Analytics And Its Role In Transforming Education System

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Abstract--- This paper gives a brief idea about definition of Analytics, industries involved, steps involved in data analytics and how analytics can be used to transform the current education system so as to have a positive impact on future generation producing skilled and well equipped individuals.

I. INTRODUCTION

Analytics can be defined as process of analyzing data and generating actionable insights [1] which help in identifying relations between data and problem solving. The 21st century demands the students to be well equipped. However the education institutions struggle to graduate students which meet these requirements. Analytics solutions thus can be used to help primary, secondary and higher education professionals.

II. ANALYTICS IN INDUSTRIES

It can be seen from the graph that there are still many fields which are unexplored and in near future we might see increase in use of analytics in these fields.

A Work Survey conducted by IBM in mid-2012 with 1144 professionals from 95 countries across 26 industries. Respondents represent a mix of disciplines, including both business professionals (54 percent of the total sample) and IT professionals (46 percent). It was found that 63% of respondents reported that use of information and analytics is creating a competitive advantage for their business. [3]

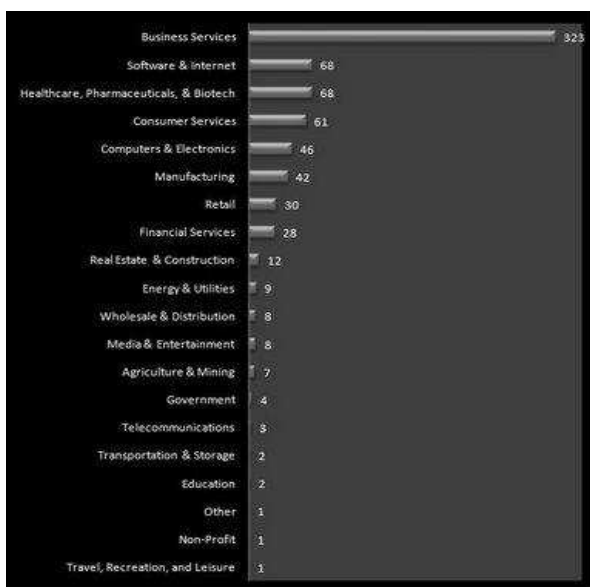The graph [2] below shows analytics applied in different industries.

Fig. 1: Analytics in Industries

III. STEPS INVOLVED IN DATA ANALYTICS

1) [4] Frame the question:
It involves identifying which questions need to be answered and what relations need to be derived.
2) Organize the dialogue:
It deals with organizing the groups which will help to analyze the data. This group answers the question framed in step 1.
3) Collect data:
This step involves collecting of raw data from different sources.
4) Data Cleaning:
The collected data might contain spelling mistakes and certain unnecessary information which is removed in this step.
5) Analyzing and Interpretation of data:
The data needs to be analyzed for deriving different relations and it can be interpreted by developing reports, dashboards etc.
6) Select actions:
After interpreting the data certain actions must be taken so as to improve the efficiency of system or organization.
G. Monitoring results:
The results of the actions taken need to be monitored. After which the next step is again step1 and cycle continues.

IV. ANALYTICS IN EDUCATION

Analytics is in its early stage in Education system. The following are some examples of application:

A. Adaptive testing, tracking and reporting [5]

The students who require to access online tutorials as a part of their curriculum, the analysis can be done on the basis of time spent on each video, number of logins etc. This will help to develop daily activity report, student activity report, student focus report which in deed will help student to analyze their weaker areas and improve themselves.

B. Institutional Efficiency

By analyzing the data institutions can measure their business and operational performance and improve the effectiveness of operations. This will help to improve the loopholes in administration and more effective management relations with students.

C. Student performance measurement.

The results and other parameters of the students can be used to generate reports that will help to identify the exact problem and enable institution to work on those areas for overall development.
For example the table below deduced using analytics shows

the number of students passed in different subjects.

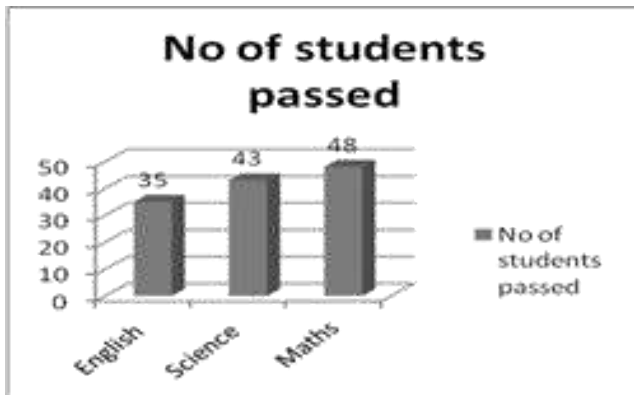| Subjects	No of students passed
English	35
Science	43
Mathematics	48

Fig. 2

Fig. 3: Report developed on basis of analysis

It can be seen that out of 50 students maximum number of students have failed in English. So in this case the faculty incharge can adopt different approach for teaching or the institution might consider appointing another faculty for the batch of students.

V. ADVANTAGES:

Analytics will thus help to predict the future performance of student based on past learning experiences. It will provide students with a unique feedback. Analytics will help to personalize the learning process for each and every student thus encouraging improvement. It will lead to unbiased decision making while marking the grades as it will be based on performance.

VI. DISADVANTAGES:

Analytics require costly human effort. There is data storage, data cleaning, data formatting required. When selected number of metrics is required to draw conclusion then it may result in misinterpretation of data which could lead to inappropriate response.

VII. CONCLUSION:

Even though Analytics in Education system has certain drawbacks it can be used to transform the education system leading to overall development of a student.

VIII. REFERENCES

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[6] Hiren H Darji, "The Evolution of Big Data", Vol.1, Issue 10, 2013.