



The EML-CID Concept using Women Higher Education

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Abstract— *Educational Data Mining (EDM) makes the use of Data Mining (DM), Machine learning and statistical algorithms over a variety of educational data. With the advent of technology increasing data volumes have been generated due to the instrumentation of educational software and administration by the state education authorities. They are almost perpetually generating data about the learning and teaching behaviors of students and educators. In this paper I shall try to delineate the picture of women participation in higher education in India. The EML algorithm is used to update weights from input layer to hidden layer and to the output layer. Later the EML is considered as the best algorithm in performance generalization for Neural Network. The ELM Algorithm is used in solving multiclass classification problems. The predicting accuracy of the ELM is more compared to the SVM algorithm. I shall also mention the necessity and factors responsible for women participation in higher education. Finally effort will be made to give some suggestions which can accelerate women participation in higher education in India.*

Keywords— *Higher Education system, Educational Data mining, Classification, Women and Women Education*

I. INTRODUCTION

The higher education system in India is complex. The regulators associated with governance are overlapping and entangled across various ministries and regulatory bodies. The data can be collected from various educational institutes that reside in their databases. The data can be personal or academic which can be used to understand student behaviour, to assist instructors, to improve teaching, to evaluate and improve e-learning systems, to improve curriculums and many other benefits. It neighbour, naive bayes, support vector machines and many others. Using these techniques many kinds of knowledge can be discovered such as association rules, classifications and clustering. The discovered knowledge can be used for organization of syllabus, prediction regarding enrolment of students in a particular programme, alienation of traditional classroom teaching model, detection of unfair means used in online examination, detection of abnormal values in the result sheets of the students and so on.

II. MACHINE LEARNING: CONCEPTS AND DEFINITIONS

This section presents a short introduction to machine learning, gives a precise definition of the learning task and introduces some concepts and terminology that will be used in subsequent sections. The field of machine learning is concerned with computer programs that improve their performance at solving a particular class of problems by experience. The EML-CID means Efficient Machine Learning and Class Imbalance Data. This definition of learning is rather broad: it says nothing about the form of the experience available to the learner, or the way the performance is evaluated. It covers statistical techniques that seek to determine correlations between certain variables in a domain (for example, the correlation between the price of a house and its geographical location or age) by looking at large databases; or programs that learn how to drive a car by observing a human driver, or a robot that learns to navigate through a building by gradually exploring its environment. Performance could be measured by the degree to which the learned correlation holds over new samples from the housing domain, the number of miles a program can drive a car without human intervention, or the speed/safety with which the robot can move from one part of the building to another. Consequently, machine learning is made up of several subfields that can be characterized by the learning scenario they employ. In this thesis are interested in supervised learning of discrete classes. Here, the learner is presented with a fixed set of examples (also called instances), which are described by a number of measurements called attributes and a label that tells the class the example falls into. The set of attributes are fixed, and they can take on either a numeric value ('numeric attribute', e.g. price) or one of a fixed set of unordered values ('nominal attribute', e.g. colour). The goal of learning is to find a function that maps new instances (for which no class label is available) to one of the classes. It is assumed that the training examples represent independent samples of an underlying 'target function' that describes how class labels are assigned to instances, and the learned function should be an approximation to this target function. The system calls this scenario of learning a classification problem.

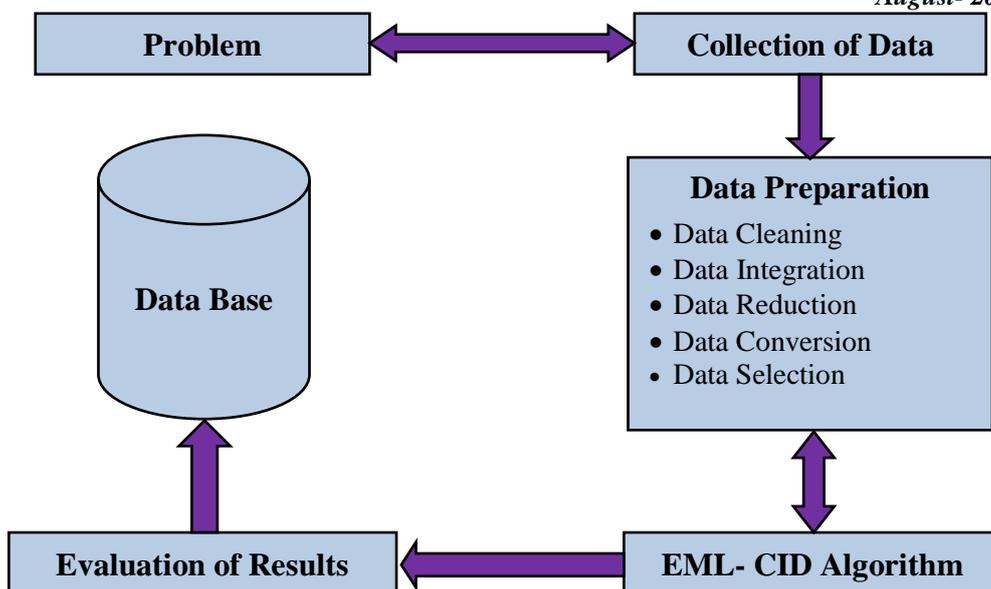


Figure 1.1 Data Mining and Efficient Machine Learning Process

III. STUDENT ENROLMENT

The total enrolment in higher education has increased from 0.21 million in 1950-51 to about 22 million in 2011-12, while the GER has increased from 0.40% in 1950-51 to 19.4% in 2012-13. In 2010, with a Gross Enrolment Ratio (GER) of 19.4 per cent, India is still below the world average of 27%, especially with that of other emerging countries such as China (26%) and Brazil (36%) etc. (Source: UGC Higher Education at a Glance - June, 2013 and RUSA, 2013) Moreover, the Government intends to achieve enrolment of 35.9 million students in higher education institutions, with a GER of 25.2%, by the end of the Twelfth Five Year Plan period through the co-existence of multiple types of institutions including research-centric, teaching and vocation-focused ones. (Source: Higher Education in India Twelfth Five Year Plan , (2012–2017) There are 83 Technical, 33 Agriculture, 24 Medical, 17 law and 10 Veterinary Universities. The top 6 States in terms of highest number of colleges in India are Uttar Pradesh, Andhra Pradesh, Maharashtra, Karnataka, Rajasthan and Tamil Nadu. Bangalore district tops in terms of number of colleges with 924 colleges followed by Jaipur with 544 colleges. 73% Colleges are privately managed; 58% Private unaided and 15% Private aided. Andhra Pradesh and Tamil Nadu, both have More than 85% Private unaided colleges, whereas, Bihar has only 6% and Assam 10% Private unaided colleges.(Source: All India survey on Higher Education,2013)Total enrolment of students in regular mode in Higher Education Institutes in India is around 241.8 lakhs, with 15.87 million boys (55.7%) and 12.69 million girls (44.2%) of total enrolment. Maximum numbers of Students are enrolled in B.A. programme followed by B.Com and B.Sc. programmes. At the Undergraduate level, (34%) of students is enrolled in Arts followed by Engineering & Technology (19%), Commerce(14.5%) and Science (12%). At Ph.D. level, maximum number of students is enrolled in Science stream followed by Engineering and Technology. On the other hand at Post Graduate level maximum students are enrolled in Management stream and Social Science ranks at number two the distance enrolment constitutes 12.5% of the total Enrolment in higher education, of which 39.9% are female students. About 79.8% students are enrolled in Undergraduate level programme. 84505 students are enrolled in Ph.D. that is less than 0.56% of the total student enrolment. (Source: All India survey on Higher Education, 2014-15).

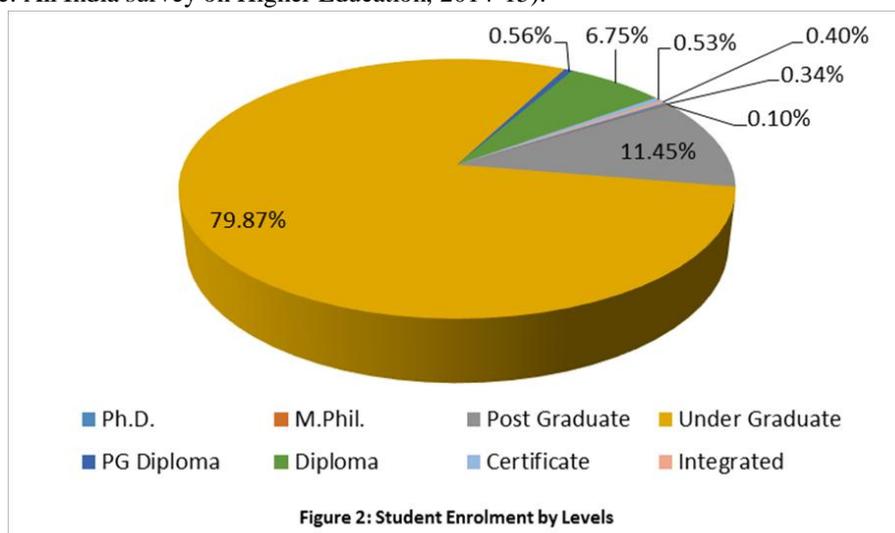


Figure 1.2 Student Enrolment by Levels.

IV. STATUS OF WOMEN IN HIGHER EDUCATION

There is a wide disparity in the GER of higher education across states and the Gross Attendance Ratio (GAR) in urban and rural areas. Total enrolment of students in regular mode in Higher Education Institutes in India is around 241.8 lakhs, with 15.87 million boys(55.7%) and 12.69 million girls(44.2%) of total enrolment (Source: All India survey In terms of gender, enrolment is skewed as 55.7% comprises males, while only 44.3% of the enrolment is females, indicating significant gender disparity. The GER for males (20.8) is higher than GER for females (17.9). Gender Parity Index (GPI) in enrolment is the ratio of the number of female students enrolled to the number of male students. A GPI that varies between 0 and 1 typically means a disparity in favour of males whereas a GPI greater than 1 indicates a disparity in favour of females. In general, at the national level, the number of girls enrolled is less than their counter parts (0.86). However, the female- male ratio in education has been steadily improving over the years. On analysis it is quite clear that the women participation in the regular mode is far lesser than male in all disciplines. However the growth pattern of women has increased over the years and there is a significant elevation in their enrolment pattern. In 2012-2013 women as percent of all students has increased to 44.2%.The growth of Under Graduates are likely more than other persistent sections. This shows that women are mostly concerned with under graduation which is a serious element of discussion because it will adversely affect theEconomy by and large. Hence remedies in relation to generation of practical awareness programmes should be exercised. So also in relation to distance education shown below there lies a substantial gap between the enrolment of women and men.

V. EXPERIMENTAL RESULTS AND EVALUATIONS

Implementation of re-sampled data use the data mining tool Weka in order to implement EML-CID technique. For implementing technique use Java Net Beans. After applying the techniques re-sample the data in order to overcome the problem with imbalanced data. After resampling with the techniques save the data set in .ARFF file and then covert the .ARFF file into note pad (.arff file). Then import the pre-processed data set, i.e., the notepad (.arff file) to further pre-process in Java Net Beans. Class distribution of the instances for EML-CID is presented in Figure. 1.2 andFigure. 1.3 presents Random over sampling implementation in Efficient machine Learning Algorithm.

VI. MAIN FACTORS INFLUENCING WOMEN IN COMPLETING HIGHER EDUCATION

There are different factors which are responsible for influencing women in completing higher education. Some of these are mentioned below.

- In comparison with men, women are more firm in their mission of success. So in education stream also they are strongly motivated to succeed
- As they are firm in their mission, so their performance is also remarkable. Thus on the basis of their merit they occupy the domain of higher education.
- Now a day the tendency of prejudice against women has been reduced and this helps women to enter in the domain of higher education.
- Increased number of higher educational institutions helped women to complete their higher studies.

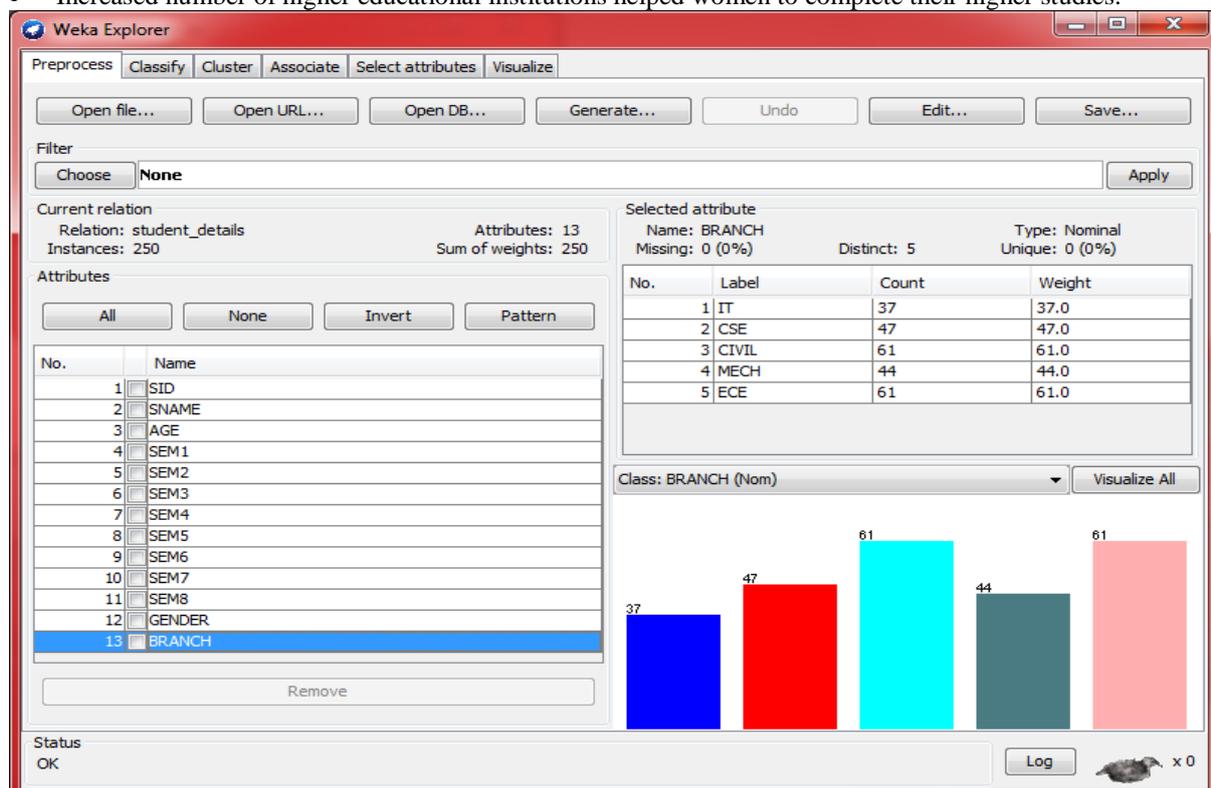


Figure. 1.2. Class distribution of data before re-sampling with EML-CID in Weka

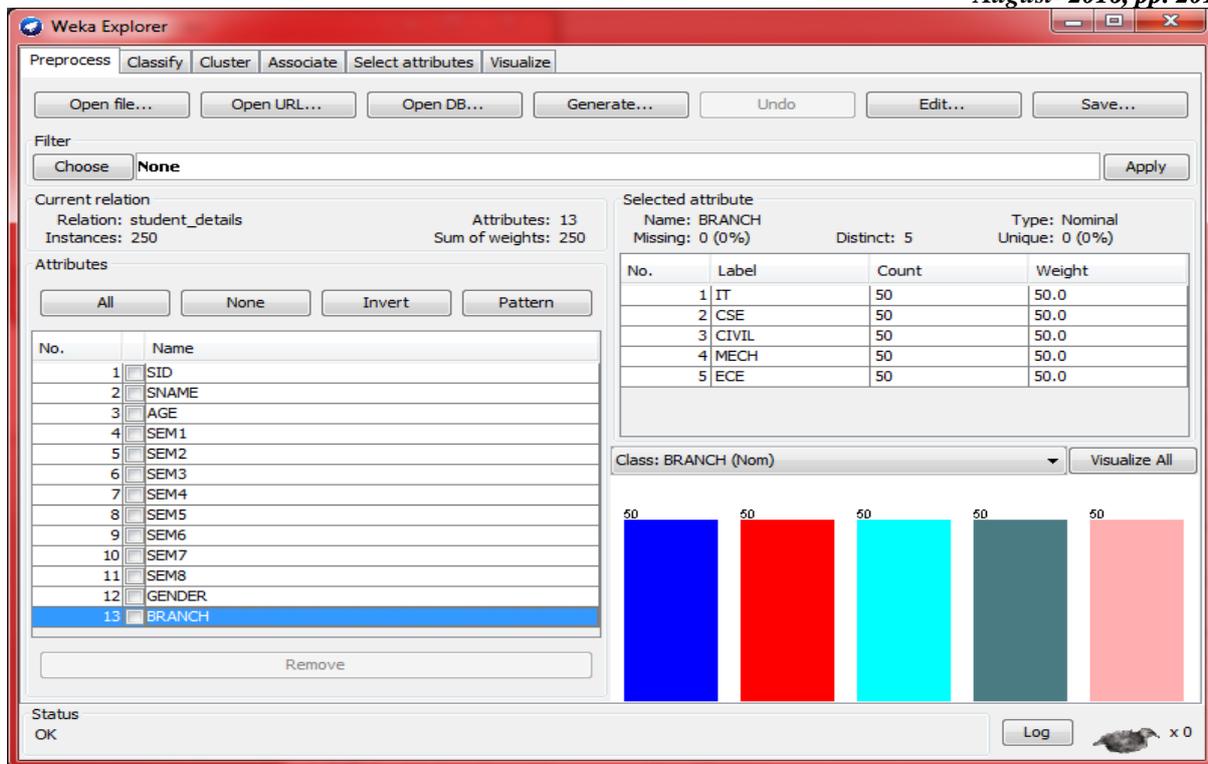


Figure.1.3 Class distribution of data after re-sampling with EML-CID in Weka

- There are some courses which provide scholarship facilities for women. This also helps many poor female students to complete their higher studies.
- There are many institutions which have the provision of hostel facilities for girls’ students. This is al-so an important factor for girl students to complete their higher studies.
- Educational institutions meant for girls attracted many conservative families to get admitted their wards in higher educational institutions.
- Expectation for education-based employment is very high amongst women. This factor works very silently in completing their higher studies.

VII. NECESSITY OF HIGHER EDUCATION FOR WOMEN

The women access in the domain of education has not been fairly treated. There are two different views on the question of women participation in higher education traditional and modern. The traditional view supports women’s education to equip them to become better wives and mother. This view believes that women’s present education is entirely irrelevant in their lives. It is only waste of time and this does not help them to solve the problems of their daily life. This view believes that modern educated women are neither happy nor contended nor socially useful. The fruits of education are enjoyed not only by the woman concerned but it passes to her family in later life. In a word, over all development of a society depends on the development of its total members. But if half of its members are legged behind, obviously it will create limitation to the development.

VIII. SUGGESTIONS FOR PROMOTING WOMEN PARTICIPATION IN HIGHER EDUCATION

- ❖ Establish more female educational institutions.
- ❖ Provide Bank loan facilities for women students.
- ❖ Establish higher educational institutions in rural and tribal areas.
- ❖ Check sexual harassment within and outside institutions.
- ❖ Increase women teachers in co-educational institutions of higher education.
- ❖ Increase women representations in decision making bodies of higher educational institutions.
- ❖ Establish equal opportunity commissions for higher educational institutions.
- ❖ Introduce stipends, scholarships and fellowships for women studying in higher educational institutions.

IX. CONCLUSION

The machine learning algorithm are more successful in overcoming the class imbalance problem. In this chapter, a hybrid technique is to be introduced as Effective Machine Learning in Class Imbalance Data EMLCID algorithm, to Education is widely recognized as the gateway to economic security and opportunity particularly for girls and women. There is little deny in the fact that investing in human capital is one of the most effective means of reducing poverty and encouraging sustainable development. The foremost factor limits female education due to the existence of poverty at

large. An educated woman has the skills, the self-confidence and the information she needs to become a better parent, worker and citizen. One of the most significant worldwide transformations in education over the past several decades has been the drastic increase in women's access to colleges and universities. It must be admitted that women are in no way inferior to men. They have all the power and capacity as that of men but they fail to manifest themselves amongst different opportunities.

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