TRANSFORMATION OF EDUCATION INDUSTRY USING BIG DATA

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Abstract

Big Data is having an impact in all the industries and education industry has no exception. Big data analytics assists organizations to effectively utilize their data to identify new fields in their business to create opportunities and make smart business moves. Data analytics automatically results in more efficient operations, more profits, and a happier customer base. In this paper, we are trying to understand how Big Data in the education sector offers unprecedented opportunities for educators to reach out and instruct students in new ways and help them to evaluate the state of the education system.

Keywords: Big Data, Education Sector, etc.

Introduction

Public expectations for accountability and transparency have increased in every sector, including education. Through the implementation of big data analytics, students can track their academic and behavioral progress and faculty visibility into student performance can also be improved [1]. Big Data analytics can resolve all the issues of the education sector. Georgia State University, for example, adopted new data analytic tools to deliver solutions to the long pending problem of student retention [2]. Big data analytics assists organizations to effectively utilize their data to identify new fields in their business to create opportunities and make smart business moves. Data analytics automatically results in more efficient operations, more profits, and a happier customer base.

Schools, universities, colleges, and other educational bodies hold very large amounts of data related to students and faculty. This data can be analyzed to get insights that can improve the operational effectiveness of educational institutions. Students' behaviour, students' exam results, and the development of each student as well as the educational needs based on changing educational requirements can be processed through statistical analysis. Big data paves the way for a revolutionary system where students will learn in exciting ways [3]. This is an important development for teachers because it will strengthen our ability to address any unconscious biases we might have towards the engagement or performance of our students [4].

It stands for extremely large sets of data and information that are analysed to study behaviour patterns, trends and associations. In an educational context, Big Data doesn't deal with the information given to students. Rather, it focuses on information about students. This includes their academic strengths, weaknesses, learning speeds, memory, assimilation skills, and retention and recalling abilities [5].

This paper is a conceptual cum review paper defining the various analytics and factors of Big Data that can transform the Education Industry.

Education Industry Analytics

(1) Teacher Analytics:

In education, the pedagogical decisions made by a teacher to measure a student's understanding of the material or organize the structure of a course may possibly have the greatest impact on student learning. High-quality instruction may decrease the time a student takes to learn certain material, allow students to acquire more information in the same amount of time and help students to make better decisions about what they should actually study.

Educators can reap the maximum benefits of big data analytics due to the processing of data-driven systems that can help institutions create learning experiences according to a student's learning capability, ability, and preference [3].

The tool, most useful for supporting the flexible decision making that teachers need to increase the quality of the learning experience is Big Data Analytics. It gives educators and students an edge in understanding where and how improvements can be made in the learning process. Big Data Analytics creates new opportunities to improve the education process by helping teachers and learners make smarter decisions earlier in the learning progression.

Big data in the education sector offers unprecedented opportunities for educators to reach out and instruct students in new ways. It will give them a deeper understanding of students' education experience,

and thereby help them evaluate the state of the education system.

(2) Student Result Improvement:
With big data in the education sector, it is possible to monitor student actions, such as how long they take to answer a question, which sources they use for exam preparation, which questions they skip, etc. These and similar to these questions can be answered automatically and instantly, giving each student instant feedback. When students are closely monitored, receive instant feedback and are coached based on their personal needs, it can help to reduce dropout rates.

(3) Enhanced Learning Outcomes:
In a broader way, information derived from each student can be used to analyze the student's academic performance, attendance patterns and involvement in other extra-curricular activities like sports or cultural programmes. The results can be used to predict which students are likely to become detached, drop out of school or have the potential to excel in extracurricular activities so that an intervention from the authorities is auctioned at the right time.

(4) Reduction in Dropouts:
In the education sector, Big Data would help improve student results, dropout rates at schools and colleges would also reduce. Institutes can use predictive analytics on all the data that is collected to give them insights on future student outcomes.

(5) Real Time Monitoring and Learning Experience:
In this, the study material, that have to appeal to all students from different levels, can be done online and by themselves. The educators can monitor all students in real-time. When students are monitored in real-time, it can help to improve the digital textbooks and course outlines that are used by the students. Algorithms can monitor how the students read the texts. Which parts are difficult to understand, which parts are easy and which parts are unclear. Based on how often a text is read, how long it takes to read a text, how many questions are asked around that topic, how many links are clicked for more information etc. If this information is provided in real-time, authors can change their textbooks to meet the needs of the students thereby improving the overall results

(6) Career Forecasting:
As we know that e-learning is not only limited to classrooms for studies, but it also benefits to the corporate world for the improvement of employee skills within least time span. The conventional classrooms are also becoming e-classrooms which provide e-learning, helps students to easily grasp knowledge as it is available in pictorial forms. Big Data is fruitful in e-learning as learning material is analyzed based on usefulness and acceptability to make it readily available for all at the same time.

Digging deep into a student's performance report will help the responsible authority to understand a student's progress and their strengths and weaknesses. The reports will suggest the areas in which a student is interested and he/she can further pursue a career in the same field.

Conclusion
In this paper, we have discussed the big role of 'BIG DATA' in Education Industry. Big Data provides valuable information about the education world. We can see Big Data as chance for tailoring education to students. Big Data cannot be processed through traditional application software. The tools like Apache Hadoop, Microsoft HDInsight, NoSQL, Hive, Sqoop, PolyBase, Presto, Big Data in Excel and platforms like cloud based technologies are used to handle a large amount of data.

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