

# The Analysis of Factors Affecting College Choice by Using Tableau

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## Abstract –

**B**usiness depends on Data. Now a days we are dealing with large amounts of data, like petabytes. IT teams receive continuous requests from the users in the issues related to handling data. so the key objective now is, how we are going to handle data in an efficient manner, and how to represent that data in an understandable format. One of the available solution is using data visualization- an art of presenting the data in a manner that even a non-analyst can understand[1]. The most popular tools for visualizations / data discovery are Qlikview and Tableau. In this paper we are going to focus on One of the fastest evolving Business Intelligence (BI) and data visualization tool is Tableau. In short, Tableau - helps the people see and understand their data. In this paper we are going to introduce about Tableau and represent an organizational data by using this Tableau, Then we will focus on creating views and analysis of data.

**Keywords - Data Visualization, Tableau, Business Intelligence.**

## I. INTRODUCTION

There is a tremendous increase in the number two and four year degree colleges in India. This study identified factors that influence students' choices among in-state, out-of-state,. The study utilized exploratory factor analysis to identify appropriate factors and multivariate analysis of variance to determine differences in college choices among the groups. The results of this research will be beneficial to colleges in the development of appropriate promotions to differentiate themselves in a meaningful way to potential students, not just in the United States but also over the world.

The college enrollment decision has become increasingly complex during the last 25 years, as higher education has transformed in many ways. The higher education has grown from a collection of small, local markets to regional and national markets<sup>[1]</sup>. The higher education environments have become competitive and institutions increasingly have to compete for students in the recruitment markets<sup>[5]</sup>. Institutions are now bringing students from all over the world. The purpose of study was to identify factors that influence students' choices and to understand the differences in college choices among in-state students, out-of-state students. For this purpose, the current research employed a case study to understand college students' choices, by selecting a deemed university located in Hyderabad.

### A. Specifications Table :

<b>Value of the Data</b>
Data sets are obtained via a survey conducted in an University.
Access to the data allows the user to analyze which factor they need to consider for feature enhancement.

<b>Subject area</b>	Computers
<b>More specific subject area</b>	Data Visualization
<b>Type of data</b>	Tables, Figures
<b>How data was acquired</b>	Survey conducted in a private university
<b>Data format</b>	Analyzed
<b>Experimental factors</b>	Eight factors i.e., Faculty, Teaching Aids, Lab Facility, Library, Fee Structure, Curriculum Design, Placement Record, and last but not the least Marketing About the University were targeted. Tableau tool is used to analyze the results.

<b>Experimental features</b>	Used Tableau9.2 to visualize data
<b>Data Source Location</b>	Hyderabad, India
<b>Data accessibility</b>	The data which is provided here should be accessed within the article only.

**B. Factors considered:**

Table 1 - List of factors considered for conducting survey

<b>Factor</b>	<b>Rate on 10 scale</b>
Faculty	
Teaching Aids The Univ. Is Following	
Lab Facility	
Library	
Fee Structure	
Curriculum Design	
Marketing About The University	

**C. Introduction to the simulation tool used to plot the results :**

1) *Data Visualization:* Data visualization helps the people to understand the significance of data by placing it in a visual context. In our day to day life in order to analyze the data we will make use of Excel and other simulation software's to plot the results in a graphical way. Today's data Visualization tools like Tableau go beyond this plotting standard charts and will display the data in a more sophisticated ways such as info-graphics, spark lines etc... This could be one of the reasons behind why most of the Business Intelligence software contains data visualization tools. In short, data visualization helps the decision makers to see analytics presented visually, so they can grasp difficult concepts or identify new patterns <sup>[2]</sup>.

2) *Need of Data Visualization:* Human brain can easily process and can analyze the complex data which are available in the visual form like graphs etc., rather than in spreadsheets. This is one of the reasons why we need to go for data visualization. Also there are many reasons for moving to data visualization -i.e., we can easily identify the areas that need attention / improvement <sup>[2]</sup>. Also we can easily identify the customer's behavior etc..

3) *Why only Tableau:* Tableau is easily used BI\* software. Using Tableau we can create Visuals like dash boards etc in minutes. It is a simple drag and drop system. Using this, we can group data or we can compare data or we find the relationship among data and many more. We can even create maps by using tableau. Tableau works with spreadsheets, data bases, and cloud data or even on big data.

4) *Tableau:* Tableau has five main products:

- Tableau Desktop - for individuals
- Tableau Server - for organization
- Tableau Online - for cloud
- Tableau Reader - Let you read files saved in Tableau Desktop<sup>[1]</sup>
- Tableau Public - to publish interactive data online

Tableau can connect various data sources, and has multiple options to represent data in different views applying filters /drill downs /formatting, creating sets, groups, generating trend lines. One of the key feature in this tool is, Tableau automatically reads the field names from the data and postulates the dimensions and measures its areas <sup>[11]</sup>.

**II. RESEARCH METHOD**

With the increase in number of colleges, the student enrollment decision in a particular college depends on many factors. Here in my paper we have conducted a survey in an university and that data has been plotted by using Tableau. This study was accomplished by collecting the data from more than 120 second and third year BE students from a well reputed university .

**A. Data Collection**

This survey utilized a questionnaire and seven factors (Table 1 ) to understand the motivating factors for a student to choose a particular college/University. This list of factors has been developed through an extensive literature survey and feedback from the professors in the university. These factors had been taken on 10 point scale, out of which 1= with very less influence on college choice , and 10 = with very high influence on college choice. This survey collected from 120 student population at a private University , located in Hyderabad, to investigate college choice.

Table 2 - Survey Data collected in a university from 120 students.

<b>Student</b>	<b>Faculty</b>	<b>Teaching Aids</b>	<b>Lab</b>	<b>Library</b>	<b>Fee Structure</b>	<b>Programmes offered</b>	<b>Curriculum design</b>	<b>marketing about univ.</b>	<b>Placement Record</b>
Student 1	10	8	10	8	8	8	10	6	10
Student 2	10	9	10	8	8	8	9	8	10
Student 3	10	9	8	8	10	7	9	7	10
Student 4	10	8	8	10	10	6	8	8	8
Student 5	6	10	10	8	8	9	10	10	9
Student 6	10	8	10	8	10	10	8	8	7
Student 7	10	2	10	2	10	10	10	2	10
Student 8	8	10	10	8	8	8	8	6	10
Student 9	10	10	8	10	6	8	8	8	5
Student 10	10	8	8	7	10	9	8	7	9
Student 11	9	9	10	9	9	10	8	2	10
Student 12	9	6	8	7	9	5	3	3	10
Student 13	10	9	10	10	8	10	9	9	10
Student 14	10	10	10	10	10	10	10	10	9
Student 15	10	9	9	8	8	5	9	8	8
Student 16	10	8	10	10	10	6	7	8	8
Student 17	10	10	10	10	10	5	10	10	10
Student 18	7	7	6	7	7	6	6	6	10
Student 19	10	9	10	10	10	8	8	5	10
Student 20	6	8	8	6	6	8	8	8	6
Student 21	10	10	10	10	10	9	10	10	10
Student 22	10	9	9	10	9	9	9	8	8
Student 23	6	8	6	8	6	8	6	8	8
Student 24	8	10	10	9	8	8	9	7	9
Student 25	10	10	10	10	8	10	8	8	10
Student 26	8	10	10	8	7	10	10	8	9
Student 27	10	8	10	9	8	7	10	9	7
Student 28	9	9	9	9	9	8	9	9	9
Student 29	6	10	10	8	8	9	10	10	10
Student 30	10	8	10	8	10	10	8	8	8
Student 31	10	2	10	2	10	10	10	2	9
Student 32	10	8	10	10	8	9	8	8	8
Student 33	10	8	10	10	8	9	9	10	10
Student 34	9	7	9	9	8	10	9	10	8
Student 35	9	7	9	2	8	10	9	5	8
Student 36	9	7	9	10	8	10	9	5	8
Student 37	10	8	9	10	8	9	9	6	8
Student 38	10	8	9	5	8	9	7	6	8
Student 39	9	8	9	10	7	9	7	7	8
Student 40	8	7	8	9	7	8	7	5	7
Student 41	7	7	8	8	7	8	7	5	7
Student 42	9	6	8	7	8	8	5	4	7
Student 43	8	6	8	5	8	8	10	8	10
Student 44	10	5	10	9	8	10	10	3	9
Student 45	9	5	10	10	8	7	10	8	9
Student 46	8	8	10	8	6	7	9	6	9

Student 47	9	8	7	8	6	7	9	6	9
Student 48	10	9	7	8	6	8	9	7	9
Student 49	9	9	10	8	6	8	8	6	10
Student 50	8	8	10	8	8	8	8	2	10
Student 51	10	8	10	8	8	8	10	6	9
Student 52	10	9	10	8	8	8	9	8	9
Student 53	9	7	9	9	8	10	9	10	8
Student 54	9	7	9	2	8	10	9	5	8
Student 55	9	7	9	10	8	10	9	5	8
Student 56	10	8	9	10	8	9	9	6	8
Student 57	10	8	9	5	8	9	7	6	8
Student 58	9	8	9	10	7	9	7	7	8
Student 59	8	7	8	9	7	8	7	5	7
Student 60	7	7	8	8	7	8	7	5	7
Student 61	9	6	8	7	8	8	5	4	7
Student 62	8	6	8	5	8	8	10	8	10
Student 63	10	5	10	9	8	10	10	3	9
Student 64	10	8	9	10	8	9	9	6	8
Student 65	10	8	9	5	8	9	7	6	8
Student 66	9	8	9	10	7	9	7	7	8
Student 67	8	7	8	9	7	8	7	5	7
Student 68	9	9	9	9	9	9	9	9	9
Student 69	10	8	8	7	10	9	8	7	7
Student 70	8	7	8	9	7	8	7	5	7
Student 71	7	7	8	8	7	8	7	5	7
Student 72	9	6	8	7	8	8	5	4	7
Student 73	8	6	8	5	8	8	10	8	10
Student 74	10	5	10	9	8	10	10	3	9
Student 75	10	10	10	10	8	10	8	8	10
Student 76	8	10	10	8	7	10	10	8	9
Student 77	10	8	10	9	8	7	10	9	7
Student 78	9	9	9	9	9	8	9	9	9
Student 79	6	10	10	8	8	9	10	10	10
Student 80	10	8	10	8	10	10	8	8	8
Student 81	10	8	10	8	10	10	8	8	8
Student 82	9	9	10	9	9	10	8	2	10
Student 83	9	6	8	7	9	2	3	3	9
Student 84	10	2	10	2	10	10	10	2	9
Student 85	10	8	10	10	8	9	8	8	8
Student 86	10	8	10	10	8	9	9	10	10
Student 87	9	7	9	9	8	10	9	10	8
Student 88	9	7	9	2	8	10	9	5	8
Student 89	9	7	9	10	8	10	9	5	8
Student 90	10	8	9	10	8	9	9	6	8
Student 91	10	8	9	5	8	9	7	6	8
Student 92	9	8	9	10	7	9	7	7	8
Student 93	8	7	8	9	7	8	7	5	7
Student 94	7	7	8	8	7	8	7	5	7
Student 95	10	9	10	8	8	8	9	8	10
Student 96	10	9	8	8	10	7	9	7	10

Student 97	10	8	8	10	10	6	8	8	8
Student 98	6	10	10	8	8	9	10	10	9
Student 99	10	8	10	8	10	10	8	8	7
Student 100	10	2	10	2	10	10	10	2	10
Student 101	8	10	10	8	8	8	8	6	10
Student 102	10	10	8	10	6	8	8	8	5
Student 103	10	8	8	7	10	9	8	7	9
Student 104	9	9	10	9	9	10	8	2	10
Student 105	9	6	8	7	9	5	3	3	10
Student 106	10	9	10	10	8	10	9	9	10
Student 107	10	10	10	10	10	10	10	10	9
Student 108	10	9	9	8	8	5	9	8	8
Student 109	10	8	10	10	10	6	7	8	8
Student 110	10	10	10	10	10	5	10	10	10
Student 111	7	7	6	7	7	6	6	6	10
Student 112	9	8	7	8	6	7	9	6	9
Student 113	10	9	7	8	6	8	9	7	9
Student 114	9	9	10	8	6	8	8	6	10
Student 115	8	8	10	8	8	8	8	2	10
Student 116	10	8	10	8	8	8	10	6	9
Student 117	10	9	10	8	8	8	9	8	9
Student 118	9	7	9	9	8	10	9	10	8
Student 119	9	7	9	2	8	10	9	5	8
Student 120	9	7	9	2	8	10	9	5	8

\* survey collected on 10 pointer scale

\*\* 1 = with very less influence on college choice ,

\*\*\*10 = with very high influence on college choice.

### B. What have we Analyzed?

In this paper we would like to analyze how various factors affects student admissions for an university. we have considered the following elements for this study - Faculty , Teaching Aids, Lab Facility , Library , Fee Structure , Curriculum Design, Placement Record, and last but not the least Marketing About the University .(Figure 2)

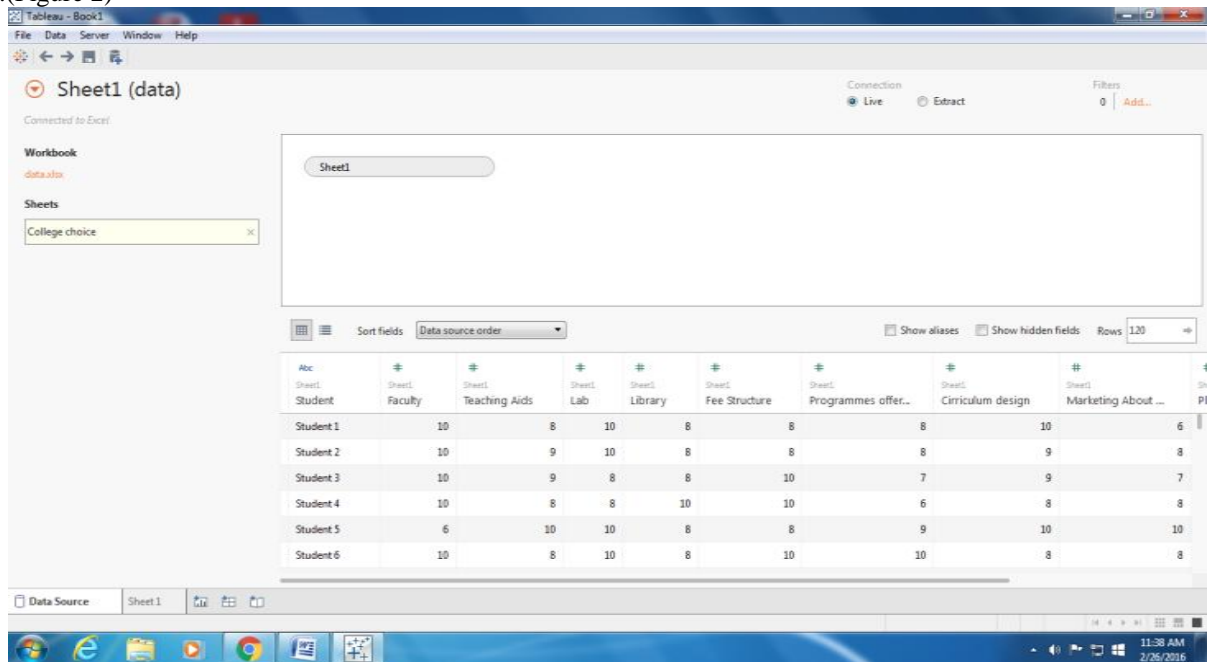


Figure 1 Tableau worksheet .

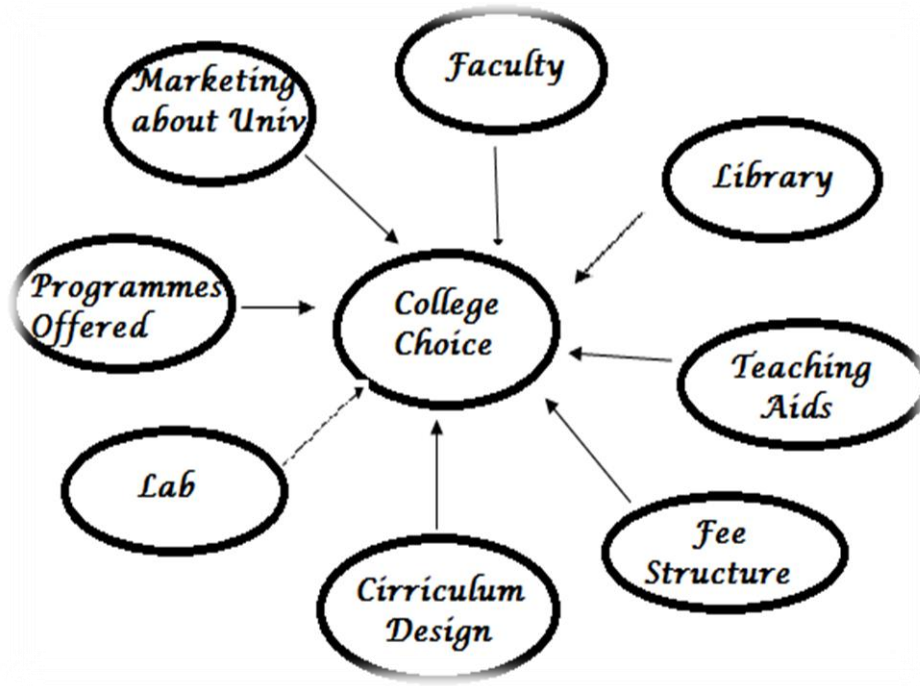


Figure 2 Factors considered for the study.

### III. RESULTS AND ANALYSIS

In order to plot the dashboards, we have used Tableau 9.0. Here are the results:  
 Dashboards of the survey are given below:

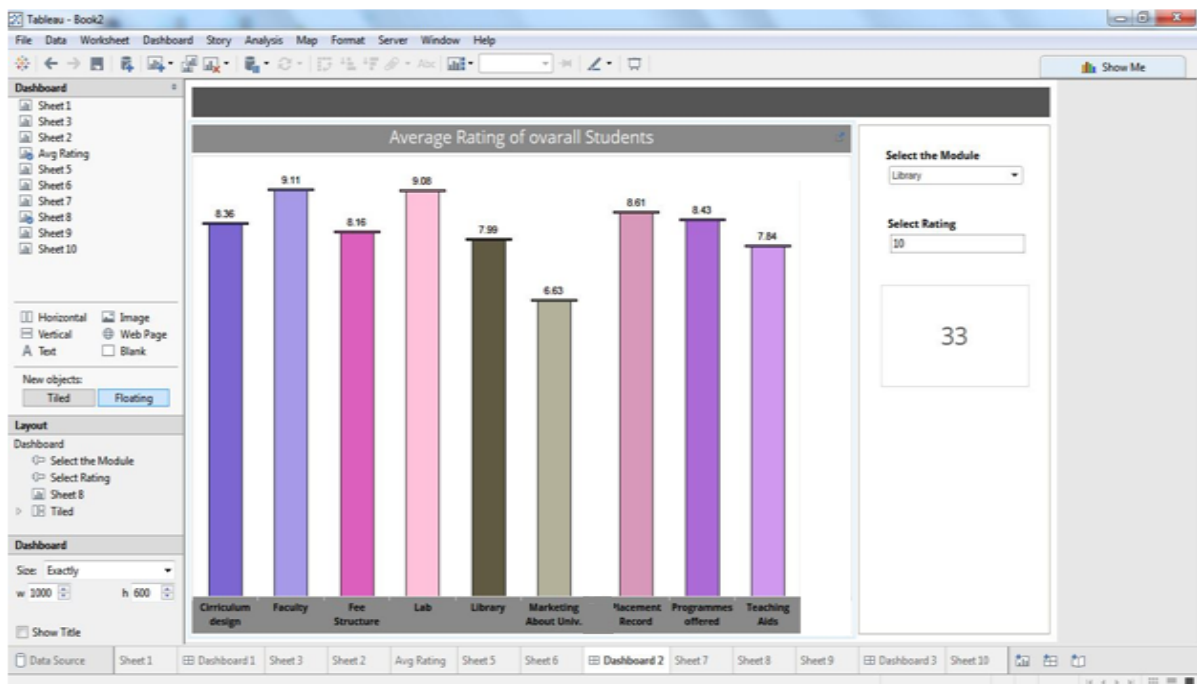


Figure 3 Average of student ratings on various factors

The above graph defines the average of all the ratings given by all the students for each and every individual element. From the figure 3 we can say that the students have rated high for the elements such as Faculty and Labs and least rated for the marketing about the university, so that the college management can focus more on the records they need to set up.

Instead of considering the views of all students who have participated in the survey, we have randomly picked a set of 5 students and have plotted the dashboard (figure 1.3) as shown here:

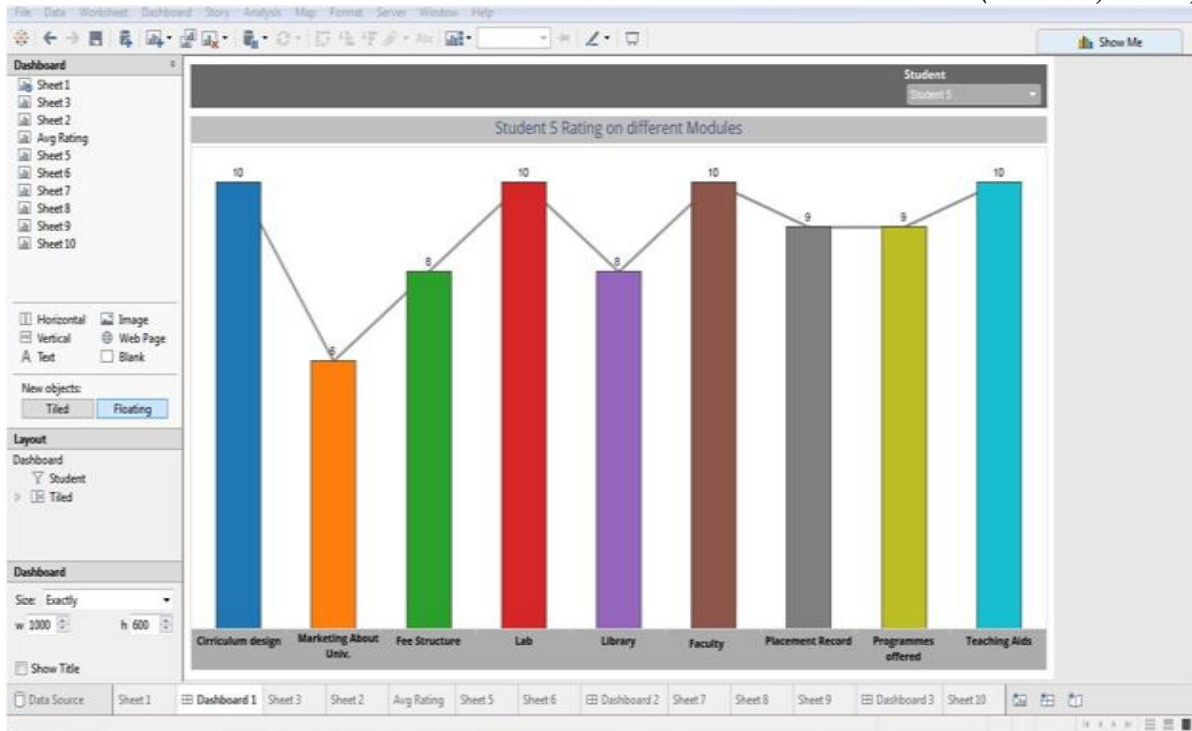


Figure 4 Views of 5 randomly picked students

Where we can observe that Faculty is highly rated and Marketing about the University is least rated in all aspects.

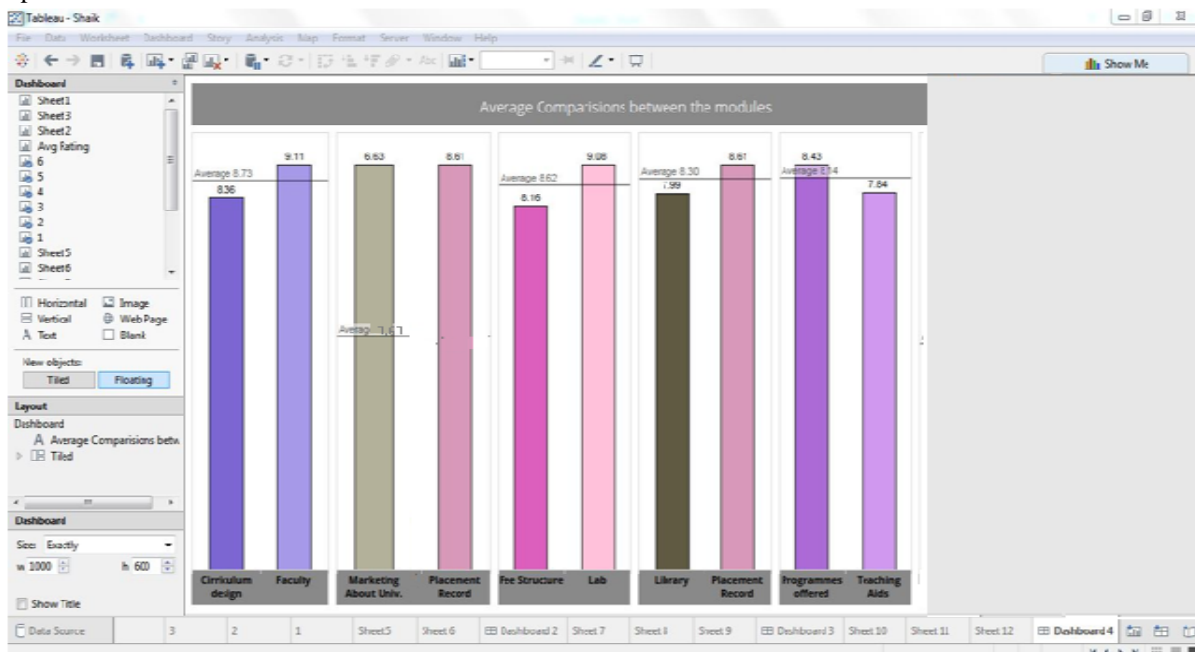


Figure 5 combining two factors at a time.

Now instead of considering one element at a time, we have combined two elements and plotted the dashboard. The above dashboard explains the comparison between two elements in different combinations so that the management can focus on two things at a time rather than single element. By observing the graph we can understand how the admissions will effect by varying the combination of elements.

#### IV. CONCLUSION

The study identified 7 factors of college choice, and from the results we conclude that Faculty is the highest rated factor that really affects the rate of admissions for a particular college/University. Furthermore, this

research combined two elements and plotted the dashboard such that the management can combine 2 factors and can understand how the admissions will effect by varying the combination of elements. Besides, we conclude that Tableau is one of the powerful analytical tools to represent the data in a much understandable (pictorial) mode to enhance ones business. Besides the available measures we can create a new visualization with the help of calculated expressions by making use of mathematical logics or text expressions or others. For better analyzation , we can combine Tableau with R programming.

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