiences of online education practices in the early stage, further improve policies, establish standards, formulate norms, and strengthen guarantees, leading the development of grassroots informational education as soon as possible through the groping period.

In general, it is necessary to focus on balancing government control and market regulation: On the one hand, we should address the gaps between urban and rural areas in technology, resources, and teachers during the epidemic, and promote online education to ensure informational education; on the other hand, it should flexibly implement the purchase policy of information resources and services, create a better policy environment, and actively encourage enterprises to invest funds to provide better and newer information technology and products. In terms of educational reform, accelerate the construction of a new curriculum system that adapts to the Internet age and the intelligent age, systematically carry out theoretical and practical training for all types of education practitioners at all levels, and conduct targeted comprehensive experiments in informational education areas.

2.2 Emerging companies must continuously improve the supply capacity of the industry.

In the post-epidemic era, various internet education institutions and technology companies should carefully study the characteristics and needs of the education industry, deeply analyze the needs and feedback of different users, do a good job in the research and the education products. Also need continuously improve the accuracy of education services.

First it needs to be deeply integrated. Information technology is developing rapidly, and education is a "slow" undertaking, with characteristics that cannot be easier. Therefore, internet education institutions and technology companies should base more on the development of the education industry and the needs of educating users, strengthen normalized interaction and cooperation with education departments and schools. Explore schools and enterprise cooperation, education-enterprise integration will provide more high-quality products and services to all kinds of education users to meet the in-depth demand for new technologies in the development of the education industry.

Second, we must achieve precise service. On the basis of education, enterprises should continuously improve their service capabilities, use such as data analysis and artificial intelligence, strengthen the construction of "data cloud", give students and educated users better interactive and intelligent services. It is necessary to provide more optional platforms, resources and solutions for the application environment of different regions, different schools, and the differences in information technology literacy of teachers and students, so that every education manager, teacher, student, parents can personally feel the changes and benefits brought about by the internet.

Third, we must achieve more diversified supply. As far as future education is concerned, whether it is online learning, online and offline integration, or comprehensive education where technology companies can do a lot. From the perspective of the terminal needs of education, on the one hand, it is "specialized" and "precise", on the other hand is "full" and "integrated", which requires the construction of a more integrated "online education complex". In this direction, Internet education companies are not necessarily developers of platforms and resources, but can also be integrator with other advantages such as professionalism, traffic, and branding.

2.3 Grassroots schools should deepen the normalization of applications.

Judging from the actual situation of online teaching during the epidemic, how to clarify the relationship between on-site teaching and online teaching, and how to construct a new model of course teaching based on webcast and cloud resources when the inherent education model and implementation path cannot be reversed in the short term. How to reshape the teacher-student relationship, student-student relationship, and home-school relationship in the context of the internet should become a regular topic for the key research and practice of educators in the "post-epidemic era".

Facing the trend of change, today's education managers and teachers must have consensus and actions in three areas:

One is to promote changes in learning methods. It is necessary to actively explore the use of new learning methods such as project-based learning, topic-based teaching, and deep learning to promote the transformation and iteration of teaching methods. An obvious advantage of the Internet is that it can provide a large number of learning resources. Therefore, online teaching is no longer simply to present knowledge to students, but also through setting up problem-based, challenging and participatory learning projects or theme. Enhance learning effectiveness, and focus

on cultivating knowledge acquisition capabilities, thinking styles and ideological qualities, so as to truly realize broad and deep learning.

The second is to promote the reform of evaluation methods. A major trend in education reform is to improve teaching effectiveness through procedural and interactive evaluation. One of the prominent advantages of online teaching is that it can pay attention to the learning status and progress of each student through technical means. Therefore, in the future integration of online teaching and offline teaching, teachers should use more real-time, interactive, and visual evaluation and feedback to guide and promote students to better discover, apply and create knowledge. In the practice of online teaching during the epidemic, many teachers used We-chat punch-in solitaire, circling, commenting, and likes, which played a good role in improving the effect of online teaching.

The third is to promote the reconstruction of the education ecology. It is generally believed that the development of Internet technology will eventually break the school walls and make education and learning activities ubiquitous. At present, many regions and schools are actively exploring the establishment of online parent schools, smart public service platforms, data-based education quality monitoring systems, and teacher growth platforms. These explorations have made school education more and more open, and parents and relevant education parties have depth participation in the whole process of education has played an important role in improving education governance capabilities and education satisfaction. In the next step, the school should strengthen its connection with technology companies, adhere to the demand-oriented approach, integrate and build an integrated smart education platform based on new technologies such as "discipline teaching and research interconnection", "curriculum resource sharing cloud" and "home-school education service end", and effectively expand the field of school education, truly realize "sharing" education.

The fourth is accelerate the construction of smart campus, including campus infrastructure, smart teaching environment, smart teaching resources, smart teaching management and smart teaching services. The smart campus infrastructure is the infrastructure guarantee for the smart campus platform. It provides heterogeneous communication networks, massive data storage, providing basic support for various applications of the smart campus, and providing data for big data mining and analysis. The smart teaching environment constructs the management and service applications of the school's daily teaching environment, and provides support services for teachers and students' teaching activities. Including multimedia classrooms, smart classrooms, maker training environment and other application units. The large-screen electronic whiteboard in the smart classroom replaces blackboards, chalks, and textbooks. The tutorials are in the form of pictures and texts, combined with audio and video. The intelligent teaching environment is guided by the realization of the individualized development of students, and guides students to become active learners through individualized curriculum content and teaching methods. Intelligent teaching resources are an important functional unit of the intelligent campus. Each school or each class can learn together through a remote interactive system. Users can access the resource management platform through multiple access methods, and search, browse or download the required resources. Expand the coverage of high-quality educational resources and realize resource sharing. Intelligent campus management refers to the management information system of the administrative management, teaching management, scientific research management, human resource management, asset management, financial management, etc. of the school's administrative departments. Wisdom teaching campus service is the concrete manifestation of campus information service, which provides an Internet-based campus public service system for teaching. The management and services of smart campus services provide support services for online users, complete the intelligent collection of teacher and student behavior data, and apply them to digital libraries, campus life services, campus security services, operation and maintenance guarantee services, and virtual campus services.

2.4 5G + distance education promotes the all-round development of smart education in schools.

Compared with 4G, 5G network takes advantage of its high transmission rate, high stability, low latency, wide connection of multiple terminals and high adaptability to the mobile environment, which can effectively solve the long delay of remote video transmission in the past wireless transmission, “Unclear, Unstable” problem, realizes the ultra-high-definition audio and video transmission, the sound and image are clear and smooth, making the children’s class experience livelier. In schools, 5G can help explore and expand applications such as holographic classrooms, AR/VR immersive teaching, and virtual experiments; outside the school, 5G breaks geographical restrictions, solves the shortage and instability of teachers in remote areas, and enables teachers and students at teaching sites to form communities, Close contact and timely communication, realized the linkage of rural and urban education, and narrowed the gap in education level, which is of great significance.

2.5 The epidemic has accelerated the integration of AI education.

Affected by the epidemic, schools and universities across the country have postponed their admissions in spring. The government has issued policies to encourage "online classes". Students and parents' understanding and acceptance of online education are obvious. At the same time, the offline business of education and training institutions has been impacted, and the transformation of the model and the development of online education have been accelerated. The penetration rate of the AI education model has increased significantly during the epidemic. In the mode of integration of artificial intelligence and education, artificial intelligence technology is mainly used to collect a large amount of data to identify students' learning patterns, rules, etc., and to predict learning trends and provide solutions through analysis. The large amount of data and the difficulty of real-time processing have always

been a major challenge in the application of artificial intelligence technology in the education field. The peak downlink rate of 5G network is about 20 times the 4G rate, which can greatly shorten the data transmission time and improve the application of artificial intelligence technology in the education field. At present, the use of artificial intelligence technology in education is mainly concentrated in language assessment, intelligent correction, photo search, intelligent lesson scheduling and other scenarios. It is expected that the commercial and popularization of 5G will deepen the application scenarios of artificial intelligence. AI classrooms, AI lecturers, etc. are been widely used.

With the advent of the Internet of Things era, a reliable network foundation has been provided for the construction of smart campuses. The construction of smart campuses is not only a response to the national education modernization policy, but also the focus of general attention of the general public in recent years. The construction of “smart campus in colleges and universities” must rely on emerging technologies such as big data, the Internet of Things, and cloud computing to advance steadily. At the same time, major universities must increase funding for the construction of smart campuses, give full play to their advantages in professional talent reserves, and cultivate Only professional information talents can build a high-level smart campus.

Since entering the education informatization 2.0 era, using the technological advantages of AI and big data, that has developed key applications and platforms such as smart classrooms, smart classrooms, and smart campuses, and built a set of intelligentization covering "teaching, educational administration, teaching and research" The smart education solution of scene innovation is committed to forming a closed loop of the business chain of "teaching, learning, management, and evaluation", realizing innovation in teaching methods and reforms in teaching models, and gradually presenting a model of "future education".

With the deepening of teaching reform and the vigorous promotion of classroom teaching reform by the Ministry of Education, the concept of education and teaching is shifting from "teaching-oriented" to "learning-oriented". New teaching models, such as group discussion, small classes, flipped classrooms, and mixed teaching are being promoted. Therefore, under the baton of the "three classrooms" of the Ministry of Education, the smart education industry took advantage of the trend, focusing on providing a new generation of digital solutions for campuses, classrooms, and education management has become a hot industry nowadays, but not all smart education entrants Can provide the ability to provide one-stop smart solutions from end to cloud.

III. DISCUSSION

In the traditional world, people exist as separate individuals. In the world of the Internet, computers are used to access through IP. In the digital world constructed by the code chain, the unit is based on digital people. It is composed, all human behaviors and all economic activities in society are connected together by scanning. In this way, we have the ability to manage all the activities of human society in a unified way.

In the digital transformation, education is the slowest growing field, and it still tries to retain outdated teaching methods and educational practices. Digital education can break the limitations of time and space, and connect people and people, people and things, things and things, anytime, anywhere. Specifically, the main advantages of the digital transformation of education are reflected in the following aspects:

The first is to integrate teaching resources through digitization, so that high-quality educational resources can be shared. Using scientific and technological means, students in remote areas can enjoy better quality education, so that students can learn more. The problem of uneven distribution of educational resources has been resolved in the process of digital transformation.

The second is to track student performance. Digitization has brought a more practical way to track student performance. Technology can play an important role in capturing the details of a student’s homework, helping teachers and parents to monitor their children’s progress.

The third is to empower personalized learning. Students can independently choose the difficulty and progress of learning content, and interact with teachers at any time, which is conducive to teaching students in accordance with their aptitude. One-to-one tutoring is a good example of personalized learning, but the cost is higher, and the digital transformation can be similar to one-on-one tutoring, while also freeing up time for teachers to do other things. For example, if students and teachers can use the same teaching materials, the teacher will issue different lectures to students of different levels, so that students can achieve the effect of "teaching in accordance with their aptitude", thereby improving teaching efficiency. Perhaps, how many categories are graded and how to teach each category according to their aptitude can become an important indicator for evaluating "special-level teachers" in the future.

Fourth is to improve the results through data analysis. Schools can use analytic to track student performance and improve results. By analyzing the data collected by students using technology in the classroom, teachers can better understand what each child needs. Therefore, the Internet of Things needs to be accessed in real scenarios, rather than virtual IP access from the Internet.

Fifth is to cultivate collaborative learning. With the help of the internet of things, students can participate in learning through various forms such as mutual collaboration and competition. This will not only help deepen the understanding of the problem, better master the knowledge, but also cultivate the spirit of cooperation and the formation of good interpersonal relationships. It also played a great role in promoting.

IV. CONCLUSION

The deep integration of digital technology and the education industry is undoubtedly the direction of future education development. Digital transformation provides innovative solutions for the reform of the education industry and changes the past teaching methods. This not only breaks the barriers of high-quality teacher resources across the campus space and benefits more students, but also broadens students' horizons and increases their interest in learning.

In general, the development of digital education in the "post-epidemic era" should further develop its strengths and avoid weaknesses, expand its advantages, and follow the trend of iterative renewal. It should actively adapt to the needs of economic and social development for the training of new talents and implement the requirements of educational information, digitization and intelligent action, create a rich and diverse curriculum resources, teaching environment and learning space, promote the reconstruction of educational organization and education ecology, promote the legalization of digital education and the construction of network ethics, and vigorously cultivate a safe, orderly, healthy and fresh, shared and co-governance cyberspace.

The education sector should continue to strengthen policy guidance and guarantees. We should promptly summarize and analyze the outstanding problems and successful experiences in the early online education practice, further improve policies, establish standards, formulate norms, strengthen guarantees, and lead the development of grassroots education informatization as soon as possible. During the exploratory period and the painful period of "crossing the river with stones", the focus is on balancing the relationship between government control and market regulation, administrative leadership and professional leadership.

Emerging companies should continuously improve the supply capacity of the industry. All types of Internet education institutions and technology companies should seriously study the characteristics and needs of the education industry, deeply analyze the needs and feedback of different users, do a good job in the research and development, optimization and iteration of education products, and continuously improve the accuracy and effectiveness of education services. It is necessary to deeply integrate, based on the needs of the development of the education industry and the application of education users, and strengthen the normalized interaction and cooperation with education departments and schools.

Grassroots schools should deeply promote normalized applications. Education managers and teachers must grasp the unchanged educational purpose and changing educational form, the unchanged teaching content and the changing form of expression, the unchanged curriculum standards and the changing curriculum resources, the unchanged teacher-student friendship and the changing exchanges Actively explore the application of project-based learning, topic-based teaching, deep learning and other new learning methods, promote the reform of process and interactive evaluation methods, and effectively expand the field and time space of school education by relying on "Internet +". To truly empower education with technology, from "strain" to "butterfly change."

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