AN ANALYTICAL STUDY OF 'BIG DATA IN EDUCATION '

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ABSTRACT

This paper is a study on the impact of Big Data in Education. Analyzed how the Big Data technology can actually relate to education. Furthermore how big mounts of unused data can benefit and improve education. Big data makes an approach for a progressive framework where students learn interesting methods.

Keywords: Big data, education, framework.

I INTRODUCTION

In scientific world, information is created from different sources and the quick move from advanced innovations has prompted development of enormous information. It gives evolutionary breakthroughs in many fields with gathering of large datasets. These are accessible in structured, semi-structured and unstructured arrangement in petabytes and beyond. We discuss the goals and purposes of Big Data in education, giving a clear picture of the value and effects of Big Data in education. We discuss the usage in education which helps teachers and students to make more targeted choices in the sector of education.

Schools, colleges, universities, and other instructive bodies hold a lot of information identified with faculty and students. This information can be analyzed to get insights that can enhance the operational adequacy of the educational organizations.

II BIG DATA IN EDUCATION

The days of paper textbooks seem destined to become as distant a memory as cursive handwriting. Big data is reshaping the way students receive curriculum and learn, and the tools of the new and digital classroom are changing the dynamics for educators.

"Data is changing the way people think," says Eileen Murphy Buckley, founder and CEO of ThinkCERCA, a company in the data-driven education space. "From critical accountability to teacher accountability to the way we arrange time, our learning spaces, technologies - data is disrupting everything."

How data-driven classrooms operate

Figure 1: Big data in classroom

If you think about the impact of technology on our lives today, algorithms are analyzing our behavior both on and offline, all the time. They shape what we do in the moment, and they often steer us toward what we do next.

At many online stores Amazon, for example the ideas, suggestions and products in front of you are frequently placed there based on data gleaned from your order history, browsing habits and numerous other factors.

Education has entered this ecosystem, too. In the data-driven classroom, the concept of digitally collecting and analyzing students' work ,at the district level and above is already deeply a part of how school systems track and report performance. It's a key part of the standardized-testing milieu that No Child Left Behind made commonplace.

On the level of the individual classroom, digital curricula and data is changing the way teachers and, in turn, learning work. Below are just a few examples of the intersection of data and education.

- **Scoring and grading:** In simple ways, applications such as BubbleScore allow teachers to either deliver multiple-choice tests via mobile devices or scan and score paper exams via mobile-device cameras. Tools like these typically allow instructors to export results to grade books and track progress along defined parameters helpful for reporting under Common Core and state standards, for example.

- **Personalized, adaptive learning:** More than just streamlining assignments and the grading process, data-driven classrooms opened up the experience of what students learn, when they learn it and at what level. Companies such as Knewton create digital courses that use big-data-fueled predictive analytics to pinpoint what a student is mastering (or not mastering), and what modules of a lesson plan best suit them under those circumstances.

- **Problem management:** When it comes to issues that can arise in the classroom a student handing in writing that might not be his own, for example data is also at teachers' disposal. One company, iParadigms, leverages big data to cross-reference written work with public databases and other online resources. Its apps verify that all material submitted is original to the student writer.

- **The Mapping Concept:** Mapped information comes in as an important contribution to comprehend the learning models of students. At the point when data is mapped, it will prompt the situations of creative learning, self-learning or group learning. A multitude of online learning interfaces is gathering mass data about students from over the globe. It is through this mapped data that those platforms can better address the issues of the students. Subsequently, laying hands on information about the interests of students will come as an appreciated move towards customized and progressive learning.

- **Career Prediction:** Further, diving intensely into the performance report of the student will assist the authority with understanding his or her improvement and their weaknesses and strengths. As said before, the reports will recommend the regions in which a student is interested and this will help to know he/she can seek a profession in which field. In case that a student is enthusiastic about taking in a specific subject, at that point the decision ought to be valued and the student ought to be urged to follow what they desire to follow.

There's a key factor at the core of all this functionality: The teacher, and the role he still plays at the center of data's classroom transformation.

III THE HUMAN FACTOR: TEACHERS AND DATA

As classrooms become more and more connected to data and its far-reaching potential, the human mind that's managing the process remains very much central to students' experiences. Even companies that are promoting digital integration in the classroom remain keenly focused on the individual at the head of the class. For example, a core component of ThinkCERCA's software is that while it guides students through the process of writing an effective argument, it also puts that writing and the associated analysis back in the hands of human beings.

It's the teacher who assesses each pupil's work, and their interaction with the student is the cornerstone upon which ThinkCERCA's algorithms rely. Seeking to quantify human behavior that surrounds the back and forth of writing and teaching, ThinkCERCA's analytics (over time) can provide schools and educators with a new understanding of whether they're posing the right questions about their classrooms and methods in the first place. Big data could be leveraged to upend the standardization model altogether and enable a creativity- and problem-solving based approach.

Figure 2: Changing K-12 Education

"I would say that we really give teachers small data," says Buckley. "It's really about capturing all the small human processes and putting those in front of people. You can liken it to [a fitness- and food-logging app]. You put in what you eat, and over time it gives you back data that you can understand in a very meaningful way."Seeking to quantify human behavior that surrounds the back and forth of writing and teaching, ThinkCERCA's analytics (over time) can provide schools and educators with a new understanding of whether they're posing the right questions about their classrooms and methods in the first place.

IV CHALLENGES:

Along with the opportunities and advantages offered by Big Data, it also presents a bunch of challenges.

- **Limited talent pool**. Not many top colleges are offering data science courses. So there are very few people with the necessary skills to ensure seamless adoption of Big Data in the education sector.
- **Scalability and storage issues**. Crashes and slowdowns are common occurrences and they affect the quality of analysis and the resulting outcomes.
- **Data errors**. In the process of keeping multiple datasets of the entire student population across several categories, errors and mistakes such as data losses can occur.
- **Data safety concerns**. There is fear that hackers and malicious people may use the weak security systems of Big Data to gain access to volumes of student data.

V CONCLUSION:

Big data could be leveraged to upend the standardization model altogether and enable a creativity and problem-solving based approach. As the students begin taking a shot at their own, in their personalized learning program, the immense volume of education, which more often is secured by general subjects that need to interest all students from various levels, should be possible on the web and by their own. The education system will be enriched with new learning ways, making it more efficient and targeted.

Big Data improves the productivity of education outcomes using its technology all over the education systems levels, at teaching, learning, retention, administration, and reporting. It facilitates the outlook and effectiveness of education by enabling the extraction of insights from learning experiences, tracking learners learning processes and progresses, besides ensuring their retention.

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