

# A study on the Relevance of Data Driven Analytics Approach of Big Data in Professional Education

<sup>1</sup>Prof..Smitha Harikumar

<sup>1</sup>Dean, KMM College of Arts And Science, Thrikkakkara

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## Abstract:

This paper is a study on the relevance of Big Data in Education. In this paper, using the data driven analytics approach. I have analysed how the Big Data analysis can actually involve to professional education and also how the unused data can benefit and improve the teaching and learning process in the present education system.

*Keywords* — **Big Data, Data Analytics, Data Mining,**

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## INTRODUCTION

. In this paper we can see the relevance of Big Data in professional Education. Also how big amount of data can be used and extracted to something useful, helping the students and teachers to improve their knowledge. It is very important to mention the objective and policy of Big Data in education, giving a clear picture of the significance effects of Big Data in education. It also used to help teachers and students to make more targeted preference in the zone of education. Different Approaches in Big Data Analysis includes Context- or need-driven analytics approach, Learning analytics approach, Visual analytics approach, Data driven analytic approach etc . For this research work, I have used the method of data driven analytics method.

## I. LITERATURE SURVEY

Professional education is a domain which constantly needs to be transformed to follow the fast rhythm of varying trends in different sectors which in turn generates a variety of needs in situation. The most important factor that has finally altered the method of education is technology. Examples of different types of technologies used by the students, faculty, researchers and decision-makers etc to improve teaching and learning in education and also to interact with each other are mobile devices,

teleconference and remote access systems, educational platforms and services etc . These reflect the growth of learning stage in educational sector with the usage of modern technologies. . The interaction with these technologies generates large amounts of data that range from an individual access log file to an institutional level activity. Still the educational systems are not yet fully prepared to manage with and utilize them for continuous quality improvement purposes. So research has been applied to different approaches such as big data and analytics that could be constructive in investigating and exploiting educational data.

Data possessed in a system or a specific domain are considered as big data when simultaneously the volume, the variety and the velocity are high irrespective of whether these three characteristics can be considered “small” to another domain. The educational data can be treated in different dimensions and from different perspectives to bring into light insights for different stakeholders such as decision-makers, faculty, researchers and students to promote accordingly the data-driven activities concerning quality improvement in education .Large amounts of educational data are captured

and generated on a daily basis from different sources and in different formats in the professional educational network. The educational data vary from students' usage to learning activities and courses information, to data in educational and quality enhancement processes and procedures.

The complexity of Professional education is lies in the constantly increased knowledge that continuously needs to be reflected in educational activities in order to match the needs for professionals which meet the demands of the society. It produces an enormous amount of educational data which can be considered as big. The variety of data enclosed from teaching, learning and assessment activities, make it an area in which big data and analytics can be very useful to exploit them and sort out the complex information to be found in large diverse data sets. Using big data and analytics techniques as an approach to make sense of the data, representing education curriculum and the relations between them, discovered its underlying complexity and the influence that these techniques offer in different cases.

### **1. Big Data and its Analysis**

Big data is data that, by virtue of its velocity, volume, or variety (the three Vs), cannot be easily stored or analysed with traditional methods. Big Data refers to data that because of its size, speed or format, that is, its volume, velocity or variety, cannot be easily stored, manipulated or analysed with traditional methods like spreadsheets, database or any common statistical software. Spreadsheets and relational databases just don't cut it with big data.

Big Data Analytics largely involves collecting data from different sources, manage it in a way that it becomes available to be consumed by analysts and finally deliver data products useful to the organization business. The process of converting large amounts of unstructured raw data, retrieved

from different sources to a data product useful for organizations forms the core of Big Data Analytics.

### **2.1. Dimensions**

From a wide perspective, the development of analytics models has shown promise in transforming big educational data in professional education into an Analytics-driven quality management tool. In the world of academic and learning analytics, the sources that big educational data are derived from are distinguished in different levels. This gives a multidisciplinary character to the field of analytics in general, involving various techniques, methods and approaches frequently used in the field. The range of actions that can be taken within the analytics area is wide, and frequently, these actions are classified into different levels and dimensions. Specific analytical approaches are applied to address respective questions for each of the dimensions. Descriptive analytics, for instance, produces reports, summaries and models in the dimension of time to answer the what, how and why something did happen. It monitors also processes to provide alerts in real time and recommend answers to questions the case of predictive analytics, past actions are evaluated to estimate the future actions outcomes. Using analytics, choices are based on evidence rather than assumptions

Here analytics has been also classified into different levels such as course, department, institution, region and national/international The Other terms attempting to define the different levels are activities in a course, an entire course in an education programme, the different courses in a specific academic year, study programmes in an educational institution etc.

### **2.2 Advantages of big data analysis in education.**

Big Data can provide more opportunities for new learning experience in professional education. The analysis can improve students' learning ability and the faculty can able guide them to more efficient results than the traditional education The students and faculty can also share information with educational institutions and can expand their knowledge and skills. Furthermore, Educational

institutes and Universities are able to help and prepare their future students .

Big Data can really progress the education. It assist to form a modern and dynamic education system, which every individual student can have the utmost benefit from that. Furthermore teachers have valuable tools, were they do not have before, which can make their decisions more explicit and are able to choose a big range of new understanding methods.

Hence the Big Data are actually involved to change the way of industries including the education. In the new era of Data the traditional difficulties will be no longer exists, keeping the good methods. The education system will be enriched with new learning ways, making more efficient and targeted. But the way of this new period, have just began and there are many difficulties such as the lack of experienced personnel on the science of Big Data and Data analytics. Furthermore the teachers and academics must educate on them and finally the students must accept and use these new tools.

### 3. Data driven analytic approach

Data-driven innovation forms a key pillar in 21st century sources of growth. The convergence of several trends, including the increasing migration of socio-economic activities to the internet and the decline in the cost of data collection, storage and processing, are leading to the generation and use of huge volumes of data – commonly referred to as “big data”. The technologies for processing and analyzing big data are becoming an important resource that can lead to new knowledge, drive value creation, and uphold new products and processes. This trend is referred as data-driven approaches.

### 3.1. Data driven analytic approach in professional education

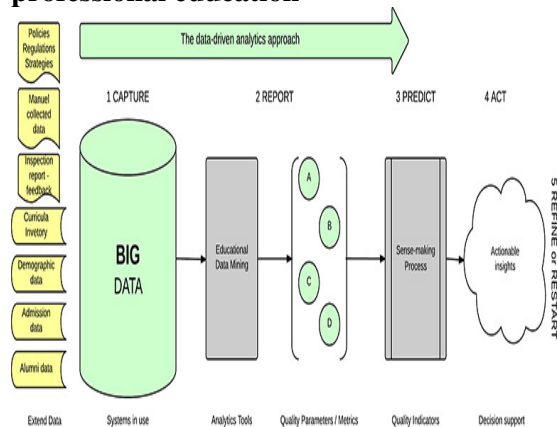


Fig1.1 the data driven analytics approach in education system

This describes the traditional data-driven analytics approach, which is significant to experts in the data analysis area. It starts from the data and ends in the decision. The main focus is on the data and the necessary techniques to collect, store, clean, secure, transfer and process them. The more data we add, the better results we will receive .To make sense of all this data, estimate the trends and examine all possible associations is a challenging task. Data analysis techniques, necessary to process the data in this step, require expertise usually found in data analysts and most commonly within the educational data mining area. Based on the evidence from previous steps, the engine predicts the trends and suggests actions that might be accurate and precise, but still remain suggestions. Frequently the decision makers underestimate the recommendations and act differently. The loop finishes with the last step which is to either end the loop or feed the engine with more data in step 1 and run the engine again.

### 4. Conclusion

Big Data can really perk up the professional education system. Every student and faculty can have the most benefit from it. They can use helpful tools, which can make their decisions more explicit and are able to prefer a big variety of new learning methods. Thus the Big Data are

actually involved to change the way of professional education. In the new period of data the conventional difficulties will be no longer exists, keeping the excellent methods. the professional education system will be enriched with new learning ways, making more competent and targeted.

But there are many difficulties such as the lack of experienced personnel on the science of Big Data and Data analytics. Furthermore the students, faculty and the academicians must actually trained and involved on the analysis part and finally the students must accept and use these new tools.

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### About the Author:

**Dr. Smitha Harikumar** is a PhD holder in computer science from Karpagam University, Coimbatore. Her area of interest includes Data mining, cloud computing, Big data Analysis etc. She has published articles in national as well as international journals with good impact factor. She has attended many international conferences and presented papers. She has been working as a Professor and Dean of KMM College of Arts and Science, under MG University, Kerala.