Assessment of Affecting Factors for Higher Education Admission Process

Hardik I. Patel, Chirag Patel, Arpit Trivedi

Abstract: *Education is the most important aspect of human life. Today, many streams are available to study. It has created a huge opportunity for a student to enroll in any course by fulfilling definite criteria. The courses are managed by various institutes, which are affiliated with particular University. In some courses, students have the choice to enroll without fulfilling any academic criteria. Some students are choosy in joining particular institute or course. Their choice for University or Institute depends upon specific parameters they might have predefined. In this paper, we have studied various parameters, which can influence the decision of a student to take admission in a particular course or institute. To extract essential parameters, we have conducted a survey among students who are studying in different courses and institutes. It is observed from the survey that Job Placement and Good Teaching are very effective parameters in influencing student admission decision-making process. It also reveals that sometimes, the institute is not important when a student is interested in a particular course. This research also guides the institutes or Universities to work upon such parameters to increase the enrollment of students in different courses. To validate this research, the survey from 208 students representing different institutes of India, is collected and analyzed. After analyzing the data collected from the survey, the influential parameters are decided. A graph-based approach is applied to identify the relationship between the varieties of parameters. The results obtained from the graph justify that individual parameters do not affect at large scale in student admission decision-making process while the association of multiple parameters may influence their admission decision-making process.*

Keywords: *Parameters, Admission, Course, Subject, Institute, Student*

I. INTRODUCTION

There is paradigm shift in current educational system. Earlier days, there was a traditional way to teach using black board and chalk. Therefore, no other way of teaching was available. In present days, we have plethora of options to disseminate the knowledge. There are multiple methods available today such as Web Cast, Learning Management System (LMS) and other Information and Communication Technology (ICT) based teaching and learning process. Therefore, a student has wide range of choices to get admission in particular institute. It becomes difficult to judge whether a student takes admission in particular institute or not. This is the biggest challenge to resolve. The choice of taking admission in particular institute depends upon various parameters. These parameters vary from student to student. For some students, nearby location can be the parameter, for some quality education can be the parameter, while for others ease of learning can be the parameter. Likewise, there are number of parameters due to which a student takes admission in particular institute. Therefore, it is necessary for an institute to identify parameters for student admission. Each parameter can be useful to know the sentiment of a student regarding his admission in an institute. It is possible that some parameters may be associated with student admission while others are not associated with the admission. Therefore, we discussed several parameters of admission and filtered the most essential amongst them. We have collected huge amount of student data who have already taken admission in various institutes to validate the results.

II. LITERATURE REVIEW

A. Submission of the paper

In the following section, detailed literature review is done to know the shortcomings of existing systems. The important parameters are discussed in possible parameters section. The paper is concluded with the discussion and conclusion sections. Several authors attempted to learn the sentiment of students to know why they are interested in taking admission in particular course of an institute. In [6], social media like Facebook is used with the aim of recruiting students for the university admission. The real profiles of the person furnish the veracious details while sometimes fake profiles mislead to wrong information. To overcome with this, Malaysian University applied a mashup application to detect and disclose accurate information through the web site APIs. The tool People Search uses the search aggregation function which looks for the people information from conventional means of social networking. As discussed in [2], the major complication for the college entrance examination is non-linear classification issue. To conquer this problem, college entrance exam aspirants prediction approach has been adopted by collecting latest two years data and structuring training set for that.

* Correspondence Author

Hardik I. Patel*, Smt. Chandaben Mohanbhai Patel Institute of Computer Applications, Charotar University of Science and Technology, Changa, Gujarat. India. Email:hardikipatel.mca@charusat.ac.in

Chirag Patel, Smt. Chandaben Mohanbhai Patel Institute of Computer Applications, Charotar University of Science and Technology, Changa, Gujarat. India. Email:chiragpatel.mca@charusat.ac.in

Arpit Trivedi, Smt. Chandaben Mohanbhai Patel Institute of Computer Applications, Charotar University of Science and Technology, Changa, Gujarat. India. Email:arpittrivedi.mca@charusat.ac.in

Even more multiple factors affecting college admission are also analyzed considering score, enrolment plans, lowest admission fractional lines and so on. For further prediction and decision making process for college entrance examination, machine learning algorithm of Support

Vector Machine is used. As a result, the prediction gives 90% advantageous advice to the college admission aspirants in a favorable manner. As discussed in [7],college admission system is proposed in consequence of data mining techniques and knowledge discovery rules via two recommenders. The first recommender assigns students course for the preliminary year while the second recommender assigns special college to the students who pass preliminary year. For this, historical data of the college are taken into the consideration and the system analyzes students academic history, admission criteria, student records and so on. The hybrid recommender system allocates students to suitable educational courses and to specialized colleges. As discussed in [1], academic performance of the student matters a lot for early admission process at the universities. Various prediction models were constructed using statistical methods and artificial intelligence techniques. Further, comparison was made by collecting real life admission data from well-respected universities for the early admission procedures. The limitation of mathematical model was analyzed for conquering the subjective judgement. The conclusion shows that remarkable advancement is noticed because of the usage of this prediction model on the bases of Tenfold cross-validation technique and F-measure indicator. As discussed in [3], it is very exigent for the student to get success in higher education while the number of colleges are increasing rapidly. For this, a survey was conducted of more than 400 engineering college entrants during the counselling process. The survey revealed that the counselling is required for the university aspirants to take admission in suitable courses for their admission and needs to alert the students about national and international ranking system. Further, E-Leaning tools can also be used for the refinement of learning environment. The finding indicates that perfect information needs to be provided to the university aspirants about the importance of it and its evaluation process. In addition, university profile, faculty profiles, students achievements, placement, university MOUs and other details about it, should be scanned before taking the admission.

For modeling the Graduate Admission Process for American Universities, a decision support model is proposed by [4]. They applied machine learning approach to accomplish the goal to built a good model. The method is well suited for getting admission in American Universities. So further discussion regarding this method is eluded in this paper. A web based recommender system for private Universities' admission in Iraq is proposed in [9]. They applied Decision Tree (DT) and Neural Network (NN) based approach to classify applicants based on various parameters provided by the applicants.

Recommender systems are getting popular nowadays. The graduate recommender system is proposed by [5] to assist students in getting admission in appropriate graduate schools. The K-Nearest Neighbor (KNN) algorithm is applied to recommend particular graduate school to the admission seeker. The authors mention that after this study many

undergraduate students got opportunity to pursue high study in better institute other than their home city.

From this literature study, we conclude that there is a need to extract certain parameters needed which can help students to enroll for particular course in particular institute. In the absence of such parameters, it is difficult to judge whether the student has taken admission willingly or not.

In the following section, all the possible parameters are dis-cussed. The essential parameters are extracted after analyzing of all the parameters in Proposed Work section. The relation-ship between various parameters is discussed in the discussion section. Finally, the paper is concluded with conclusion section.

III. POSSIBLE PARAMETERS

This There are certain parameters responsible for a student to get admission in particular course or institute. In this section, we have identified several parameters influencing a student to join particular institute. Mostly following influential parameters are most effective in taking admission related decisions:

A. Location

It is likely that most of the parents want their wards to study in a city where they live. It is feasible in some cases if the course and institutes of a student's choice are available in their city. In some situations, the student is able to fulfill the merit criteria of the institute of his choice. Moreover, it is also possible that a student does not like to study in the institute in which he/she resides due to his personal preferences to the other premier institutes. There are other categories of students who are not attracted by premier institutes. Such students are interested in getting admission in the institute near by their city.

B. Fees

In self-finance institutes, the fee is very high. It is the major factor for a middle class family as they might not afford such a huge amount. Therefore, a student might not take admission in such institutes even though he is interested and eligible for that institute. So fees might play an important role in student admission process. Few students who are inclined towards particular institute may join the institute despite fee is problem for them. Such students might take education loans to take admission in their dream institute in case of fee constraint.

C. Job Placement

In major courses, a student joins course because of the job placement record of the institute. So, job placement can be the major reason for any eligible student to take admission in particular institute. In some situations, a student may have choice to get admission in more than one institute. In such situations, a student may join particular institute because of job placement record of that institute.

D. Syllabus

A syllabus play pivot role in attracting a student to get admission. Some students are inclined towards latest and industry oriented syllabus. They might choose institute which has industry oriented syllabus.

E. Good Teaching

Pedagogy plays an important role for a student to get admission in any institute. Good teaching can be the barometer for an institute. In contrary to this fact, some students may prefer to get admission in institute where self learning is promoted.

F. Reputation of Institute or University

In India, as per UGC list available at [8], there are 47 central universities, 365 state universities, 122 Deemed to be Universities and 269 Private Universities. To maintain and improve quality of education, Government of India has decided to give rank to such Universities to have healthy competitive environment. Besides that an independent body named as National Assessment and Accreditation Council (NAAC)also assesses Higher education Institutes (HEIs). It is funded by University Grant Commission (UGC). It is very usual that some eligible students might be keen to take admission in such ranked or accredited institutes. Therefore, the reputation of the institute might play huge role in influencing student admission decision.

G. Experienced Teachers

Many well-known institutes have well experienced teachers. This factors also affects the student admission process. Sometimes, an eligible student might not take admission in the institute due to deficiency of experienced teachers. This parameter might be very influential and a student may consider this parameter as one of the top priorities.

H. Infrastructure

The students in present era might be interested in good infrastructure. They may need good infrastructural facilities such as well furnished class rooms, laboratories, canteens and other amenities. In the contrary to such requirements, some students might not be interested in such facilities as they are interested in other parameters discussed in this section. Therefore, only infrastructural facilities might not be sufficient to attract a student for the admission.

IV. PROPOSED WORK

To validate the parameters discussed in previous section, we conducted survey among different students from various courses, institutes and universities. The outcome of survey is in Figure 1. The survey demonstrates that Good Teaching parameter is most influential parameter to get admission as 78% of students have enrolled for various institutes expecting good teaching from the institute. It is also observed that 73.1% students joined the course or institute expecting good Job Placement from such institute. Individually, other parameters such as Reputation of institute having 51.4% weightage, Experienced Teachers 52.4% and Infrastructure such as laboratory, classrooms, library, canteen etc. gained 51.4% of votes. It indicates that more than 50% students would like to join particular institute by considering these

parameters. On contrary, other parameters such as Less fee, near by institute and Syllabus are having less than 30% votes by students. Consequently, discussion about these parameters are excluded.
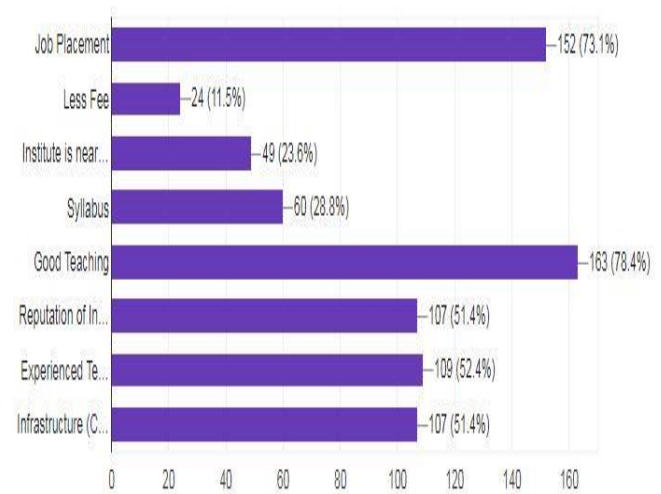

Fig.1 Outcome of Student Survey

It is not possible that only single parameter is accountable, but there can be several parameters associated for student admission decision. To unveil hidden pattern from survey, the eight parameters are transformed into eight variables as per Table I.

Table I Transformation of Parameters into Variables

Parameter Name	Variable Name
Job Placement	P1
Less Fees	P2
Institute is nearby my city	P3
Syllabus	P4
Good Teaching	P5
Reputation of Institute/University (i.e. NAAC/NIRF Ranking)	P6
Experienced Teachers	P7
Infrastructure (Class/ Laboratories/ Canteens/ Other amenities)	P8

V. DISCUSSION

To study the relation between these parameters, a graph is prepared which is shown in Figure 2. The nodes of the graph are parameters. The weights are written on the edges of graph.
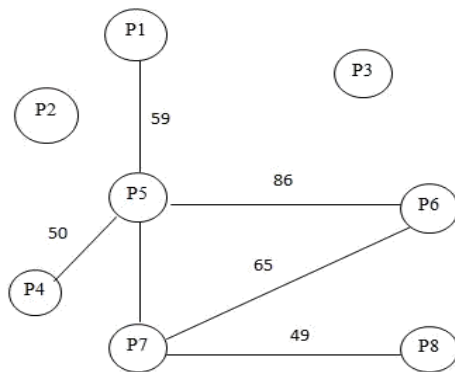
Fig. 2 Relationship between various parameters

The weight of edges between two nodes indicate that how many students have selected these nodes as their preferred parameter. From this graph, we derived interesting facts.

We have considered the value of weight greater 30 to be included on the edge between two nodes. The nodes P2 and P3 are shown as isolated as there is little or no relation between these nodes and other nodes. It shows that fee and near by city institute are not the important parameters for a student to get admission. The weight between nodes (P1,P5) is 59 which indicates that there is high probability for a student to join the institute because of Job placement and Good teaching as both parameters are associated with each other. In addition to these relationship, the weight between nodes (P4, P5) is 50 which is quite considerable. It refers to the fact that the students expect proficient teaching along with updated syllabus in any institute. Moreover, it is identified that the weight between the nodes (P6,P7) is 65 which is somewhat higher than previously studied parameters. It leads to the conclusion that reputation of institute is built up by virtue of experienced teachers and their passion of teaching. Majority of students proposed experienced teachers in the institute they wish to join as 52.4% vote is for this parameter. The parameters (P5,P6) draw the focus towards the outcome that the institutes become reputed through good teaching and learning pedagogy. The students believe that good institute expedite towards good reputation through efficient academic practices and innovative methodologies. There are several overlapping parameters, which are required to be focused. The students who are interested in job placement are attracted by good teaching by the institute. Association rule mining is required. The students are least concerned about syllabus or fees or location. The students are ready to pay high fees if an institute provides quality education and good job placement. Therefore, it is clearly revealed that Job placement is the top most priority for any student. This is most prominent reason for a student to get placement.

VI. CONCLUSION AND FUTURE WORK

This paper unveils the fact that no institute or course is superior or inferior. It is the choice of a student to get admission in particular course based upon the parameters

discussed in this paper. This research also provides insights to the institutes on streamlining their admission process by deeply look into the specified parameters. This research also helps them to target the parameters during the promotion of their courses at the time of admission counselling process. The considerable observation from this research is that Job Placement and Good Teaching are the leading parameters, on which any institute should pay attention. Furthermore, reputation of the institute, experienced teachers and good infrastructure are significant parameters which cannot be ignored. Supplementary to these individual parameters, the research directs that the collective parameters discussed in previous section are also essential to forecast the admission of a student. We have identified the relationship between two parameters in this paper and applied graph based approach to do so. However the research may be extended by focusing on relationship between three or more parameters.

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AUTHORS PROFILE

Hardik I. Patel received Bachelor's degree in Commerce (B.Com) from Sardar Patel University, Gujarat, India in 2008 and Master's Degree in Computer Applications (M.C.A) from Dharmsinh Desai University, Gujarat, India in 2012. He is pursuing PhD at Charotar University of Science and Technology (CHARUSAT) Changa, Gujarat. He is working at MCA Department of Smt. Chandaben Mohanbhai Patel Institute of Computer Applications, Charotar University of Science and Technology (CHARUSAT), Changa, Gujarat, India. His research interests include predictive analytics, machine learning, deep learning and algorithms based on machine learning.

Chirag Patel received Bachelor's degree in computer application (B.C.A) from Dharmsinh Desai University Nadiad, Gujarat, India in 2002 and Master's Degree in Computer Applications (M.C.A) from Gujarat University, Gujarat, India in 2005. He has received PhD Degree in Image Processing from Charotar University of Science and Technology (CHARUSAT). He is working at MCA Department of Smt. Chandaben Mohanbhai Patel Institute of Computer Applications, Charotar University of Science and Technology (CHARUSAT), Changa, Gujarat, India. His research interests include Information Retrieval from image/video, Image Processing, Machine Learning, Deep Learning and Service Oriented Architecture.

Arpit Trivedi received Bachelor's degree in Computer Applications (B.C.A.) from Dharmsinh Desai University, Gujarat, India in 2009 and Master's Degree in Computer Applications (M.C.A) from Charotar University of Science and Technology, Gujarat, India in 2012. He is pursuing PhD at Charotar University of Science and Technology (CHARUSAT) Changa, Gujarat. He is working at MCA Department of Smt. Chandaben Mohanbhai Patel Institute of Computer Applications, Charotar University of Science and Technology (CHARUSAT), Changa, Gujarat, India. His research thrust areas are artificial intelligence, machine learning algorithms and applications of machine learning algorithms in software engineering.

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