The Application of Computer Big Data in Internet Learning

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Abstract—This article analyzes the application advantages and application process of computer big data in Internet learning. The author studies the specific applications of computer big data in online live broadcast, online interaction, online search, and online software. The author puts forward the optimization measures of how to do a good job in guiding students, optimizing course learning mode, and strengthening the training of teachers’ strength. The purpose of this article is to give full play to the application value of computer big data and continue to optimize the Internet learning model.

1. INTRODUCTION
Judging from the current development trend, Internet learning has become a very important development trend. Especially with the global outbreak of the new crown in 2020, many schools cannot start school on time in early March. In order not to affect the normal learning of students, many schools have started online teaching mode to make up for the inconvenience caused by traditional teaching mode. As an auxiliary means, computer big data can not only provide richer teaching data when integrated into the Internet learning model, but also can organize data such as student attendance and learning. Based on this, schools can optimize the content of courses to improve the effectiveness of Internet learning results.

2. THE APPLICATION ADVANTAGES OF COMPUTER BIG DATA IN INTERNET LEARNING

2.1. Improve the Pertinence of Learning Resources
The application of computer big data can effectively improve the pertinence of learning resources to enhance the individualization and diversification of learning content. According to statistics from 2013 to 2020, the big data information currently circulating in society is increasing at a rate of 1% to 5% every day, and the richness of data information is increasing. This also laid a solid foundation for the development of the optimization of the content of learning resources. Using the advantages of big data platforms for data processing, 30%-40% of value data can be extracted from massive big data platforms. Moreover, with the help of the memory capabilities provided by the Internet, it is also possible to organize Internet learning data and classify them according to established categories. This can also refine the corresponding processing indicators such as course learning progress, course learning content, and course learning frequency. In addition, in the Internet learning mode, you can also regularly push learning information, learning software and other content based on specific needs. Thereby improving the pertinence of the learning model and meeting the application requirements of learning resources.
2.2. Conducive to Student Management
According to statistics in 2020, it can be understood that more than 95% of schools used online teaching methods for course learning during the epidemic. This also helps students to smoothly integrate with the required learning courses to ensure that students can keep up with their learning progress after the epidemic is over. Relying on the Internet model perfected by big data, the pertinence of learning content can be increased by 30%-40%. This can also improve the efficiency of classroom teaching and meet the needs of course learning. The big data platform can also be used to comprehensively evaluate the current learning status of students in a quantitative analysis method, such as online learning status, course learning content, software usage, and completion of coursework. Teachers can formulate more reasonable teaching guidance strategies according to the specific learning situation of students, which is conducive to the smooth implementation of the Internet learning model and reduces the waste of learning resources by 20%-40%.

2.3. Enriching Internet Learning Methods
Judging from the current development situation, the application of the Internet learning model can also play a role in enriching Internet learning methods. According to statistics in 2019, more than 50% of schools have started a dual-line (i.e. online and offline) education model, which is mainly based on universities. In 2020, the proportion will rise to 80%, and the proportion of small, primary, and high-level will also increase, reflecting the application value of this model. Utilizing the application advantages of big data can not only realize real-time understanding of the past educational development, but also can combine the results of data analysis to scientifically recognize the content of knowledge to meet the specific development situation. Schools should use big data technology and online education models to be integrated in an orderly manner. In addition, schools can further improve the online learning model in the process of teaching development. Its content includes live course learning and learning software applications. Moreover, in the application, teachers can also understand the learning situation in time, thereby improving the effectiveness and practicability of students’ Internet learning process.

3. THE APPLICATION PROCESS OF COMPUTER BIG DATA IN INTERNET LEARNING

3.1. Unearthing Potential Knowledge
In the process of big data application, schools need to analyze the potential knowledge content. This is also an important basis for the gradual optimization of the Internet learning system. Judging from the current usage situation, big data has achieved more than 80% data coverage. This also breaks the boundaries between traditional disciplines and facilitates the smooth sharing of learning resources. In this case, the abundance of resources used for learning is also increased by 30%, which further expands the knowledge of the students’ learning process. Meanwhile, the school also optimizes and organizes learning content in various fields to meet the requirements of continuous optimization of the learning system. From the perspective of the development of the big data era, the use of big data platforms can optimize the relevant content in the database and mine 20%-30% of the potential value data, which can be used to refine the learning content of students. Students can not only use the database to find the corresponding resource information, but also use the big data combing process to get more value data based on the existing textbook knowledge. In the meantime, students can optimize the content of existing knowledge, enrich the relevant information in the knowledge base, and meet the development needs of different situations.

3.2. Integrated Application Process
Schools also need to integrate the application process in the development of big data technology application, so as to optimize the application process of data information and meet the needs of Internet learning. Combining past application experience, in order to ensure the orderliness of the Internet learning process, the school has divided the application process of the learning platform into six parts,
so as to provide more reliable development information for system optimization. When searching for learning resources, students can use the online system to successfully complete data retrieval to obtain the value data they need. Moreover, this type of online information can also be quickly sorted in the process of data integration. This is also conducive to the smooth expansion of the content of knowledge points, and meets the needs of knowledge point extension processing. The big data integration process can also initially screen the question bank and data, and filter out 50%-60% of invalid data (such as outdated question bank, basic information, etc.). During the development of the management system, the school can also update the data content in real time to improve the real-time nature of the data information content. Thereby improving the reliability of data collation results.

3.3. Intelligent Organization
Except to the application content mentioned above, big data also needs to intelligently organize existing data in the specific application process. This is also to improve the reliability of the results of data collation. When using the big data platform to expand the application design, you can expand the cross-application for the learning content during the use process, thereby improving the accuracy of the intelligent collation results. When sorting out the content of these knowledge points, more than 60% of schools will introduce mind maps for analysis. Based on this, the school can complete the optimization of the student system, which can also help students have a deeper understanding of the content of the knowledge points, and has built a big data learning platform. Schools can also use the memory function of the technology itself to improve the teaching management and course playback modules. This can also further optimize the intelligent management measures, which is conducive to the review and summary processing of the courses, and thus improves the learning efficiency by 30%-40%. For example, in the process of system application, the existing teaching mode can be smoothly optimized with the help of the return visit and on-demand functions. In this process, it can also help students to complete the optimized learning of relevant knowledge. Simultaneously, the learning process of knowledge points can further deepen students' learning impression to meet the development needs of different states [1].

4. THE SPECIFIC APPLICATION OF COMPUTER BIG DATA IN INTERNET LEARNING

4.1. Live Online
As shown in Figure 1, combined with the 2016-2020 statistical data, it can be understood that the online live broadcast industry has been developing very well, and the annual economic income has been increasing by 20%-30%. Many online live broadcast contents rely on computer big data to complete. When carrying out homework, teachers will also optimize and organize the subject teaching mode according to the actual needs of the development process, so as to ensure the further optimization of the professional curriculum knowledge system. Especially during the 2020 epidemic, online live broadcasting has been very well developed. Many schools rely on online live broadcast to complete the course teaching to meet the learning needs of students. Moreover, the operation process of online live broadcast is very simple. Teachers log in to the platform and register their account to start live teaching activities. Moreover, schools can also use live broadcasts to increase the number of participants and expand the learning effects of teaching courses. For those who need to learn, they will also register their accounts on the platform, and provide functions such as appointment and check-in on the platform. This can also help students to conduct live learning on time. Teachers can also use big data technology to organize the results based on the platform feedback to facilitate the optimization of the teaching model. Otherwise, schools can draw up corresponding teaching models for students of different grades, thereby enhancing the practicality of teaching results [2].
4.2. Online Interaction

As shown in Table 1, according to the 2016-2020 big data statistics, the social software that students mainly use in social activities are WeChat and QQ. The DingTalk software is constantly catching up with the up-coming live broadcast software in the context of online live broadcast. In this regard, teachers can also use this as an important breakthrough in the Internet learning model, with corresponding auxiliary tools to successfully complete the established teaching tasks. For example, a teacher in a school uses WeChat and QQ to establish a class group. WeChat is mainly used for learning tasks and daily problem communication. QQ is used to collect coursework, especially some files with larger memory. QQ has a better transmission effect. Except to assigning some homework tasks in the discussion group, teachers will also regularly push some excellent learning resources and video links to help students complete their knowledge learning and expansion after class. In the process of work, if there are some application problems, teachers can also use WeChat as a carrier for information communication to help students answer their learning doubts. After teachers implement teaching activities based on the big data platform, the student's pass rate has also increased by 10%-15%. Teachers also use online language to assist daily communication in daily teaching activities. This can weaken the sense of class between students and teachers, so as to ensure that students can better participate in curriculum learning, and improve students' attitudes towards learning [3].

### TABLE I. RANKING OF SOCIAL TOOLS COMMONLY USED BY COLLEGE STUDENTS

| Rank | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
|------|------|------|------|------|------|------|------|
| Social Medium | WeChat | QQ   | Ding Talk | Easy chat | in   | YY   | RENN |

4.3. Search Online

Relying on big data for course learning also needs to strengthen the online search function (as shown in Figure 2) to meet the needs of students at different stages for knowledge content. The Internet platform established with the help of big data can optimize the online search system in applications to meet the basic needs of data information collection. Moreover, the Internet system can also be continuously optimized and organized during the application of computer big data. In the context of advanced technology applications, users can complete search tasks within milliseconds. This improves the convenience of the online learning process. For example, if students encounter some knowledge-level problems for a while in the learning process, they can use the network to complete the information sorting, and further improve the knowledge information based on this. In this way, students can also consolidate their knowledge content in the process of improving their learning ability, so as to
continuously optimize the students' Internet learning ability, thereby improving the reliability of online search results [4].

![Online Search Interface](image)

**Figure 2. Online Search Interface**

4.4. **Online Software**

Big data also has good applications in online software optimization processes. The use of reliable learning software can better assist students in learning and continuously improve students' academic performance. Judging from the current development situation, many learning software such as Baidu Translator, Gaotu Classroom, Wisdom Tree, etc. have been very well developed. This also speeds up the learning efficiency by 30%-40% in the learning process. Big data in these applications will also optimize the learning content in the software. Except to basic learning materials, there will also be video teaching materials to assist teaching, thereby enhancing the appeal of teaching content and improving students' learning enthusiasm. The learning software can also expand the learning channels of students in the application. This can also further enhance the students' ability to discern information and help students organize their learning resources. This also lays a reliable application foundation for the continuous optimization of the Internet learning system [5].

5. **OPTIMAL STRATEGIES FOR APPLYING COMPUTER BIG DATA**

5.1. **Do A Good Job in Student Guidance**

The use of computer big data in Internet learning should give full play to the effectiveness of teachers' guidance and enable students to develop Internet learning habits. Moreover, this can also make the Internet learning mode as a supplement to students' classroom teaching and learning, and enhance students' interest and ability in learning curriculum knowledge. At the same time, for the lack of information literacy of some students, cooperation between teachers and parents can strengthen the improvement of students’ network information literacy, enabling students to use Internet technology to develop effective Internet learning models [6]. In the process of cultivating students' network independent learning ability, teachers should not only correctly guide students to formulate learning plans and arrangements, but also need to provide students with abundant independent learning resources. In addition, teachers can set up corresponding questions, periodic tests, and homework. This can also encourage students to really use their brains in the process of autonomous learning and complete the homework assigned by the teacher. This can also continuously improve students' logical thinking ability and problem-solving ability, and collaboratively promote the improvement of students' autonomous learning ability.

5.2. **Optimize Course Learning Mode**

When applying computer big data to students' Internet learning, attention should be paid to the optimization of students' Internet learning platform and software. In this way, the Internet learning platform and software can meet the needs of social development, thereby realizing the effectiveness of
students' independent learning. First of all, the optimization of students' Internet learning mode needs to pay attention to the development of potential curriculum knowledge information. Schools can use computer big data to build a knowledge information database, develop a knowledge data system, and highlight the intelligence and richness of student information acquisition. This can enable students to form a strong interest in Internet learning. Secondly, the optimization of students' Internet learning mode should pay attention to sorting out the application process. Finally, schools can optimize related technologies in students' Internet learning and attach importance to the application of computer big data. Applying computer big data to students' Internet learning can optimize related technologies and improve the energy efficiency of technology use. This can build a systematic student learning system and promote the upgrading and improvement of traditional systems [7].

5.3. Strengthen the Training of Teachers

Strengthening the training of teachers is conducive to the further manifestation of the value of big data, thereby enhancing the application value of data information. Firstly, teachers can use self-directed learning as a way to improve their own learning ability in the specific process of practice. Moreover, teachers also need to use the Internet platform to complete the learning of the reserved information, and to optimize the teaching concepts, teaching methods, and teaching models. This also greatly enhances the concreteness of learning content and stimulates students' interest in learning. Secondly, schools also need to focus on the cultivation of teachers' learning abilities, such as regular technical training and special lectures in schools. In this way, teachers' knowledge reserves can be improved in an orderly manner, so that they can better apply the technology, thereby promoting the professional development of teachers, and enhancing the application value of big data in Internet learning [8].

6. CONCLUSION

In summary, big data has many advantages in applications. By integrating it into Internet learning activities, not only can the Internet learning model be optimized, but also the application value of the proposed measures can be enhanced. Furthermore, this can also strengthen the cultivation of students' independent learning ability, and continue to improve the computer big data technology facilities to improve the effectiveness of Internet learning.

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