

Role of Educational Data Mining in Students Performance.

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ABSTRACT

Education is helpful to develop decision making, problem solving and social skills in a student. As far as increasing in schools, colleges, and universities around the world, education play important role in it. Main target to higher educational sector for improve the quality and usefulness of education. Today's education needed for predicting the performance and future of student in this glob. The basic data from educational field play a key role to build a system which impact on teaching and learning process. The buzz word Educational Data Mining (EDM) helps in forecasting and solutions of the future. In this paper I try to explore the Educational Data Mining and the factors touching the students' performance in educational field.

Keywords: College, University, Educator, Academic Performance, Educational Data Mining, Teaching-learning Process.

INTRODUCTION

Now a day's education has become one of the very important part which helps to build social skills, improve the decision making and problem solving capacity. As far as increasing number of schools, colleges and universities around the world; there is need of technology in Education sector to meet the required information. Education plays a new circle role in the society. Quality Education is one of the important factor that affect the development of higher education, which make appearance of data mining in education.

The objective of education societies offering syllabus is to impart quality education within students which impact students' academic performance and helps to take good decision making power. Today EDM has become good technique for research in Educational area. EDM which is an promising field, that center on developing methods for exploring the distinctive data from educational settings, and the use of these methods for improved student understanding , and the surroundings in which they are trained [1]. Research in EDM it takes learning data from various schools, colleges, universities or through Online-Learning Environment and apply various data mining techniques such as classification and prediction, discovering hidden patterns, identifying relationships among variables, and discovery with models to get an insight of personality differences in learning and learner behavior.

EDM knows the impact of various variables that effect teaching- learning and in turn supports holistic decision making and therefore improves the organizational productivity. The data in education sector is growing with the increase in the number of syllabus in various universities so managing data of student, departments and employee is a demanding task [2].

DATA MINING IN EDUCATIONAL SYSTEM

A review on educational data mining from 1995 to 2010 and shows that one of the coming up areas of data mining is educational data mining which having some importance in other fields [3]. They represented a sketch how data mining in educational systems is applied is figured out as shown in Figure 1.

The direction of EDM is towards Students, Educators or Academics Responsible and Administrators. The data in EDM can come from Traditional classroom system or on line tutoring systems used to evidence the significant information, be it student scores, answers to online quizzes, or events from an Intelligent Tutoring System (ITS). The main task towards Educators is to get relevant scorn for training, assessing the organizations' course content and its effectiveness, perform classification to group learners on the basis of their requirements, identify the

activities that adds on to learning, identify learners behavior, course personalization and restructuring, skillful content organization and constructing instructional plans, etc. The main objective for Educators is to improve and enhance the learning within students.

The purpose of EDM for administrators is to find the correct attributes which help in improving the complete effectiveness of the organization by better utilizing institutional resources. Various tools are available for mining algorithms such as, KNIME, Weka etc are a few examples tools available for business and Educational purpose.

The researcher shows, in his studies have found the relation between help seeking and learning, signifying that higher help seeking behaviors result in higher learning. The two main measures of learning are Students' perception and Learning Factor [4]. The researcher has performed coordination analysis to find relations between student behaviors their attitudes and perceptions towards learning [5]. Help seeking behavior is one of the parameter that strongly determines the Students Learning which is significantly correlated to the number of hints asked per problem, and to the ratio of helped to non-helped problems.

There are so many researches focus on individuality that relates to academic inspiration and accomplishment. The association connecting the Big Five behaviors defined in the Five Factor model among university students in the United States [6-7]. Agreeableness, openness, Neuroticism, extraversion and meticulousness are the Big Five traits that are identified and studied. The approach used in the research was correlation and regression study that discovered a makeable outline of significant relationships. Carefulness is one of the important factors which proved in the research under study. Honesty showed a positive relationship which revealed that Students who are academically interested enjoys learning and are more successful.

The forecast of End Semester performance of a student in a course Attendance, Marks scored in Class test, Continuous Assignments, Seminars were gathered

from the students' management system in a study [8] which helps to identify the retention rate of students in a Course and also the target students with special attention. This in turn allows the instructor to award suitable direct/counseling to the target group.

The attention of Educational Data Mining Research is identification of factors that affect the Students scholastic Performance. These factors change from learner to learner. The information about the preliminary outcome of learning analyzes the importance of certain measures that helps in designing student's teaching-learning model which assists in formative student performance in institution [9].

APPLICATION AREAS OF EDUCATIONAL DATA MINING

EDM is got focus on different techniques and methodologies to explore unique type of data identify the previously unknown patterns from the data generated by the educational processes. Educational Data Mining is used to "Predict the forecast and Change the forecast" [10]. There are various application used in EDM users are involved. The four major application areas for EDM:

- Present student models enhancement
- Recent domain models enhancement
- Studying the pedagogical provision stipulated by education software and

- Learners and their learning investigation systematically

Domain modeling: It is used to represent the real world object or concepts. It takes into reflection how a topic of domain under study is generalized which can in turn affect the learning among students. It depends on the depth a topic into key concepts at a particular stage of simplification. The more widespread the concept gives the better is the Learning.

Knowledge Modeling: The aim to finding out the content a student knows which may include specific conceptual or technical understanding. The time student spend on practice, the number of times the student looked for hints and suggestions, the number of correct responses made, repeating the mistakes again and again frequently etc. can help in determining the Knowledge of the student.

Behavior Modeling: Modeling the individual between students importance in educational data mining research. The characteristics or behavior of students helps in predicting the students' knowledge and coming up performance. Most recently educational data mining methods have put importance on User behavior modeling as it facilitate researchers to study what factors are most important that can lead to greater edge in learning process among students.

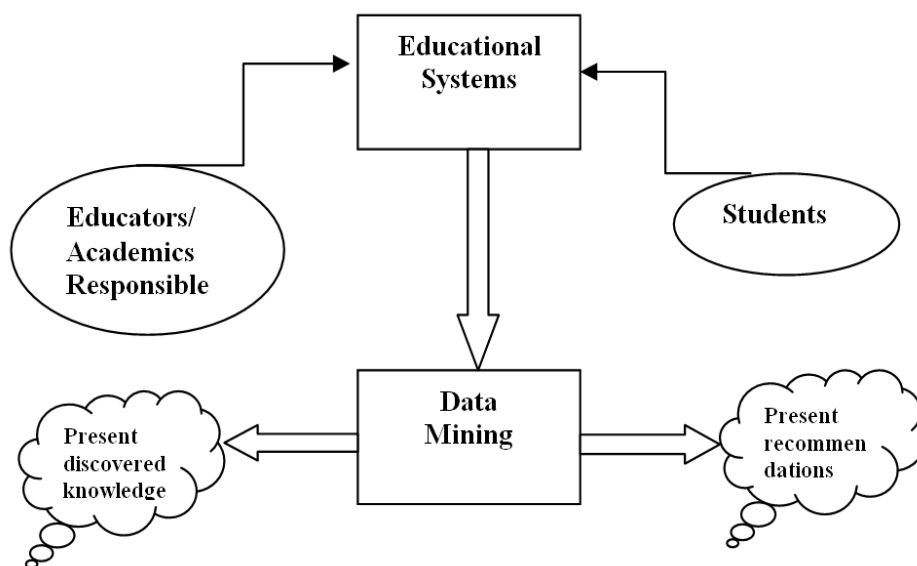


Fig. 1: Data Mining in Educational Systems

EDM can be used to analyze the Educational data which helps in forecasting the Academic Performance of the students, which in turn can be used to carry out Students Grouping and Modeling [11]. The unwanted behavior of students can be studied, which leads to success /failure of students. It also helps to sketch a social network analysis to determine student performance profiles and represent models about their friendship. EDM helps in Redesigning and Constructing a Courseware that best meets the needs of all the concern and help in achieving the National/International Success. User Knowledge and Behavior modeling are two major areas where the EDM plays a very good role. Various factors that affect and can help for improve the teaching process and enhance the students learning. These factors in turn affect the student's academic performance at various Graduate / Postgraduate levels in Colleges/Universities. So many researches focused on these factors. For my research it is importance to find the factors and how they are link and relationship with the complete performance of the students.

CONCLUSION

Now a day quality is the most important concern in Higher Education in which Colleges and Universities flourishing multiple courses as well as accepting challenges in improving the quality in higher education. So many factors depend upon Quality Education in any nation; it is not only on the student's side but that make addition with, corporate sector demand, recognition of colleges, validation, and consistency of quality maintenance etc. These are the parameters which may affect the Performance of Students and teaching-Learning process in educational data mining.

Conflicts of interest: The authors stated that no conflicts of interest.

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