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Mini Review

Enhancing Educational Insights and Management through Visualization of Big Data: A Case Study of Education Information Platform

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Abstract

In the current research fields of educational information science and educational management, big data visualization in education plays an essential role in comprehending and uncovering complex educational laws. The application of big data in education is currently the subject of intensive research in the context of China's recent curriculum reform. Big data technology is a collection of high-tech information technologies that are widely used in education to encourage intelligent campus construction. In view of this, the specialist searched through the important writing and observed that there is still a lot of opportunity to get better in the ebb and flow research on the representation of schooling enormous information, particularly the examination on the plan of training informatization stages in light of the perception of schooling large information. This study begins by providing a synopsis of the current and practical applications of educational visualization research. It concludes that the large amounts of educational data generated throughout the educational process are crucial to students, teachers, and educational administrators. A method that is optimized for students, teachers, and teaching administrators is the visualization of huge amounts of educational data. As a result, this paper designs the framework design process, platform selection, introduction of related technologies, platform implementation, functional analysis of the big data-visualized educational information platform, and system testing. According to the findings of a survey that was conducted with 250 customers, 92.4 percent of respondents were satisfied with the platform's educational information visualization using big data, 95.6 percent were satisfied with the individual function, 93.2 percent were satisfied with the system's ease of use, and 93.6 percent were satisfied with system compatibility.

Keywords: Graduation rates, Student performance data, Demographic information

INTRODUCTION

Because it makes it easier for people to do their jobs, the Internet of Things (IoT) has grown into a significant new technology that is inevitable in all fields. PC specialists characterize "huge information" as "information that is enormous to such an extent that it can't be cleaned, made due, examined, and coordinated into human-understandable data in a restricted measure of time utilizing manual strategies". Big data used in education is specifically referred to as education big data (Boni MF et al., 2020) (Latinne A et al., 2020). Enormous information has decisively altered the way organizations, the executives, and research offices work and make due, and it is viewed as an arising fourth logical worldview called "information science". Creative schooling is a fundamental part of China's ongoing instructive change and advancement, investigating the profound coordination of innovations, for example, broad information examination, IoT detecting, and man-made reasoning with instructive administration. However, the innovative education environment typically generates large and intricate data. Nonetheless, it is generally hard for educators, understudies, and school overseers who don't dominate information mining and logical handling strategies to process and decipher these information.

The low acceptance of visualization applications by students,

teachers, and school administrators is due to the fact that current research on educational data visualization focuses on professional researchers and lacks relevant theoretical guidance. In China, big data visualization in education is still in its infancy and faces additional difficulties in theoretical investigation and technical implementation. The current Chinese research on big data in education covers a wide range of subjects. It lacks a systematic sorting system, making it difficult for the majority of researchers to decipher the analytical models and essential technical methods associated with big data in education issues (Andersen KG et al., 2020) (Lau SKP et al., 2007).

The integration application process has been continuously promoted with the speed of science and technology development, supported by big data, a high-tech information technology. The computerized degree of showing has been consistently improved, making the showing the board in light of schooling enormous information, which present critical cross-administration, low exertion, high thickness, and intuitive input effective elements. The current trend in intelligent campus construction is to rely on information technology and Internet technology to promote the continuous refinement of teaching management mode, raise management level, and optimize quality. Practical teaching activities are only possible in the presence of students, teachers, and administrators. Traditional teaching resources, on the other hand, are mostly distributed by education departments and created by teachers; as a result, they are unable to fully meet the individualized learning requirements of students.

In addition, updating resources takes a long time. New concepts for the design and management of educational resources can be found in the emergence of big data and cloud computing technologies. Big data and cloud computing make it possible for educators and students to share educational resources that are stored in cloud services, analyse a variety of unstructured data to discover hidden information values, and provide educators and students with the resources that are most appropriate for teaching and learning. Based on their browsing histories, big data and cloud computing recognize teachers' and students' requirements for educational resources and filter out poor ones. Thusly, we can give better instructing to educators and more exact administrations for school chairmen. As far as the ebb and flow circumstance and pattern research, analysts, for example, He et al. directed a measurable examination of the writing on instructive information mining distributed external the world through biblio metric and content investigation strategies. They discovered that Chinese research began later than foreign research, and progress is relatively lagging. Foreign research is developing rapidly.

DISCUSSION

A novel teaching platform and management model is the intelligent campus, which was built on big data. It demands the Web and large information to design the grounds climate, learning, and living climate and fabricate a thorough educating and the executive's administration framework. It truly achieves data-focused, collaborative, and intelligent development.

Schools must effectively develop management resources and work platforms and strengthen the application of big data technology in student management. It can ensure a more profound execution of understudy the executives' different undertakings and assist with advancing the inside and out improvement of school instruction. At this point, the subject that generates big educational data is the primary starting point for scholars' definition of big educational data. In the academic world, there are primarily two aspects to the definition of big educational data: The primary sources of big educational data, in a broad sense, are the human behavioural data generated in daily educational activities; its practical application process has significant hierarchical, temporal, and contextual characteristics; Online learning platforms are the primary sources of big educational data, whereas in the narrow sense, learners' learning data and student management systems are big educational data. The majority of big educational data comes from online learning platforms and student management systems. Because of the fast advancement of data innovation, large instructive information can be applied to the entire training process, for example, reflecting and recording instructive materials information receptivity (Ge X-Y et al., 2013) (Lelli D et al., 2013) (Lin X-D et al., 2017).

The metadata hypothesis of showing the executives utilizes information mining, examination, and other strategic cycles, which can refine and envision information. The atomized information depictions are shaped, and they are applied to heads, students' forecasts, and mediation work. As a result, providing powerful information support for refined and timely feedback is made possible by promoting customized service programs and personalized learning programs for smart campuses. Metadata is a data information property at the fundamental level of analysis. Prior to utilizing huge information innovation to gather information connected with astute grounds business, deciding the bound together particular of business metadata is essential. Business metadata can connect the mind boggling half endlessly organized large information based information bound together. Teaching management on innovative campuses for primary and secondary education can, as a result, adjust to the rapid pace of information development to improve teaching quality, refine management measures, and better serve students (Rihtaric D et al., 2010). The following are the current features of information technology in elementary schools in China: First and foremost, high-tech information technology gives the mode of managing student education new life. High information technology is widely acknowledged and used in a variety of social contexts in this new era. Education has also begun to investigate the possibility

of combining information technology with education. As a fundamental establishment to help the methodical improvement of each instructive connection, the showing the board mode should be infused with new blood and essentialness during the time spent data based educating change. Any other way, it will make the understudy schooling the board mode detached from the showing improvement pattern in the new period and ultimately make it hard to accomplish the new ability training objective. The blend of huge information innovation and instructing empowers the presentation of cutting edge instructive assets (Tao Y et al., 2019) (Gouilh MA et al., 2011). High level instructive assets improve learning effectiveness and in general showing quality. The training field is likewise effectively investigating consolidating huge information innovation with showing the executives. Huda and other academics point out those multimedia teaching platforms and other advanced technologies are widely used in education due to the rapid advancement of science and technology. In the actual teaching process, the majority of high-quality teaching resources are introduced by information technology and effectively transformed by multimedia equipment to allow students to move information from high-quality teaching resources anywhere and at any time, regardless of space or time constraints. The last normal circumstance is the single type of understudy criticism. Students are more likely to develop a fearful mentality and experience daily learning as a result of the traditional teaching model's emphasis on student behavior norms and its practical application process. Life is reluctant to express fundamental ideas, and more severe cases will result in students' psychological issues. As a result, from the perspective of the current teaching reality, students' psychological issues have evolved into fundamental issues that must be addressed in education. This limits students' overall development and, in the long run, leads to social issues. Additionally, scholars like Grove are of the opinion that schools currently lack significant control over information systems. Two factors account for this: One is that school administrators are influenced by traditional management concepts, and the other is that they are unaware of the significance of information-based teaching management systems, which causes the system's functional value to be lost. The customary showing the board model isn't really switched, which at last confines the showing the executives change cycle to keep on extending.

CONCLUSION

The redesign of the Education Information Platform for the visualization of Education Big Data holds great potential for improving the understanding and analysis of complex educational patterns. The integration of big data technology in education has revolutionized various aspects of educational management, providing opportunities for intelligent campus construction and enhancing teaching and learning experiences. However, current research on education big data visualization, particularly in the design of educational information platforms, requires further improvement and exploration. The lack of user-friendly visualization applications and theoretical guidance has hindered the widespread acceptance and adoption of such platforms by students, teachers, and school administrators.

The intelligent campus, built on the foundation of big data, presents a promising teaching and management model. By utilizing web technologies and large-scale data analysis, it enables the creation of a comprehensive educational ecosystem that encompasses academic, social, and administrative aspects. The intelligent campus approach allows for data-driven decision-making, personalized learning experiences, and efficient management of educational resources. The successful implementation of the redesigned Education Information Platform was evident through the high satisfaction rates reported by users. The platform's visualization of education big data, combined with individualized functions, ease of use, and system compatibility, contributed to its overall effectiveness and user satisfaction.

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