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Analysis of Innovation in Online Education Industry in the Age of Artificial Intelligence

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Abstract: With the development of artificial intelligence, the concept of "online education" has been interpreted in a new way. At present, the online education industry includes traditional media, such as online education, broadcasting and so on. In such an environment, the means of production, production tools and productivity of the online education industry will change, and its theme, form and content production should undergo AIOT transformation, so as to embark on the innovative development of the online education industry in the period of artificial intelligence.

Keywords: Artificial intelligence; Online education industry; Problems

Introduction

Online teaching under the vision of Artificial Intelligence, using AI and network technology, has driven the innovation of teaching and learning. In recent years, online teaching has attracted much attention, and its development has led to changes in teaching products, constituent elements, service modes and industrial structure. However, due to objective conditions, there are problems such as unregulated operation, insufficient supervision of courses, and difficulty in controlling the quality of teaching, all of which constrain its normal development.

1. Challenges and opportunities of the times

Today, we face unprecedented opportunities and challenges. And one of the most striking of these is the rise of artificial intelligence. A BBC study has pointed out that many jobs are being replaced by machines and unmanned systems, which are gradually being replaced by AI. This new technological revolution has not only led to a dramatic change in the shape and face of development throughout the world, but has also profoundly affected people's perceptions.

Before the emergence of information technology, the main body of this world was material, that is, the society of human beings. However, with the popularity of computer networks, people are in transition from the original 2D to 3D, which has changed the law of human development. In particular, "unconscious intelligence" is gradually becoming a new way of development in all walks of life and new ways. This has led to the arrival of "Big Data", which has greatly affected human awareness and knowledge, and has brought about the problem of "information explosion". In nearly 30 years, more information has been generated than in the previous 5, 000 years combined. The 21st century New York Times, for example, delivers more information in a week than the average 17th-century academic does in a lifetime. The result is that the frequency of knowledge upgrades has dropped from 50 years to three to five years.

With the emergence of new situations such as "big data" and "knowledge overload", a new development trend has emerged in the teaching work of Chinese universities. In addition, the concept of "new" is not limited to the physical world, but includes the "virtual" world represented by "meta-universe". The new round of technological and industrial revolution is profoundly affecting people's ideology and teaching methods. The previous three industrial revolutions were all about "science and technology making, things helping people", that is to say, using high technology to make new equipment and replacing people's manual labour with new productivity. However, in the fourth industrial revolution, people pay more attention to human intelligence work. [1]

This shift has greatly impacted our research and thinking. In this context, previous research methods such as empirical analysis and pattern inference can no longer meet the real needs. In the big data environment, associations are often based on correlation rather than necessity. This requires us to re-conceptualise, re-understand and rethink.

At the same time, the paradigm of what drives people to transform the natural world is changing. From population size in the age of agriculture, to intelligence in the age of industry, to algorithms, models, and rules in the age of Artificial Intelligence, it's all made up of a small group of people. This pattern is quietly affecting the way we live, learn, work, and even think and teach.

Technological progress is the fourth major change in history. From language and writing to electronic information technology, we are gradually moving towards an information civilisation, and the means of teaching and learning are gradually becoming digital and intelligent. On the existing digital teaching platform, intelligent teaching will promote the development of intelligent guidance, precise recommendation, situational awareness, intelligent management and personalised services, so that everyone can enjoy teaching methods that suit them.

2. Transformation of Online Teaching to IoT Technologies in the Perspective of Artificial Intelligence

Online teaching has the characteristic of "medium". From the perspective of artificial intelligence, the advantages of audio and video teaching media have been maximised, and they have been organically combined with the teaching content of family education to form a new type of media platform. The family is the foundation of human survival, which has a benign interaction with online education in the period of artificial intelligence, making family education an indispensable part of the network education system. The combination of online teaching and the use of artificial intelligence can cultivate a composite "human-machine" combination of teachers with the ability to explore and explore multiple sources of information in depth. [2] The popularity of AIOT (AIOT) technology has laid a solid foundation for the development of online teaching, massive data collection and intelligent processing of work, etc. The fusion of AI (artificial intelligence) and IOT (Internet of Things) technology makes online teaching show a high degree of situational and customised characteristics, which guarantees truly intelligent and personalised quality services.

A solid academic community is formed based on families. Cooperative learning is achieved through communication between parents and students. Parents have a common learning goal of getting high-quality homework done for their children, which helps parents to communicate and learn more from each other, and from parents and students, making parents more self-motivated. With the rise of Artificial Intelligence, the interworking of people with things and things with things has become an important guarantee for the promotion of quality online teaching and learning.

With the rise of the Internet, the study of the Internet of Things (IoT) has reached a new level. Network slicing is a network structure based on one shared network, which enables a variety of different functions and meets the needs of different applications. Integrating network slicing with AIOT enables online learning platforms to easily access various types of connected devices in the user's home, thus enabling all-round, multi-form learning. The connection between the two makes online teaching much more effective. AIOT-based online teaching can take advantage of the advantages of Internet slicing to lay a solid foundation for building a collaborative home teaching media platform in the new era.

3. The road to the development of the online education industry under the vision of artificial intelligence

Using multi-screen interaction, the online teaching platform allows seamless interconnection between different terminals, thus greatly improving the students' experience. The network TV box is a major carrier of online teaching, which has a large amount of teaching materials and a variety of functions such as playback and broadcasting. However, most of the current network teaching devices are in the form of large screens, which cannot well adapt to the requirements of media platformisation, mobility and intelligence in the network era. Although China Mobile provides a large number of TV resources, such as the TV programme "Chinese Language" (Humanistic Version), these programmes are provided for various educational institutions and lack personalized recommendations for students as well as intelligent interaction. [3]

Edge computing and network slicing are effective ways to solve the above problems. This is of great significance in accurately grasping the teaching objectives of a course and improving the quality of teaching. At the same time, the rise of OTTTV Smart Online Teaching allows users to freely download and down load various applications for more flexible and personalised teaching. By collaborating with qualified Internet companies, smart online teaching systems have access to more resources to suit various needs. Huawei, for example, has worked with GITV to develop two categories of "home lessons" and "classrooms", the first of which is for children's home teaching, and the second for parents' learning. However, the big data collection and analysis functions of smart online teaching have not yet been put to good use and need to be explored in depth.

In this context, online teaching is being reconfigured from manual manufacturing to a deep neural network-based human-computer interaction manufacturing process. The traditional three different modes of UGC, PGC, and OGC are undergoing mutual combination and splitting into a new type of content production mode. [4] Machine-based deep neural networks simulate the working mechanism of the brain to generate high-level abstract concepts by parsing and fusing the underlying properties. The traditional production process of online teaching includes planning, topic selection, scripting, filming, production, and broadcasting. However, with the development of new teaching and communication technologies, the traditional teaching mode is undergoing a process from massive information collection to AI generation, from manual review to human review, to human-computer integration, and then to use and feedback. For example, in homework guidance, AI develops

targeted guidance plans for children through the collection and analysis of big data, allowing parents to give help when needed to improve students' academic performance.

With the widespread use of mobile terminals such as smartphones, GOPROs and smart cameras, as well as the emergence of a large number of free and easy-to-use original apps, the production mode in the form of "UGC" is becoming the mainstream of society. At the same time, specialised content creation represented by microblogs, forums and WeChat is also thriving. The two complement each other, promoting the efficiency and personalisation of online teaching.

Firstly, let's take a look at the power of UGC. UGC is a type of information that is created and shared by people in general, including text, images, video, audio and so on. Due to the widespread use of mobile phones and the increased rate of internet access, it has enabled users to create and share at any time and any place. The decentralised model of content production not only reduces the barriers to creating content, but also allows information to spread faster and wider. In terms of teaching and learning, the emergence of UGC provides students with more perspectives and dimensions of information, thus increasing their motivation and creativity in learning.

Compared with UGC, PGC is also user-created, but it focuses more on professionalism and authority. PGC authors usually have rich skills and rich working experience in a certain industry, so the quality and depth of their works are higher. In terms of online teaching, PGC creators can use microblogs, forums, WeChat and other platforms to share their expertise and insights with students, bringing them more targeted and practical learning resources. In addition, PGC platforms can also communicate with students, keep abreast of their needs and doubts, and provide them with more accurate guidance.

We also can't ignore the concept of OGC (professional output.) OGC is something produced by a paid professional, albeit at a much higher cost, but there is no doubt about its professionalism and authority. When it comes to online education, OGC is able to provide students with systematic and comprehensive course content as well as personalised course guidance. It also complements UGC, PGC and other media platforms to build a complete and diversified learning ecosystem.

In the future, along with the development and innovation of technology, the future of online teaching will be brighter. On the one hand, with the extensive use of artificial intelligence, big data and other technologies, online education presents intelligent and personalised features, which can provide students with personalised learning resources and learning paths. In addition, based on the use of augmented reality (VR) and augmented reality (AR) and other technologies, it can enhance the realism and authenticity of online teaching, providing students with an immersive learning experience.

All in all, the combined development of UGC and PGC can provide more abundant and diversified learning resources and services for online teaching, and achieve the efficiency and personalisation of learning. At the same time, the continuous development and innovation of science and technology will also promote the prosperous development of online teaching, so that more people can enjoy high-quality teaching resources and learning opportunities.

4. Conclusion

In the age of artificial intelligence, new ways of teaching and communicating create richer interfaces and channels for students to interact, thus building a stronger teaching ecology. Thus, online teaching becomes a kind of home-mediated platform based on AIOT technology, which allows parents and children to learn together through the segmentation of the Internet. Based on this, task instruction is processed with smart big data and uploaded into the cloud. The combination of new pedagogical and communication technologies enables interaction between the individual, the family and the community, resulting in an online pedagogical media platform capable of integrating multiple application scenarios. Combining people and things, and things and things, it enables the integration and interaction of individual, family and social education, and explores the development path of online education in the age of artificial intelligence.

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