

Research on Educational Development from the Perspective of “Internet +”

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Abstract: As the information society continues to develop and progress, “Internet +” as new business type of the Internet has brought new opportunities to traditional industries. In particular, “Internet +” as an emerging information technology has profoundly changed the education industry. In order to explore the educational development from the perspective of “Internet +”, this paper first introduces the concept and key characteristics of “Internet +”, and then probes into the opportunities brought by “Internet +” to educational development from three aspects: course, teaching/learning and evaluation, and finally puts forward two suggestions for the educational development in the view of “Internet +” for future reference.

Keywords: “Internet +”; Education; Development

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1 Introduction

With the rapid rise of the Internet economy and the continuous influx of a large amount of capital, a large number of emerging Internet technologies such as big data, artificial intelligence, virtual reality, artificial intelligence and so on have emerged in recent years. How these emerging technologies can be combined with traditional industries has become a hot research field, and the concept of “Internet +” has been spawned. The combination of education and “Internet +” is profoundly affecting and reconstructing the education industry. How to promote the reform and development of the education industry through

“Internet +” is worthy of further discussion and research.

2 The connotation and key features of “Internet +”

“Internet +” refers to a new business type developed from the Internet against the backdrop of Innovation 2.0 (the innovation form of the information age and knowledge society), namely, it is a new form of Internet-based economic and social development driven by Innovation 2.0 featuring a knowledge society[1]. In more popular terms, “Internet +” is the use of emerging Internet technologies in the Internet era to influence traditional industries, that is, “Internet + traditional industries”. However, far from simply combining the two, “Internet + traditional industries” gives full play to the advantages of the Internet to integrate traditional industries with the Internet in a more profound way using emerging Internet technologies, with the aim to optimize, transform, upgrade, and reenergize these traditional industries under a new era with knowledge-based economy, thereby raising the innovation and productivity of various industries to a higher level, and spurring the society to develop faster and better.

“Internet +” has four key features. The first feature is cross-border integration. “+” itself is cross-border, change, opening, reshaping and integration^[1]. In other words, “Internet +” can only make these internet-based new technologies release gushing vitality when it is integrated and collided with different industries. The second feature is that innovation is its primary driving force. The advent of the information era has brought continuous innovation and development of technologies as well as tremendous changes of

people's lives. It takes only a few years to transit from cash payment to code-scanning payment and then to digital currency, which is a prime example of how Internet thinking drives innovation. The third feature is structure reconstruction. Information revolution, globalization and the Internet industry have broken the existing social structure, economic structure, geographical structure, and cultural structure^[1]. The fourth feature is Internet of everything. "Internet +" is committed to building an ecosystem that can eventually connect everything and promote social development and change.

3 Educational development in the era of "Internet +"

With the application of "Internet +" in the education field, the reconstruction of traditional education industry based on Internet thinking has become a new research direction in the field of education. "Internet + education" has emerged, various emerging technologies have been constantly applied to the traditional education industry, and have gradually penetrated into every sector and link of education, bringing vitality to the traditional education industry and helping promote the balanced development of the education industry.

3.1 Combination of "Internet +" and course

The combination of the Internet and course is referred to as the "Internet + course". First, from the perspective of teaching resources, the combination of the Internet and courses can allow more high-quality courses to be shared and high-quality teaching resources to be more widely available to the public. Second, courses are reconstructed using the emerging technologies of the Internet, which changes the way of how courses are presented and makes boring lessons "come alive" by developing vivid digital teaching materials, so that knowledge can be passed on to students in a more accurate and direct way. Take the use of Internet technologies in class as an example. In geography class, the use of VR technologies can provide students a fully immersive experience of the changes of various mountains and landforms; in physics class, the use of VR technologies can allow students to completely breaks the limitation of space and time to observe celestial bodies in the universe and the inside of atomic particles; in chemistry class, the use of AR augmented reality can allow

students to carry out virtual chemical experiments so as to avoid the danger of combustion and explosion caused by chemical reactions. The use of these technologies in reconstructing courses has overcome the disadvantages of emphasis on knowledge imparting in teacher-centered teaching and neglect for fostering students' interests and abilities in the past. With the application of these technologies in class, a high value is placed on the process of students' participation in learning, and students can be provided with an immersive and interactive experience, which effectively facilitates students to understand and master the contents in class, promotes students to develop an independent thinking, and cultivates students' hands-on ability. Third, schools with limited teaching resources can make use of the Internet platforms capable of real-time sharing to allow students to receive high quality education by watching the online live broadcast of schools with top-level faculty, so as to open their horizons and cultivate their self-confidence^[2]. It also provides high-quality resources that can be used for reference for the construction of more suitable school-based courses. Fourth, the integration of "Internet +" and course has played a significant role in promoting the balanced development of education, breaking through barriers of information monopoly, narrowing the digital gap of educational resources in different regions, thereby making education available and open to the public, and accelerating the pace of educational equity.

3.2 Combination of "Internet +" and teaching/learning

The combination of Internet and teaching is referred to as "Internet + teaching/learning". First, various excellent intelligent teaching platforms have been developed using the emerging technologies of the Internet, making blended learning a new perspective for the integration of "Internet +" and teaching/learning. In recent years, Massive Open Online Course (MOOC), Flipped Class and Micro-Course Online Video and so on have promoted the development of blended learning in varying degrees. Second, for teachers, these teaching platforms allow them to connect with students, and change the way they teach in class through online teaching or online and offline teaching, thereby enabling them to impart knowledge to students across time and space, making top-level educational resources available to a larger

number of students. Third, these platforms can also make it possible for students to be divided into online groups, learning materials to be distributed, and teachers and students to have real-time or non-real-time interactions, which greatly facilitates teachers' teaching and improves the efficiency and effectiveness of teaching. Fourth, for students, in the context of the Internet, students' learning data can be collected using big data technology, which provides students with personalized learning resources that are more in tune with students' needs. Students can get access to learning resources with only a device that can be connected to the Internet, making them learn in a more flexible way. Moreover, different teaching scenarios can be created using advanced Internet technologies, which enables students to study independently according to their own interests, hobbies, and characteristics anytime and anywhere, and discuss with teachers or learning partners either synchronously or asynchronously, thus making individualized learning, cooperative learning and lifelong learning possible, and bring the balanced development of education and the construction of a harmonious society a step closer to reality^[2].

3.3 Combination of “Internet +” and evaluation

The combination of Internet and evaluation is referred to as “Internet + evaluation”. In the traditional way of education, people often link the evaluation of students with examinations, while rarely take indicators such as student performance in the teaching process as the evaluation criteria. From a traditional education standpoint, it seems that examination is the only objective and scientific means to identify excellent students. In fact, students can be evaluated in a more comprehensive way, and examination is only a way to test the effectiveness of learning. In the era of “Internet +”, evaluation based on big data technology can be more intelligent, convenient and comprehensive. First, evaluation becomes a part of teaching activity, allowing evaluation to run through all aspects of the teaching process. For example, intelligent teaching platforms can record data such as students' preview before class, attendance, question answering in class, after-class homework and so on, and the data can be fed back to teachers in time after analysis and summary through big data technology, which allows teachers to adjust their teaching plan according to the data fed back to them and take the

data as part of the index of the overall evaluation of students. Second, big data technology can also be used to make timely early warning and decision-making for students' studies. More specifically, big data technology can be used to sort and visualize the relevant information and the dynamic data generated in the learning process, combined with teachers' teaching experience and understanding of students, to intervene students' learning behavior and learning style to make them realize their mistakes and deficiencies, so as to improve students' learning ability and academic performance^[3]. For example, big data technology can be used to record and track every link in the teaching process before, during and after class, and find out problems in time to give early warnings to teachers and students, which not only enables teachers to formulate intervention strategies, but also allows students to discover their own inadequacies and adjust their study plans. Third, students are not the only objects of evaluation in educational evaluation, teachers can also evaluate their teaching behaviors based on the information and data collected by big data technology, through which teachers can find out their strengths and deficiencies in teaching^[4].

4 Strategies of educational development in the era of “Internet +”

4.1 Improvement of teachers' ability to apply information technologies

As “Internet +” integrates with all sectors of education in a more profound way, explorations of teaching reform practices have been conducted on an increasingly in-depth level. The emerging information technologies represented by big data, artificial intelligence, virtual reality and artificial intelligence provide an important guarantee for the development of education in the “Internet +” era. For example, the intelligent teaching platforms based on emerging technologies can be used to impart knowledge, interact, do exercises or tests, process data and so on, making teaching far more efficient than traditional way of teaching. This shows that schools and teachers should take the improvement of their application ability of information technologies as their primary task in the “Internet +” era, so as to keep their initiative in teaching and make better use of Internet thinking and technologies to assist

teaching and improve teaching effects.

4.2 Greater emphasis on the application big data technology in education

The biggest advantage of developing the education industry in the “Internet +” era is that data can be collected from teachers’ teaching process and students’ learning process through big data technology and the collected data can be analyzed and fed back to teachers and students, which allows teachers and students to find out the loopholes and problems in the process of teaching and learning and take intervention or improvement measures promptly, thus the evaluation based on big data technology is more comprehensive and objective than traditional evaluations. Therefore, big data in the field of education is essential to the development of education in the “Internet +” era and must be given sufficient emphasis.

5 Conclusion

The emerging Internet technologies spawned by the “Internet +” era have had a tremendous impact on various industries, providing a new driving force for the development of traditional industries. Among them, “Internet +” has made a particularly drastic innovation in the education industry, affecting all links and processes of education. In terms of courses, the use of Internet technologies such as VR and AR in education not only provides teachers and students with high-quality and varied teaching and learning resources, but also allows students to have an immersive experience without the restraint of time and space in the process of learning. In terms

of teaching, the application of intelligent teaching platforms in education has made blended learning that combines online and offline activities a hot spot, changed the teacher-centered teaching methods in the past, and enhanced students’ initiative and independence in learning. In terms of evaluation, the application of big data technology to collect data from all links of teaching for analysis, diagnosis and feedback can facilitate not only teachers’ “teaching”, but also students’ “learning”. As “Internet +” further advances and new technologies such as big data, artificial intelligence, virtual reality, artificial intelligence and so on be applied at increasingly higher levels, the educational gap in different regions can be gradually narrowed, and educational equity can be brought a step closer to reality.

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