Chapter 6
An Overview of the Big Data Technology for Computer-Assisted Learning

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ABSTRACT

Education has gradually gotten rid of old teaching methods and their limits as society has progressed under the impact of high technology such as big data, cloud computing, network technology, and mobile Internet. This study uses data mining technology to implement educational reforms, creates a computer-aided learning system (CAL) based on data mining, and creates teaching system functions based on real-world data with big data techniques. Many strategies for data analysis are available through data mining. Without the use of automated analytic techniques, the big data now in student databases exceeds the human ability to examine and extract the most important information. Data analytics for CAL will be helpful in evaluating teaching and learning processes, and measures will be taken based on the findings to improve the process.

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INTRODUCTION

Through this work, we have focused on the seamless data storage and analytics of Computer Assisted Learning. To do this, CAL principles were first presented to provide a better understanding of the notion, followed by big data and its storage strategies. In the following section, related research works on big data storage are offered, demonstrating the addressed concerns and the recommendations made by researchers in order to fix the bugs in CAL storage. We've spoken about the different forms of analytics and the life cycle of analyzing CAL data in big data analytics. Data mining-based algorithms that have been suggested can be useful for analytics. Only a few of the obstacles and issues have been discussed.

Computer Assisted Learning

The practical paradigm of learning is related to computer-assisted learning (CAL). Experiential learning proponents are emphatic about the way we perceive. Learning is rarely done by rote. We learn because we immerse ourselves in a setting that requires us to execute. Learners can fall into various categories like students, employees and so on. Because they have to learn new things based on requirements. The manner in which trainers strive to assist learners in acquiring skills and knowledge has nothing to do with how students actually learn. Lectures, examinations, and memorization are used by many educators. We undoubtedly learn by doing, failing, and practicing until we get it correctly. The purpose of computer-assisted learning is to concept understanding and problem solving (Arsham, 1994). Users from various educational institutions can access educational packages. Probably the majority of consumers can afford computers and software packages that aid in the application of CAL. Visual components such as photographs, Animated movies, and text, which are used extensively in CAL. Digital effects, such as sound effects for blind users or visual representations for deaf users, are useful for impaired learners whereas, most of the organizations find the use of CAL to be beneficial, the gear & technology required to implement the program can indeed be costly. The cost of maintaining CAL can be exorbitant because the programs must be altered over time, requiring the tutors to have advanced programming skills (Gunawardhana, 2020). Nevertheless, CAL usually focuses on a single topic and is not personalized to individual needs. A CAL system is designed to meet the demands of a company, which may differ from the

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