

**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH  
TECHNOLOGY****THE STUDY AND SURVEY POINT UP MASSIVE DATA, UTILIZATION AND  
TECHNIQUES USED IN HIGHER EDUCATION SYSTEM****Chirayu Pal\*<sup>1</sup> & Dhanur Motwani\*<sup>2</sup>, Atindra Patel<sup>3</sup>**

DOI: 10.5281/zenodo.1403414

**ABSTRACT**

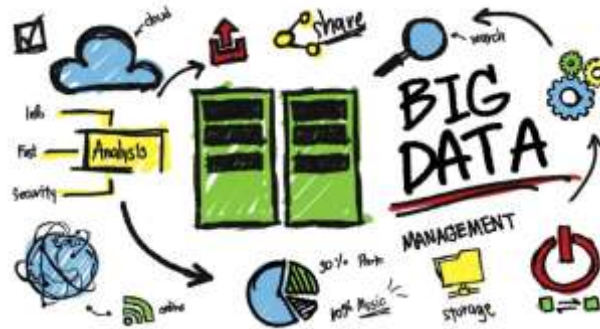
Data mining and big data analytics have the ability and potential to metamorphosis and transfigure the present day pedagogy, teaching, andragogy and the fact-finding for student's benefits. Evolution of big data will serve as the beginning for a new era in education and scrutinization and exploration in education. The forefront and leading-edge critique traverse the contemporary state of big data analytics. This paper aims to study the implications for edification and development for today and the next day. Data mining and data analytics have clutched great impetus in the past few years and will surely entertain a great market in coming future. Learning analytics have been nourished by data and it further provide opportunities to institutes to allure more learners as with the assistance of analysed data they will have much apt knowledge and recognition of the learners ability, domains and requirements.

Today intelligence, apprehension and knowledge about big data are really requisite. The agenda of this illustrative document and report is to supply a pinpoint review of massive data, its utilizations, techniques and its analysis via languages as HIVE, PIG, and HADOOP. The paper also talks of many affairs about big data and its analysis mechanism. A lot many advantages are offered by it but there is a need for the organization to understand its own requirements, their structure, their setbacks, resources before the enactment of data bandwagon. In education scenario and in all education related research fields. Big data has its own unique stand. The intercession of big data analytics in schooling and institutions can reduce the inflation of perils and menace it suffers. The influence of big data is not restricted to CS/IT departments and companies but it is expanded to all domains say in education, health care, government etc...Today even the field of education doesn't remain isolated by the intervention of big data. In future big data will definitely serve as productive & constructive equipment for education structure in the very near future

**Keywords:** Big data, Data mining, higher education, analytics, impact and issues**1. INTRODUCTION**

Data and data analytics now connects to analysers, learners, and to technical and non-technical decision generators in a lot many ways. Today all of us are bared to huge or massive volume of data by one or other way say by mobile, net, games, tv, phablets etc.. Data is generated physically and virtually. The data in bulk and the problems in curving it to a proper appearance has been a very crucial hindrance for organisations since past few years and there is requirement of skilled dedicated class of people who will work on that data. Education and research in this sector is at the very edge of cusp where there is a need of congregating unprecedented quantity of information using different mechanisms. Big data is a term for that large chunk of data produced by us every minute, every hour, every day. The quantity of data produced every minute didn't get analysed effectively. It is pretty more difficult to manage this much amount of data, to analyse it, store it and generate result. Big data is changing decision making process and is an add-on to it.

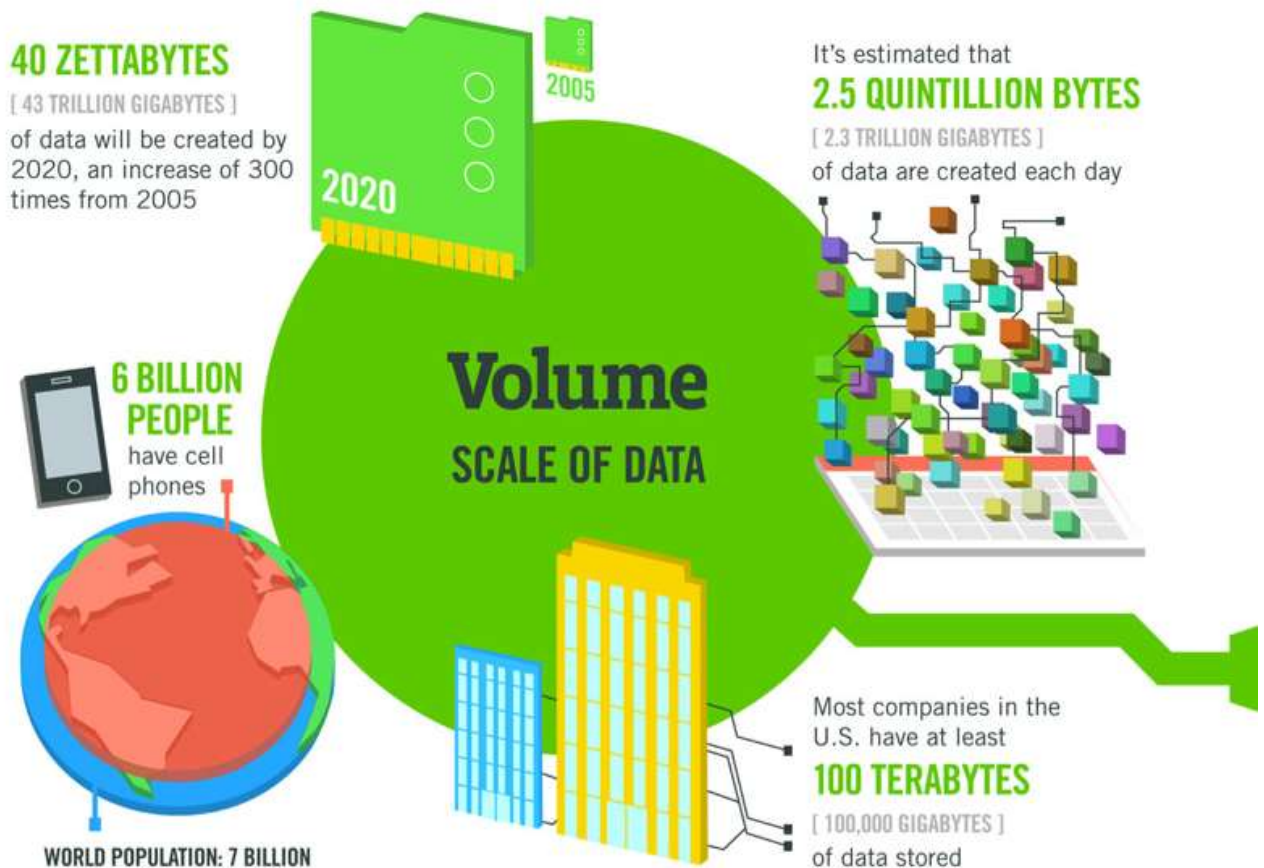
Educational institutions generates huge amount of data about their staff, students, speakers, workshops, attendance, finance, performance, their background. Institutes even generate information's regarding researches, surveys, populations, averages, numbers etc...This types of data is useful in finance, and administration but it plays a drastic role in systems functioning analysis, report generation surveys, customized and general level department analysis and improvements.



Big data brings new curves and trajectories in education system. Data in higher education comes from multifarious sources which cover social sites, blogs, student's personal details etc...and an apt and fruitful study provides lots of needed information. Accurate data analytics ensures best chances of student job and placement procedure, identifying and assisting weak students at failing or dropping risk, enrolment prognosticate, prior alerts etc...Big data or digitalized data gives an opportunity to use IT resources technically and tactically in education system which will definitely increase the quality of education and services to students.

Enactment of big data in academics will enhance guidance to students, scope, outcomes and will increase their performance. The paper provides attributes enhancing and luring teaching institutes and examines all hindering factors in current scene, and it even provides solution to it.

Learning and teaching has become an active agent now-a-days, the education system is now confined not only to the four walls of institute rather it is advancing and changing drastically and dynamically. There is no room for conventional methods of teaching, analytics and data maintenance today. In the state of art, in this report we will learn from where educational big data originate and to use it. Data and data analytics has become a jargon or fuzz word in every domain and precinct. Through the following study and review we are just trying to analyse big data in higher studies.



The dominating and prevailing catastrophe in an educational organisation around the world is scholastic triumph and reservation and confinement of scholars and students. This is specifically an essential topic in the expansion and enlargement of student representation, increase in admissions, stretch in scholars and learners diversity, finance, administration and educational quality assurance and affirmation. Now-a-days teaching institutes, pedagogy and andragogy schools are maintaining their own database for student's records as the data has grown in size and complexity. Today there is a must want of big data analytics for success, prorocruitment and effective resource usage. This is the apt time to study advantages and need of big data analytics in education and technical research.

With the stretching utilization of big data, a big concern to parents consultants and privacy promoters is security of student information unveiling to nefarious bare hands which can misuse it. Data mining and big data analytics even assists in problem and rate of success identification.

## 2. BIG DATA IN EDUCATION: IMPROVEMENT OF PERFORMANCE

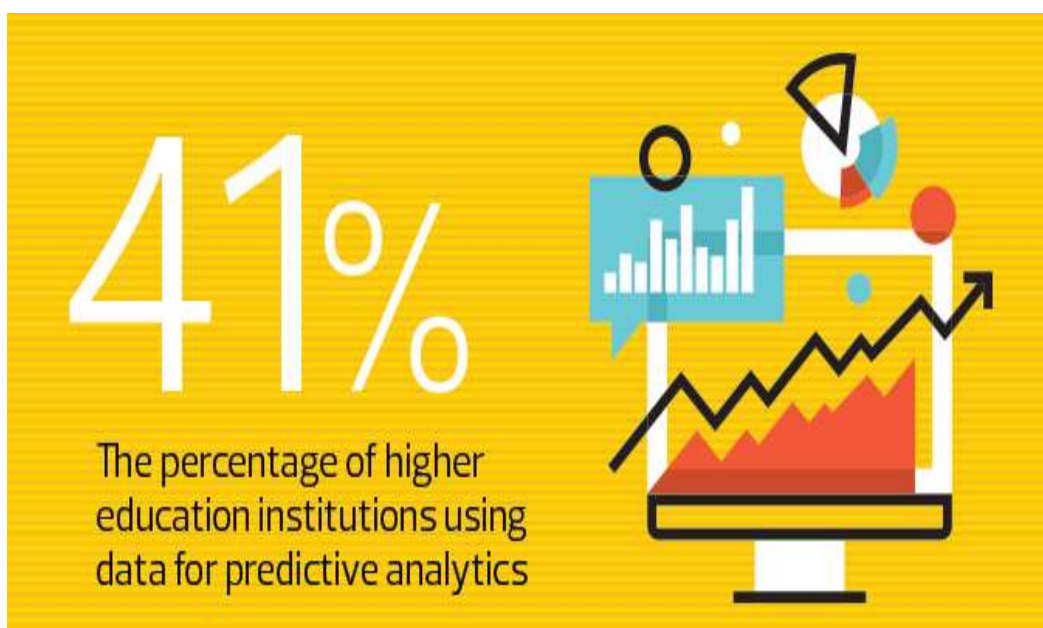
The overall goal of Big Data in the education field should be to improve student's results. Better students are good for the society, organisations as well as educational institutions. But now the answers to assignments and exams are the only measurement on performance of students. During his/ her student life. However, every student generates a unique data trail. The data trail can be analysed in real-time to deliver an better learning environment for the student as well as to gain a optimal and better understanding in the individual behaviour of all the students.

It is possible to monitor every action of the students. How long they take to answer a question, which sources they use, which questions they skipped, how much research was done, what the relation is to other questions answered, which tips work best for which student etc. Answers to the questions can be analysed quickly and automatically (except for essays perhaps) give instant feedback to the students.

Also, Big Data can help to create groups of the students that prosper due to selection of which student is in a group. Students often work in groups where the students are not complimentary to each other. With algorithms it will be possible to determine strengths and the weaknesses of every single individual based on the way a student can learned online, how and which questions were answered, the social profile etc. This will create stronger groups that will allow students to have a steeper learning curve and deliver better group results.



When the students start working on their own, in their customized blended learning program, the huge amount of teaching, which most of the time is covered by general topics that have to appeal to all students from different levels, can be done online and by themselves. The professor can monitor all students in real-time and start a much more interesting and more deeper conversation on topic of their choice. This will give students the possibility to gain the optimal understanding of the topics.



Even more, The big Data can give insights in how each student learns at an individualized level. Each student learns differently and the way a student learns affects the final grade of course. Many students [learn](#) very efficiently while other may be extremely inefficient. When the course materials are available online, it can be monitored how a student learns. These information can be used either to provide a customized program to the student or provide real-time feedback to become more efficient in the learning and thus improve their results.

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 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 these information is provided in the real-time, authors can change their textbooks to [meet](#) the needs of the students thereby improving the overall results. Data analysis consolidates information to provide the big picture of trends and patterns for higher education leadership teams that can be used to evaluate and streamline processes, create efficiencies, and improve the overall student experience.

### 3. RESHAPING LEARNING THROUGH BIG DATA

While considering modern-day educational learning, there's no doubt that students are having more options than ever before. They can learn at their convenience from home, the coffee shop, or the classroom with the assistance of Big Data as a tool which is more powerful than conventional learning.

#### Digitized Textbooks

Future Textbooks will be not likely to anyone who carried around heavy backpacks in their high schools and colleges. The transformation from a backpack that's full of books to a slim smartphone has been an ongoing phenomenon for some time, but the future textbooks will be increasingly interactive, collaborative, and updated for accuracy in real-time.

Greg Fenton, CEO of Redshelf (the digital textbook company) says, "There is a plenty of information available on students' habits of reading and the amount of time they spend for studying. With online textbooks, publishers and professors now have access to information that shows exactly how, when, how often and why the students use textbooks."

This data assists publishers with insights that inform the editorial process and also gives teachers access to information that can help them to improve as the instructions based on student's learning habits. With the digital textbook, updates can be automated in real time whenever required, homework sections in the book also can be graded in real time, video files and audio files can be installed, and much more.

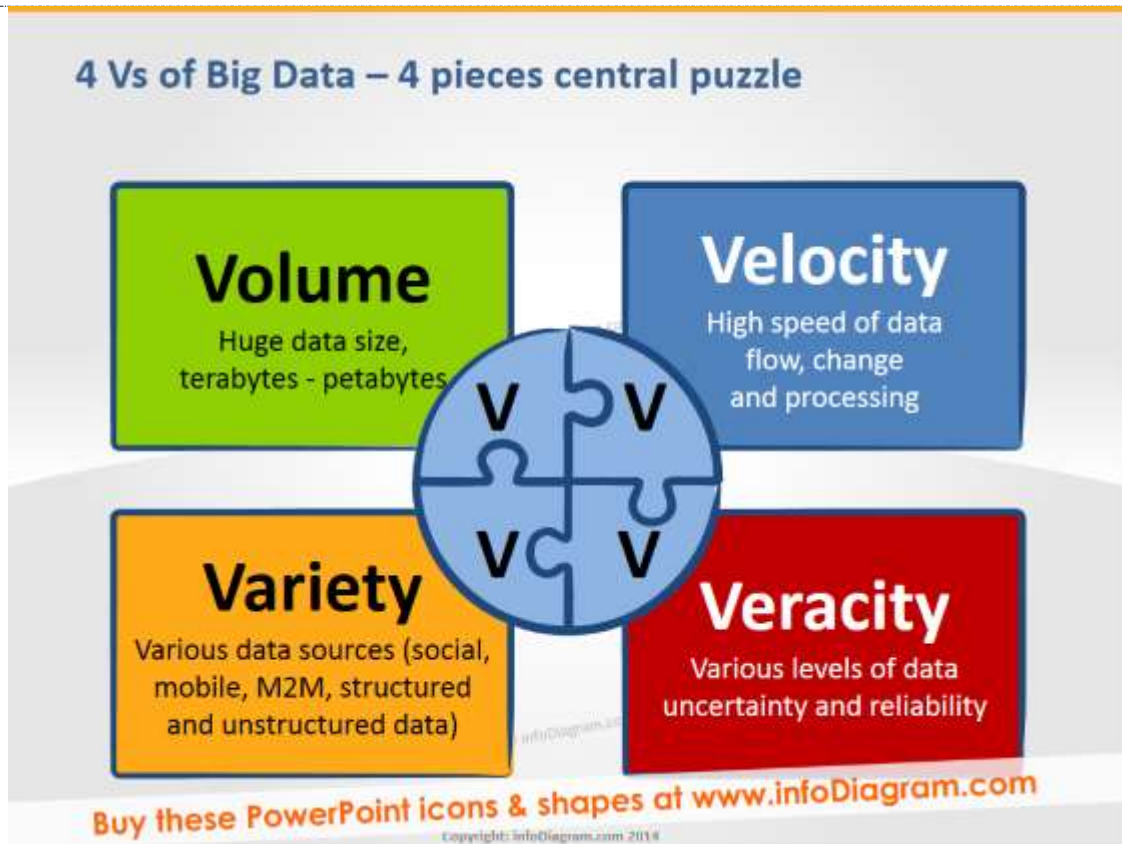
#### Personalization

Plenty of data and analytics tools available to give an opportunity to create a high level of personalization. Every single learner isn't the same, thus teachers can become much more effective when equipped with the tools to evaluate the student's abilities and challenges. Most of the students get bored while studying in a textual format so now, textbooks are not only coming with just a digital copy, but also they have web-based sites that include animations, videos, and sample quizzes. Digital textbooks have benefited with an active feedback loop in which students and teachers can note areas of confusion also they can highlight the tools that are helpful. Changes and improvements made in real time can actually be profitable for the students and teachers immediately, instead of semesters or years later unlike before



*5 Ways big-data is beneficial for school:*

Most of us are used to looking at school education in a certain way. For example, to improve students' reading skills, they would be encouraged to read short stories or the like and the teacher would conduct tests to check for improvements in their reading comprehension skills and vocabulary. The tests would then be used as a tool to gauge the students' understanding and retention of the key concepts being taught. This traditional method of teaching has continued for centuries.



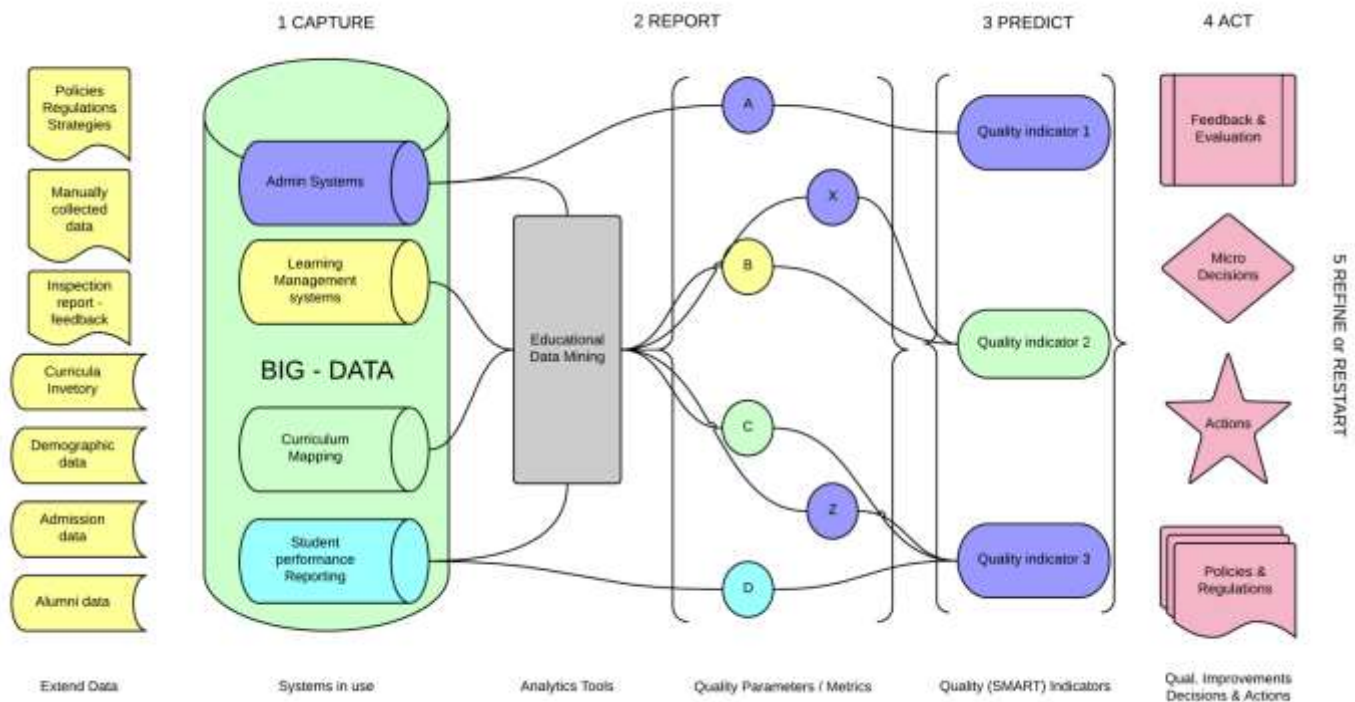
#### 4. THE TECHNOLOGICAL FUTURE OF EDUCATION

Future education may take a different course:

- Students could learn to read with the help of software programs on computers
- As the students go through the reading material, computers can collate data on the amount of time it takes them to read and comprehend the stories
- After each reading spell, they may be given online quizzes on reading comprehension and vocabulary
- Following the quiz, they receive feedback instantly regarding correct or incorrect answers and how well they did in comparison to their peers in class and perhaps the entire country
- To solve any difficulties, the students could be given links to websites that explain the concepts in detail
- Following the session, the teacher could have useful data on the students' reading comprehension and vocabulary skills, besides their reading times and the electronic resources used to supplement learning

All of this will give rise to a lot of data, to benefit from which we would require data analytics and what has now come to be commonly known as 'big data'. In fact, big data can entail a lot of benefits for the education system in its current avatar and is already being put to use for that purpose.

### Big data architecture:



## 5. CONCLUSION

Big data has become phraseology in education, health care, Statics and other fields. The enactment of data mining enables students to track theirscholastic, faculty visibility, their own performance, their academic progress and scene of their behavioural progress status. Big data enables us to deal with variety of situations in present and future and to manage widagamut evolvingduring data collection and analysis. Data mining provides accountability and lucidity in work in every expanse today. Big data is a boon which just paves a path or road for analysis, extraction and estimation of results and outcomes in multifarious scenarios.it enables us to enhance our planning and acuity. Data analytics is a technique to deal with a huge mass of data and to unveil the hidden. The data is ever growing and enlarging, and a call is just for analysis. Globalization has not only defined a way for competitive era in world economics but has also driven a lot many educational reforms. The educational industry is daily spawning bulk in excess and big data only aims to provide impetus and speed to some essential sectors. It fancies and desires amelioration and furtherance in educational society. Big data ensures pronounced, extraordinary and holistic advancement in higher education, the need is of a burgeoning zeal to implement big data analytics.

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#### CITE AN ARTICLE

Pal, C., Motwani, D., & Patel, A. (2018). THE STUDY AND SURVEY POINT UP MASSIVE DATA, UTILIZATION AND TECHNIQUES USED IN HIGHER EDUCATION SYSTEM. *INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY*, 7(8), 599-607.