Application and Research of Computer Big Data based on Structure in Internet Learning

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Abstract. With the development of science and technology, information data has penetrated into various industries. Through data mining, analysis and application of computer, the development trend of society can be effectively predicted, and the correct development strategy can be formulated. In the field of education, computer big data also plays an important role in supporting the implementation of the concept of lifelong learning. However, in teaching practice, how to play an optimal role in computer big data has become the focus of teaching exploration [1]. Based on this, the following research on the application of computer big data in Internet learning aims to enhance the positive role of computer big data in the field of education and improve learning efficiency.

Keywords: Structure, Computer Big Data, Internet Learning, Application

With the continuous development of Internet and cloud computing technology, more and more big data technology and Internet technology are applied to learning activities. Internet learning has become an important learning platform in the information age. The application of Internet learning platform can effectively stimulate the learning interest of learning subjects and realize personalized learning and lifelong learning. It is urgent to explore the sustainable development of Internet learning mode. It can be said that, with the technical support of computer big data, the development trend of various forms and contents gradually appears in the Internet learning platform. The specific application situation is as follows:

1. The Characteristics and Current Situation of Internet Learning

1.1. Characteristics of Internet Learning
With the continuous development of science and technology, Internet technology and the field of education realize the organic combination, thus forming a new learning mode - internet learning.

First, Internet learning can effectively provide assistance for the fairness of educational resources [2]. In the Internet learning activities, all kinds of high-quality education resources can get rid of the space-time constraints, and can be shared in the network, so that the secondary optimal allocation of educational resources can be realized, and effectively improve the sharing of educational resources [3].

Second, Internet learning can improve teaching efficiency. Internet learning is carried out with the help of various network information technology and big data analysis technology. With the support of
these technologies, it helps to improve the teaching efficiency [4], so that each student can find his own learning method through the Internet.

1.2. Current Situation of Internet Learning under Big Data
From the Internet learning channels and learning resources, it can be seen that the current Internet learning activities can make the education model present the characteristics of diversified development [5]. Under the support of computer big data, Internet learning is showing more new functions. For example, with the support of computer big data technology, various network social platforms are gradually applied to learning activities, which greatly promotes real-time and dynamic learning communication. More importantly, with the support of computer big data technology, it can realize the effective mining, retrieval and analysis of the whole network teaching resources, and find the learning strategies suitable for themselves. In the white paper on Internet learning issued by the Ministry of Education, it is clearly pointed out that the basic framework of China's education informatization has been determined. Internet learning can effectively fill the gap of traditional education mode, which is in line with the innovation and development of education and an important measure to promote the effectiveness of education informatization [6]. But in fact, as a new teaching mode, the massive information of computer big data challenges Internet learning, which restricts the effective development of Internet learning activities in national education activities.

First, Internet learning is superficial. The essence of Internet learning is to carry out teaching activities with the help of Internet, which has a wide range of connotation and extension [7]. At present, under the impetus of Internet + education, all links of education have begun the exploration attempt of Internet learning. But in fact, more educational learning activities are merely moving traditional learning onto the Internet platform and presenting them with computers [8]. This kind of "Internet learning" activity does not involve the nature of Internet learning, not only cannot play a positive role in Internet learning, but also consume learners' interest in the monotonous and rigid network learning. For example, in the Internet learning, only the traditional blackboard writing is moved to the network platform and presented in the form of PPT. This kind of teaching seriously affects the sustainable development of Internet learning mode.

Second, Internet learning affects the efficiency of personalized learning activities. With the development of modern society, people receive more and more information consultation. Different students’ cognitive level and learning basis are different [9]. In the Internet learning, a large number of teaching resources make students at a loss. Some students with good learning foundation can learn from it, while some students with poor learning foundation will lose their learning direction in the massive data information, and ultimately affect their future development.

Based on the above, we can see that Internet learning also needs certain teaching resources. We can't present all the teaching resources and teaching methods at a time. Only scientific learning resources can meet the actual needs of learners' development.

2. Application Advantages of Structure Based Computer Big Data in Internet Learning

2.1. Improving the Refinement of Internet Learning
Structure based computer big data technology, with the help of data structure related knowledge, realizes accurate data mining for internet teaching activities, thus forming teaching resources and teaching platform that keep pace with the times [10]. For example, with the development of we media technology, computer big data can complete the mining of user's personal information, personal hobbies and other information, and then match the corresponding resource information for users in the database. Therefore, the structure-based computer big data makes the Internet learning present a refined and precise development, which enables learners to have more and more accurate learning resources, without effect of irrelevant resource information.

2.2. Improving the Personalized Degree of Internet Learning
Under the guidance of human-oriented concept, education and teaching activities also require the establishment of personalized training concept, so as to cultivate high-quality innovative and creative talents. At present, under the influence of massive data resources, teenagers who lack the ability of subjective judgment are easy to lose themselves in online learning and are at a loss. On the other hand, computer big data based on structure can complete the tracking survey of students' online learning situation, realize the accurate response to various learning requirements put forward by students, and develop students' individual needs.

3. Optimizing Application of Computer Big Data Based On Structure in Internet Learning

3.1. Building Online Live Learning Platform

Computer big data technology has the ability to manage and store massive data resources, but for Internet learning activities, the data resources it needs may only be the tip of the iceberg. The current structure based computer big data technology can complete the architecture design of online live learning platform according to the different learning needs of each Internet. In the online live learning platform, it can meet the needs of lifelong learning such as enterprise training and school education. For example, for the construction of various live broadcast platforms, teachers only need to register the account number on the live broadcast platform, and send the live time and live link to students. After the time is up, students can log in to the platform to watch the teacher's live course. Online live learning platform can be said to completely copy the traditional classroom teaching mode to the network platform, and accommodate a large number of students, but is not limited by geographical conditions. In the context of the prevention and control of Covid-19 epidemic, the online live learning platform has made great progress, while highlights many problems. The structure-based computer big data technology can optimize the processing of various problems in teaching practice. For example, in the online live teaching platform, a new function design of the platform clock in has been opened to meet the landing needs of more students for learning in the peak period.

3.2. Constructing Online Interactive Teaching Mode

Online interactive teaching mode is to realize the continuance from the advantages of face-to-face in traditional classroom teaching to the Internet learning mode. With the help of interactive teaching, Internet learning can be upgraded in the interactive communication, for example, in the existing Internet learning, each learner is independent, and it lacks the ability of team cooperation and team communication and exploration. The structure-based computer big data technology, which fully combines traditional courses with online learning platform, opens a variety of software and ports on this basis, and can complete the construction of learning team and carry out group cooperation and exchange learning. Through the online interactive teaching mode, it also opens the role of search engine, which not only enables learners to interact with each other, but also enables students to form interactive communication with massive Internet resources.

3.3. Completing the Online Learning System Architecture Design

Based on the structure of computer big data, a variety of emerging technologies emerge, such as data mining technology. The application of these information technologies has developed more valuable data information, and has also designed a variety of online learning platforms. These learning platforms are presented in the mode of app and network teaching platform. Taking app mode as an example, it completes the design of learning system for a certain kind of teaching resources, builds a suitable database, and completes the search and application of teaching resources in the database with the help of big data technology, such as, all kinds of translation app and question bank app. Taking the network teaching resources platform as an example, it realizes the comprehensive application of various computer technologies on the platform, and meets the various needs of Internet learning. One is the course sign in. Computer big data technology can complete the construction and management of students' personal information accounts, and build their own learning resource database for each
learner; second, computer big data can complete the development of potential knowledge points. Network big data can constantly research and develop new learning resource library, according to the development of society, realize the optimization and upgrading of this resource library. For example, on the network teaching platform, personnel from all regions of the country have achieved the upload of various high-quality teaching resources. Third, the structure-based computer big data can realize the carding of learners' Internet learning process. For example, in the network learning platform, the learning process is divided into blocks, students can complete the learning of learning resources according to their own interests and hobbies, and system technology can also complete the summary of learners' various learning data on the learning platform, so as to provide reference data for the platform teaching quality evaluation. The fourth is to complete the classification and supervision of learners' information. In Internet learning, different learners' acceptance and reaction are different. At present, big data technology can complete the summary of learners' basic information, examination results, learning time and learning points, in order to develop corresponding consolidated review materials for learners' learning situation and help them obtain better learning effect. For example, online teacher consultation service is set up on the network teaching platform, and the teachers explain and analyze the key and difficult problems in the learning process of learners according to the situation of big data, so as to understand the learning situation of learners at all times. In short, the application of structure based computer big data in Internet learning plays an important role.

4. Conclusion
To sum up, in the network era, the proliferation of network information and the improvement of network information updating speed all require the ability to build up the concept of Internet learning, and constantly use the resources and teaching technology of the Internet to innovate and create the existing learning methods and learning attitude. While enjoying the positive effects brought about by Internet learning, we also need to pay attention to the shortcomings in Internet learning, such as the data structure of various network teaching systems cannot meet the needs of personalized learning, etc. in this regard, the application optimization of computer big data related technology based on structure has become an important prerequisite for the sustainable development of Internet learning activities. In the above exploration, it is based on the actual situation of the application of computer big data in Internet learning to explore the effective way to optimize and upgrade the data structure of computer big data technology in the future.

References
[1] Sun H. Discussion on the Teaching of "Computer System Structure" in the Data Driven Era. Journal of Shaoquan University, 2018, 3911: 76-78.
[2] Zheng L. Research on Data Structure Practice Teaching Reform of Application Oriented Undergraduate Computer Specialty in the Era of Big Data. Science and Technology Trend, 2019, 14:50.
[3] Wang Z, Xu W, Sun Y. Design of Complex Engineering Training Problem for "New Engineering" Construction -- Taking "Data Structure" Course as an Example. Industrial and Information Education, 2020, 01: 64-69.
[4] Han Z, Cheng L, Xiong J, Liu M. Big Data Structured and Data Driven Maintenance Strategy of Complex Systems . Journal of Automation, 2020, 4602: 385-396.
[5] Zhang Y. Data Structure Teaching Reform under the Background of Big Data. Digital Communication World, 2020, 09: 280-281.
[6] Xiao Z, Wen K. Application of Computer Big Data in Internet Learning. Digital Design(First Part),2020,9(6):29-30.
[7] Li X. Application of Computer Big Data in Internet Learning. Information and Computer, 2020, 32(1): 28-30.
[8] Song Z. Discussion on the Application of Computer Big Data in Internet Learning. Photo Geography 2020, (5):0174-0175.
[9] Huang L. Application and Discussion of Computer Big Data in Internet Learning. Invention and Innovation • Vocational Education, 2020, (2):12.

[10] Wang P. Research on the Application of Computer Big Data in Internet Learning. Global Market, 2019, (30): 376.