

# International Journal of Advance Research in Computer Science and Management Studies

Research Paper

Available online at: [www.ijarcsms.com](http://www.ijarcsms.com)

## Education using Computational Data Mining Models

**Manmohan Singh<sup>1</sup>**

Research Scholer  
Department of Computer Science  
Mewar University  
Rajasthan - India

**Dr. Anjali Sant<sup>2</sup>**

HOD  
Department of Mathematics  
Bhopal Institute of Tech. and Science  
Bhopal - India

*Abstract: Education has always been important but perhaps never more so in man's history than today. In a technologically oriented society education knowledge and research are crucial to the entire developmental process of a country and its welfare, progress and security. Data mining is useful in education system. We will discuss that what the benefits of data mining are in educational system and what the works that have already done in educational field. The paper aims to purpose the use of Data mining techniques to improve the efficiency of educational institutions. If data mining techniques such as clustering, decision tree and association can be applied to educational system, it can helpful for improvement of student's performance.*

*Keywords: Educational Data Mining (EDM); Classification; Knowledge Discovery in Database (KDD), Classification.*

### I. INTRODUCTION

A Data Mining Process can be defined and applied for exploring and analysis data to identify useful pattern. Data Mining is a process of extracting previously unknown, valid, positional useful and hidden patterns from large data sets [1]. Data Mining task can be classified into two categories: Descriptive and Predictive. Descriptive mining tasks characterize properties of the data in a target data set. Predictive mining tasks perform induction on the current data in order to make predictions [3]. The present study reveals that the drop out at primary level especially among socially backward and economically poor people is due to their peculiar type of culture, which hinders educational processes in tribal society of tribal blocks.

Within the approach of unprivileged and deprived section of the society like other part of the country but it has now been realized that all efforts are failed to produce the desired results. The children may be enrolled in school's register and official data may also be showing high retention and low drop-out rate but actual scene is quiet different behind the curtain. Presently there is hardly any school without teacher and government has tried to appoint at least two teachers per school but many of them are still not running properly its require many and more subject teacher . The teachers remain usually absent from their schools for a long period and the situation becomes deteriorated and suffer student.

### II. DATA MINING IN EDUCATION

In the education field, Educational Data Mining is application of Data mining Extracted information is useful for management decision making process, teachers as well as students [4]. With the help of data mining in education, we can classify students in to groups. One group is need more guidance means have poor performance and other have less performance means need less guidance. In educational data mining following steps are performed.

First is data preprocessing, in this preprocess we study about dataset that is used for analysis. Many factors about data set like accuracy, completeness, consistency, timelines, believability, and interpretability will be considered during preprocessing. Second is Attribute Selection, only the essential attributes will be selected for mining knowledge from educational data. Third is Classification, in the classification we can use linear or linear models. Clustering can be applied over the mining information.

Clustering is an unsupervised learning technique. Clustering is a collection of data objects that are similar to one another are grouped into the same cluster and the objects that are dissimilar are grouped into other clusters. Clustering can be hierarchical or non hierarchical [6] K-means clustering algorithm is widely used to make the cluster. It is simple clustering algorithm. The main reasons for use this technique is ease of implementation and its simplicity. In K-means clustering algorithm following steps are performed [3].

1. Partitional clustering approach.
2. Each cluster is associated with a centroid (center point).
3. Each point is assigned to the cluster with the closest centroid.
4. Number of clusters, K, must be specified.
5. Apply algorithm.
  1. Select K points as the initial centroids.
  2. Repeat.
  3. Form K clusters by assigning all points to the closets centroid.
  4. Recompute the centroid of each cluster.
  5. Until the centroids don't change.

The use of Clustering in education system is partition to students into homogeneous groups according to their characteristics and abilities. Fourth is Visualization. Visualization is the representation technique used for present mined knowledge for users. Mining results are presents in readable form, which is useful for student as well as teacher and management [9].

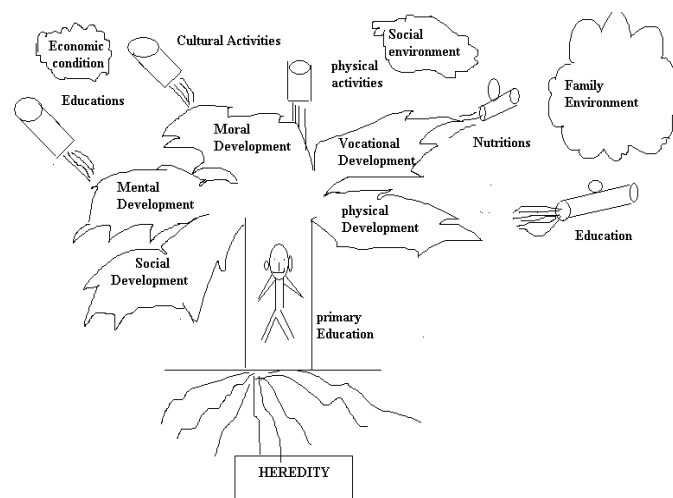


Figure: 1 student Information Modal

Being aware of the fact, the investigator tried his best in collecting related field authentic data from the initial stage seeking out dropped out students their parents, teachers of respective schools and members of the community properly.

Sometimes, the information was not readily at a time, available in schools owing to leave of head of institutions dealing with the records of whole school; some head of institutions were not promoted in giving reply. It becomes difficult to get up to date information in the absence of relevant data of student.

It was not possible to ascertain whether a certain student who seek school leaving certificate got admission in some other school or dropped out to be related.

All the needed information was available in the District Education Office in form of reports and official documents.

- Information not to be collected from the District Education office or the using web side and district project office, specially

designed questionnaire were used in collecting information and data of student Accuracy and Efficiency.

1. Classifier accuracy: predicting class label to be.
  2. Predictor accuracy: guessing value of predicted attributes and its field.
- Speed or Time.
    1. Time to construct the model or training time.
    2. Time to use the model by using classification or prediction time.
  - Robustness: handling noise and missing values of data.
  - Scalability: efficiency in disk-resident databases of student.
  - Interpretability: Understanding and insight provided by the model of real.

### III. MOTIVATION

We are going to create a software based on the education systems followed in the school .we are going to make a complete analysis of the student activities and based on same factors we will give a result such that each and every student can improve his activities in education fields. We are going to take the marks of all students and analyze the mark with activities and we tell them how to improve according activity. We are planning to design Backend of our project with My Weak. We have performed by using the classification technique and the algorithm based.

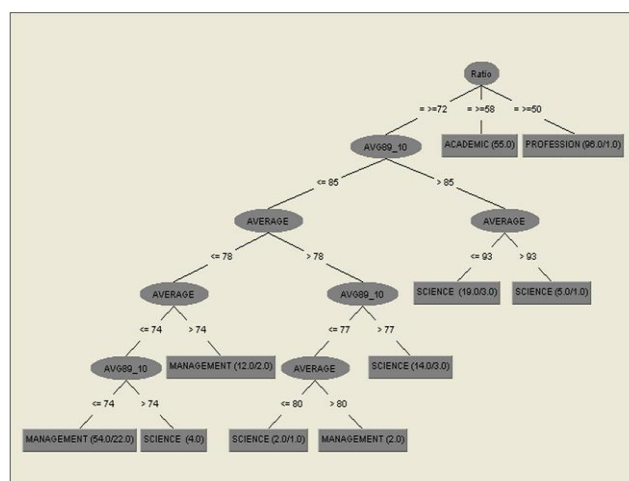


Figure2 Decision tree of performance

### IV. CONCLUSION

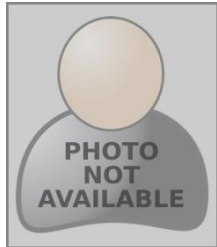
It showed using graph how useful data mining can be in education in particularly to improve student performance of school. We used students' data from database course of primary school in betul Distinct. Discovered Classification rules based and we sorted Data mining works as a bridge in educational system for student, teacher and decision making for management. We can improve performance of student and manage the course selection and attention on weak student with the help of Data mining techniques. The used preprocess and data mining algorithms could be embedded into learning system so that anyone using the system can benefit from Classification rules the data mining techniques.

### References

1. Challenge of Education: Ministry of Education,
2. Chickermane, D. V. : A study of Wastage in Primary Education in India, Educational and Psychological Review V.II Jan. 1962 Baroda M.S. University.
3. Chowdhri, P : Report of an Investigation into the Problems of Wastage and stagnation in Primary Schools in the districts of 24 parganas, Calcutta. Directorate of Public Administration 1965.
4. Das R. C. : A study of the Problem of Wastage and Stagnation in Primary Education. The centre of Advanced study in Education, M.S. University Baroda, 1970.
5. Dep't. of Education, Govt. of Mizoram : State level Seminar on Educational Reforms in Mizoram, 1981 P. 7.
6. Dillon H. J. : Early School Leavers – A major Educational problem, New York, National Child Labour Committee, 1949.

7. Directorate of Education (Research Unit) Bombay : Report of Wastage and Stagnation in Primary Schools Summary, Indian Journal of Educational Administration and Research Autum 1960.
8. Gadgil, D. R. and Dandekar, V. M. : Report of two Investigation, Primary Education in Satara district, Poona, Crokhale Institute of Politics and Economic, 1955.
9. Gopinathan, P. R. : Primary Education, Population Growth and Socio-economic charge (Allied Publisher Pvt. Ltd. 1981) P. 96.
10. E. Hullermeier, "Possibilistic Induction in Decision-Tree Learning," in Proceedings of the 13th European Conference on Machine Learning, pp. 173-184, 2002.

#### AUTHOR(S) PROFILE



**Manmohan Singh**, is Reserch Scholer in Department of Computer Science faculty of Engg. Technology Mewar University Rajsthan India, Under Supervision Dr.Anjali Sant HOD, Department of Mathematics Bhopal Institute of Tech. and Science Bhopal Singh has obtained M.Tech from RGPV University of Bhopal