



Big Data-Driven Computer Teaching Effect Evaluation Model

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Abstract. With the continuous progress of information technology and the continuous development of science and technology, the concept of big data is gradually infiltrating into every corner of social life. The opportunity of big data to promote the reform and development of modern education in China is one of the important factors affecting the achievements of computer teaching. This paper studies and analyzes the importance of computer teaching innovation and reform in the actual situation of computer teaching under the background of big data, and at the same time puts forward corresponding innovative optimization countermeasures, so as to promote the overall growth and healthy development of students, and make big data become an important part of computer.

Keywords: Big data · computer teaching

1 Introduction

The knowledge points of computer courses in colleges and universities are scattered and the courses are arranged. The traditional teaching methods cannot meet the learning needs of college students in the current era. Big data is an important product of the rapid development of information technology, and it helps to promote the more rapid progress of society. With the development and progress of big data technology, the combination and application of computer and big data can effectively improve the teaching effect, promote the teaching reform, and strengthen the students' computer application and operation skills, which has a good effect on increasing their advantages in the social competition, and can also improve the employment rate of students.

2 Computer Course Teaching Under the Background of Big Data

The teaching goal of computer network course is to cultivate computer network technology application talents, Focus on cultivating students to master the basic theory of computer network, Combined with the characteristics of network big data, Teaching of computer network courses, From the following multiple levels: The first point, For students with a weak foundation, Teaching through typical cases of computer networks, Stimulate the subclass of students' interest in learning and improve their autonomy in

learning; second, In the process of teaching, we will introduce the teaching mode widely adopted abroad, During the teaching process of the course, Make students understand the status and role of computer network course in computer science, Focus on the future trends of computer networks, Teachers should think positively when asking questions, Cultivate students' ability to solve practical problems through the knowledge they have learned.

In the context of big data, computer teaching materials should be based on one of the teaching points and professional knowledge points combined with actual life and work. First, they should be based on students' professional characteristics and learning content. Teachers should not shift the direction of reform in teaching reform. In the process of reform, they should first ensure that students can master the most basic knowledge, and then consider other contents of reform. In this way, teachers will have a comprehensive understanding of students at all levels. In the process of teaching, they can analyze students' learning effect more accurately and carefully, find out the difficulties and rules in the learning process, and finally improve the teaching methods and improve the learning effect [1].

Access capture is an inevitable problem for big data analysis. In the actual computer big data analysis, the larger the information data, the higher the frequency of computer data access and capture. In order to improve the accuracy of computer big data analysis, it is necessary to improve the accuracy of data recognition. Using the labeling nature of cloud computing, computers can quickly grab target data and mine its hidden data, which also helps to recover cloud data damage.

Computer big data analysis needs to "accurately place" the network resource data according to the relevant network rules, which is a major strategic focus of big data analysis. However, when computers rely on cloud computing technology for big data analysis, the network storage system is bound to be complicated due to the diversity of storage media, which makes it to accurately place and implement data difficult. Using the function of fast and stable computing of cloud computing and the function of deploying computer resources according to requirements, clarify the storage type of data placement, formulate specific protocols for corresponding data placement, optimize computer access accuracy, reduce unnecessary waste of cloud resources, and improve the efficiency of big data analysis.

Using big data technology can accurately judge the specific situation of different students' computer knowledge points. After completing the test, students can find their own weaknesses according to the big data statistics to adjust the learning plan, and carry out the reform of big data stratified teaching. The first is classification and combination. Students at different stages can collect data in different ways, and freshmen can use the form of questionnaire survey to collect relevant information, and senior students can use previous grades and questionnaires to collect data, and classify data according to the survey results [7]. The second is the verification and evaluation method. In the traditional computer teaching, teachers generally make the content of the examination through the teaching syllabus, and students can evaluate their own learning through the examination. Finally, the knowledge graph can be constructed, whose visibility will be obvious with that of Kagi, which can effectively manage the knowledge points, practical links and follow-up relationships in hierarchical teaching [8].

Throughout today’s supercomputers, they basically use parallel computing technology to achieve amazing computing power, rather than simply relying on a single CPU to achieve powerful computing capabilities. Now the mainstream operating systems, such as Micr, Linux, Unix, have perfect support, can automatically use idle CPU resources, so as to improve the overall computing efficiency.

According to different big data storage test application environments, the multi-user rule scheduling set of the massive big data storage system is built. According to the different characteristics of the massive big data system, the built data storage fitness function is as follows:

$$f = w_0 + w_0 + w_0 + w_0$$

Among them: $w + w + w + w + = 1$; t represents the time of data acquisition in massive big data storage system, c represents the cost of meeting massive big data storage overhead, and 0 represents the quality of mass big data storage. Adaptive characteristic decomposition method is used to classify the attributes of mass big data storage. The classification objective function is:

$$\begin{aligned} \text{id}(t + 1) &= \text{xd}(t) + \text{cr}/[\text{rp} > \text{To pid} - \text{xd}(t)] \\ &+ \text{C2r2}[\text{rx} > \text{Tapad} - \text{xu}(t)] \end{aligned}$$

where: t_0 and t represent the scheduling signal transmission time and the overhead of data storage, respectively; T and T represent the threshold value of big data transmission and the size of the rule set, respectively. The structure analysis of massive big data distributed by network computer model, for the subset of each big data node $S (i = 1.2. \dots, L)$, maximizing the ultra-high density of massive big data storage needs to meet the signal feature scheduling conditions as follows:

$$S_n S = \varphi, \forall i \neq j, U' S = V - \{\text{sink}\}$$

where: i represents the number of nodes of massive big data hierarchy, and sink represents the root node of big data storage structure.

$$b = \begin{cases} y_j - \varepsilon - \sum_{i=1}^1 (a_i^* - a_i)K(x_i, x_j) a_i \in (0, C) \\ y_j - \varepsilon - \sum_{i=1}^1 (a_i^* - a_i)K(x_i, x_j) a_i^* \in (0, C) \end{cases}$$

3 The Influence of Computer Teaching Under Big Data

The traditional teaching mode is explained by the teacher, and the students passively accept to obtain the relative knowledge. The biggest characteristic of big data is to analyze the data of every link in the teaching process, and make the best data based on the data analysis, so as to improve the teaching quality and improve the classroom effect.

$$H = \frac{n}{\frac{1}{x_1} + \frac{1}{x_2} + \dots + \frac{1}{x_n}}$$

3.1 The Change of Computer Teaching Content

In order to meet the needs of The Times, the teaching content of computer major in colleges and universities is constantly changing and the teaching content is constantly updated. The knowledge obtained by students is not limited to what they have learned in the classroom, and extracurricular knowledge is often very important. Students often use the power of the Internet to deepen their cognition and understanding of knowledge, which requires teachers to adjust the teaching content according to the characteristics of each major, and integrate big data with the learning content of each subject to a certain extent. Most universities in China have offered big data courses, including big data analysis and statistical foundation, big data distributed computing, big data mining and learning and other courses.

3.2 Differences in Computer Teaching Modes

The traditional teaching mode mainly takes teachers as the main body. Teachers need to be ready to prepare lessons before teaching. Teachers' teaching process is divided into three steps: lesson preparation, class and test. Lesson preparation consumes a lot of energy and time for teachers. Under the background of big data, teachers' class steps have become the steps of lesson preparation-class-test-data-analysis-improvement [12]. Although there are two more steps, these two steps are the prominent characteristics of the teaching mode under the background of big data [13]. Teachers put a lot of energy into the process of data analysis. Under the guidance of this model, teachers can get the relevant information of students in real time, and then understand the learning effect of students through big data analysis, find out the difficult points of students, and finally improve them to improve the teaching quality.

3.3 Carry Out Personalized Teaching Deeply

The foundation of big data technology is massive storage, and its goal is to analyze data. The main reason why big data can be applied in the teaching process is the advantages of massive storage and data analysis. Colleges and universities should actively use the advantages of big data technology, innovation assessment way, through the network, with the help of big data timely tracking students 'learning status and teachers tutoring students learning, automatically form about students' daily GPA data accumulation, optimize the processing of data analysis mechanism, build the overall assessment analysis system, timely track and evaluate the students 'daily learning performance and feedback, with big data to analyze the specific effect of students' learning [6].

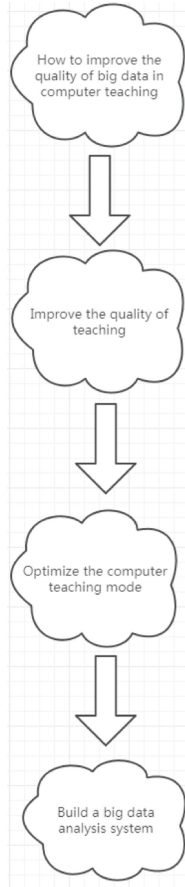


Fig. 1. How to improve the quality of big data in computer teaching

4 How to Improve the Quality of Big Data in Computer Teaching

The time of classroom teaching is very limited, and the concentration of students' attention is also regular. In view of the characteristics of large information in computer teaching, we carefully design a variety of forms of exercises, can save the time of blackboard writing and wiping, can provide a lot of students with a large number of exercises greatly increased in a short time. For example, when doing the first choice judgment question, fill in the blank question, you can have a man-machine dialogue. Through timely feedback, students can quickly know the learning results to satisfy their desire for knowledge. This can increase the density of exercises in class, shorten the feedback time, but also attract students' attention, stimulate students' interest in learning and improve students' innovation ability (Fig. 1).

In the process of data mining, people collect a large amount of data, analyze data and explore the internal laws of data. On the whole, data mining includes three stages: initial preparatory stage, exploring potential law and expression. Data mining adds more

convenience to the decision-making process. In case of huge amounts of data and missing information, you can turn to such data mining. This is because many enterprises have databases that can only input values, inspection, and statistics. However, in general, it is very difficult to find the necessary refining information among the collected values, let alone find the search rules. It is difficult to clarify a deep law, unable to express the law. If you can accurately distinguish the focus of the information, then you can get the hidden necessary information, which is more favorable for enterprises to make the right decisions.

4.1 Improve the Teaching Quality

Traditional teaching mode makes teachers and students limited by the syllabus and teaching materials, students in a state of passive accept knowledge, cannot timely feedback for teaching results, the traditional teaching method makes the demand of today's society for innovative talents, through "super learning" this platform and the application of big data technology, can make teachers more intuitive understanding of students for knowledge, so as to improve the students' ability to use computer technology to solve practical problems [7]. Because of its timeliness and interactivity, "Superstar Learning Pass" provides students with independent learning channels. On the basis of big data analysis, teachers can improve and optimize their teaching thinking, and carry out effective teaching activities according to the requirements of the teaching syllabus.

4.2 Optimize the Computer Teaching Mode

The application of big data technology in classroom teaching mode can improve the teaching quality in real time. The combination of big data technology and the platform of "SuperLearning" provides a development path for computer teaching quality in colleges and universities. The use of big data can help teachers according to the needs of students and the characteristics of computer professional teaching teaching adjustment. The school will through big data technology and related computer curriculum teaching adjustment, optimize the teaching content, encourage students to algorithm research, through a variety of algorithms for learning data, improve the students' subject participation and learning enthusiasm.

4.3 Build a Big Data Analysis System

The big data analysis system is timely built based on cloud computing, and Hadoop technology is used to build six-layer processing structures of data integration, file storage, data storage, programming model, data analysis and platform management. The Hadoop architecture can help developers develop distributed programs that allow distributed processing of large amounts of data. By connecting the background of the "SuperStar Learning Link platform with the database" platform, the relevant data of students' learning process can be obtained. The "Superstar Learning Link" platform can provide teachers with various types of student learning and teacher teaching activity data, combined with various tools such as "questionnaire Star" can ensure the comprehensiveness and accuracy of data collection [9]. Big data analysis system can quickly

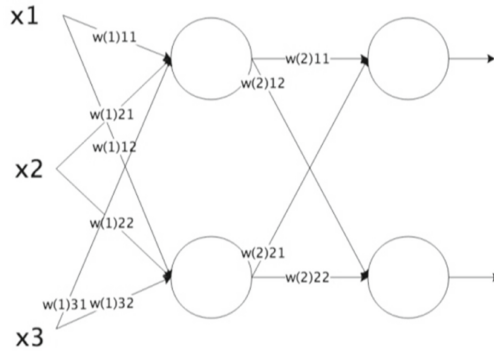


Fig. 2. Schematic diagram of the big data algorithm

process the collected data, so as to provide an effective means for teachers to conduct rapid and accurate dynamic evaluation in the learning process (Fig. 2).

5 Conclusion

Under the background of big data, information technology equipment is effectively shared, which also provides great convenience for the dissemination and sharing of some knowledge. The integration of big data into computer major is also the key and difficult point of teaching reform, which is an inevitable transition stage. Under the background of the era of big data, computer teaching in colleges and universities should implement personalized teaching reform, so that students can formulate corresponding learning technologies according to their own knowledge mastery degree, so as to effectively improve the teaching effect. Big data era is an opportunity for modern education innovation, teachers need to clear information about big data, explore in the era of big data teaching method innovation, put forward some can highlight students main body status, meet the needs of students development teaching method, promote the development of science and technology and economic construction of big data talent.

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