UNDERSTANDING STUDENTS' PREFERENCES FOR HIGHER EDUCATIONAL INSTITUTIONS: A CONJOINT ANALYSIS APPROACH

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ABSTRACT

The current study is aimed at understanding student's selection criteria for a higher educational institution by exploring the different attributes that may influence the decision making process and also going deeper into it to know their relative importance. The respondents for the study comprised of 200 students from Chandigarh who had passed their senior secondary (12th standard) examination and were seeking admission in a college. The conjoint model was adopted and tested by Regression analysis. From the study it is clear that the most preferred combination of attributes that students demand is an educational institute that is a government institute, has produced position holders in the past, has subsidized fees, is located within the city and is a co-educational institute.

KEYWORDS: Selection criteria, Conjoint Analysis, Attributes, Regression analysis

INTRODUCTION

Due to the increased demand for higher education in the last decade, the education sector has transformed into an established global market (Mazzarol and Soutar, 2001; Binsardi and Ekwulugo, 2003). The higher education sector has become intensely competitive and there is a race among the higher educational institutions to attract more and more students (James et al., 1999). The two major reasons for such a scenario are the downfall in government's contribution towards higher education and the internationalization of the higher education marketplace (Hemsley-Brown & Oplatka, 2006; Roper & Davies, 2007; Whisman, 2009). Ever intense and dynamic international competition, downfall in government spending and a shift in the demand patterns of students has led to major transformations in the higher education sector (Kallio, 1995; Jarvis, 2000; Gibbs, 2001).

As a result of the paradigm shift in the higher education sector, the managements of these institutes are increasingly viewing students as consumers and are making intense efforts to attract them by shifting towards education marketing. In order to stand out from other competitors, the higher educational institutions are now focusing on brand building so as to increase their

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visibility among the students and hence gain substantial market share (Baumgarth, 2010). Without implementing appropriate marketing strategies, the higher educational institutions will not be able to survive this tough competition (Mazzarol and Soutar, 2008). A better marketing strategy can be formulated and consequently implemented only by understanding the student's choice criteria for a higher educational institution (Maringe, 2006; Briggs and Wilson, 2007).

The present research, to the best of our knowledge, is one of the pioneer attempts to understand the student's selection criteria of higher educational institutions in India and thus provides useful insights to the policy makers and administration of these institutions towards devising an appropriate marketing strategy by taking into consideration the choice criteria of the students.

The rest of the paper is organized as follows. The second section of the paper deals with the theoretical background followed by the research objectives in the third section and research methodology in the fourth section. The fifth section covers the data analysis and interpretation followed by the conclusion in the last section.

THEORETICAL BACKGROUND

This section has been classified into two broad themes. The first theme relates to the growing practice of treating students as customers. This student as customer concept considers educational institutions as 'service providers' and students as 'service receivers'. The second theme relates to different attributes/factors that influence a student's decision to enroll in a particular higher educational institution.

Students as Customers Concept

There are two schools of thought having completely opposite view as to whether student's should be treated as customers or not. From the educators' viewpoints there are many studies that support the treatment of students as customers (e.g. Bajou, 2005; Clayson and Haley, 2005; Obermiller et al., 2005; Pitman, 2000). According to (Kanji and Tambi, 1999; Bajou 2005) the students enter into an economic agreement to buy educational service from the educational institute by paying their educational cost and thus should be treated as the customer of the institute. The students make particular decisions about the services they want from the university. They can also express their desires and also provide feedback about the services provided in a similar way as in other buyer-seller relationships (Clayson and Haley, 2005). In an early attempt by (Schwartzman, 1995) it was found that the concept of students as customers is concurrent to the concept of Total Quality Management (TQM) where customer satisfaction is the ultimate goal by improvising on quality. Taking clues from other businesses, the educational institutions nowadays have shifted their focus towards customer's satisfaction so as to attract more and more students as a key to survive in the higher education sector due to the reduction of government funding and the high competitive pressure (Sax, 2004; Schwartzman, 1995). The increased competition has led to a scenario where it is felt that applying the concept of students as customers may improve the services provided by the educational institutes by taking into consideration the requirements of the customers i.e. the students in this case.

In contrast to the above, the other school of thought holds that there is a difference between the education sector and the business sector. Therefore, (Schwartzman, 1995) is of the opinion that the term customer should not be used for the students. In the support of this view (Lammers et al., 2005) revealed that the concept of student as a customer undermines the student's sense of responsibility for their own learning. The proponents of this school of thought hold that students cannot be considered as customers but as service receivers (Dallimore et al., 2007; Svensson, 2004).

Even if the above debate persists as to whether the students are customers or service receivers, the need to identify the various influential factors impacting their selection criteria needs to be thoroughly understood so that the management of the higher educational institutions may target and attract the student community effectively. Therefore in the second section of theoretical background the focus will be on identifying key influential attributes, from the previous literature, that may influence the student's choice criteria of a higher educational institute.

Factors Influencing Student's Choice Criteria of a Higher Educational Institution.

The decision to get enrolled in a particular higher educational institution is a difficult one as it influences the student's life to a very great extent. There are a number of factors that need to be taken into consideration while making the final choice for a particular educational institution. The different attributes that may influence a student's selection process will emerge from this review. (Dawes and Brown, 2002; Kim, 2004; Nora, 2004) have identified that the personal factors have the greatest impact on the student's selection criteria. In addition there are research studies that document geographical location and various institutional characteristics such as building, quality of teaching, Extra-Curricular activities, course content, reputation as important attributes that impact a student's decision to a very large extent (Veloutsou, Lewis and Paton, 2004; Wagner and Fard, 2009). A wide range of studies have revealed that parents have an influence on the student's selection criteria to a huge extent (Yamamoto, 2006; Raposo and Alves, 2007). The impact of subjective norms was highest in case of studies conducted in Asian countries as the viewpoints and advice of the near and dear ones is highly respected (Ceja, 2004; Ceja, 2006; Yamamoto, 2006; Pimpa and Suwannapirom, 2008; Wagner and Fard, 2009). In addition to this (Paulsen 1990; Raposo and Alves 2007; Dawes and Brown 2005) revealed that an institute's proximity to the home also influences the decision of the student to select a particular higher educational institute. (Domino, Libraire, Lutwiller et al., 2006; Wagner and Fard, 2009; Beneke and Human, 2010) in their study highlighted price as a very important determinant of a student's choice criteria. The student's also take into consideration the academic reputation of the institute before taking a final decision (Hoyt and Brown, 2003; Ho and Hung, 2008).

The above literature has highlighted a number of different attributes that may impact a student's choice criteria for a higher educational institution. The relative importance of these attributes will differ for each country and each student. Therefore, the current research will determine the

relative importance of different attributes that impact a student's choice criteria for selecting higher educational in India.

RESEARCH OBJECTIVES

For studying the preferences of students regarding selection of educational institutions, we have the following objectives in the study:

1. To analyze the relative importance of various attributes affecting the choice of a particular educational institution by the students.

2. To design the best combination of attributes of educational institutions that is preferred by students.

RESEARCH METHODOLOGY

A majority of research studies on the choice of educational institutes have guided their respondents to give a ranking to various attributes that may influence their selection of the educational institute (James et al. 1999). Although this method is efficient, however, it does not take into account the relative importance of different attributes and the trade-offs between them (Jackson 1982).

A more widely used and efficient method for the research problem under study is the conjoint analysis approach. It takes into account the issues of relative importance of attributes and the trade-offs between the attributes. It was introduced into the marketing literature by (Green and Rao, 1971). (Cattin and Wittink, 1981) also mentioned that conjoint analysis has been used extensively in marketing research to judge the impact of selected characteristics of the product/service on customer preferences.

The application of conjoint analysis in the marketing sphere is not limited to the selection of product attributes of tangible products only. Instead there have been a number of studies that have used conjoint analysis in the service sector as well. For example, (Ostrom and lacobucci, 1995) applied conjoint analysis to examine subject's utilities for service alternatives; (Pavlova, Groot and Merode, 2004) applied conjoint analysis to identify relatively important service attributes in healthcare sector.   Therefore, the use of conjoint analysis in the education sector is appropriate as it is also consistent with the methodology used by previous studies that aimed to study the attributes considered important by the students in the selection of a university (Soutar and Turner 2002).

In this method, the respondents are asked to select different hypothetical cases/scenarios so as to get an insight on the value placed by them on different attributes. There are certain assumptions inherent in the application of conjoint analysis. Firstly, the respondents study in detail only a limited number of options before arriving on a decision. Secondly, the different options are examined as a combination of attributes rather than on an individual basis. Thirdly, there is an inherent assumption of compensatory choice strategy.

Now once the suitable technique has been selected, we have to move forward to select the best approach of applying conjoint analysis as per the requirements of the research problem. This is done so that the number of product attributes selected must be reconciled with the characteristic of the given conjoint method. In case the number of attributes is equivalent to six or less than that then traditional approach is the ideal one. However, if the number of attributes is greater than six then adaptive conjoint analysis is a more suitable method. Therefore, the traditional approach of conjoint analysis is more appropriate in our study because the maximum number of attributes is limited to six only.

Six attributes with three levels each would lead to 729 (3^6) possible combinations of profiles that can be rated by respondents. The surveys are usually not performed as full factorial design, but rather as fractional design, which basically are fractions of the full design. SPSS/PASW Conjoint 18 reduced size subset (orthogonal array) from 729 to 18. This type of orthogonal creation of full profile cards means that an additive composition rule is assumed to be valid between the variables, meaning that the variables are assumed to be independent from each other. (Hair et.al, 2010) suggested that the respondents evaluate a set of profiles equal to a multiple of (two or three times) the number of parameters. Moreover, (Ekdahl, 1997) asserted that this method was utilized in order to add more attributes into the combinations and at the same time to not increase the strain on the respondents.

Rating scale of 1 to 10 (e.g., on a scale poled from "Do not prefer" to "Do prefer") was used to judge each combination. All the respondents were individually asked to rate university profiles as represented by six key variables, namely total expenses, reputation, proximity, job prospect, advice from family, friends, and/or teachers and campus atmosphere. Students were asked to assume that they had already decided to study a public university and that they fulfilled the entry requirements for each university. This approach was consistent with the experiment being designed to reflect the final choice stage where students have chosen and identified a small set of universities to which they were confident of gaining entry (James et al. 1999; Moogan et al. 2001). An example of a full profile card is given in the Appendix.

Attributes and Their Levels

The first and foremost step in the design of a conjoint analysis study is the selection of the product/service attributes that have to be considered in the study. A preliminary survey was conducted in order to select the most important attributes affecting the choice of educational institutions by prospective students. The survey was conducted using the traditional questionnaire method. The respondents were asked to evaluate the relative importance of the ten offered attributes of university selection criteria. The ratings were given on a scale of 1 to 10, where a score of 1 stood for least important attribute and score of 10 stood for most significant attribute. The preliminary survey was completed by 30 respondents that comprised of students who have cleared their senior secondary school examination (+2) and were looking forward to take admission in college. The average ratings given by respondents for different attributes are presented in Table 1.

Table 1: Summary of Preliminary Survey

S. No.	Attributes	Average Score	Standard Deviation
1.	Affiliated Authority	8.24	2.25
2.	Achievements	7.56	2.56
3.	Fee Structure	7.32	2.31
4.	Extra-curricular Activities	6.95	2.15
5.	Gender specific/ Co-educational	6.56	2.76
6.	Location	5.35	2.22
7.	Academic Reputation	4.99	2.58
8.	Family Opinion	4.60	2.15
9.	Placement Prospects	4.12	2.98
10.	Campus Atmosphere	3.66	1.98

Based on the results of the preliminary survey, the top six attributes by their average ranking were selected for the second phase of survey where conjoint analysis was used. The rest of the attributes were dropped for further research as these were not considered very important by the students while selecting an educational institute. We have selected only 6 attributes because the traditional approach is ideal in the case of a maximum of six attributes because in case of more than 6 attributes adaptive conjoint analysis is ideal choice.

Having chosen the attributes, levels must be assign to them. These should be realistic, plausible and capable of being traded (Kuzmanovic, Radosavljevic, & Vujosevic, 2013).The selected attributes and their levels have been presented in Table 2.

Table 2: Levels of Attributes

S. No.	Attribute Description	Levels of Attributes
1.	Affiliated Authority	Government College Government Aided College Private College
2.	Achievements	Position holders Average Unknown
3.	Fee Structure	High Average Subsidized
4.	Extra-Curricular Activities	Very Often Often Very Less
5.	Gender Specific/Co-Educational	Gender Specific Co-Educational
6.	Location	Home City Outskirts of Home City Other City

Once attributes and attribute levels are selected, they must be combined to form different hypothetical services for survey respondents to assign preference ratings. In this study, a full profile approach was used to design the product profiles. Since it is difficult, from a customer's perspective, to evaluate a large number of service profiles, it is necessary to select fewer of them. Therefore in this study the fractional factorial experimental design was used. A component of the statistical package SPSS 18.0 (Orthoplan) was used to reduce the possible number of profiles to a manageable level, while still allowing the preferences to be inferred for all of the combinations of levels and attributes. The use of orthoplan results in an orthogonal main effects design, thus ensuring the absence of multi-collinearity between the attributes. Through the use of this design, the numbers of profiles were reduced to 18. The 18 hypothetical service profiles considered are shown in the appendix.

The Sample

The sampling frame consisted of students who have passed their senior secondary school examination (+2) and were looking forward to get enrolled in a higher educational institution for further studies. There were two most important reasons for selecting such a sampling frame. Firstly, this sampling frame is the largest and the most important segment of prospective university students (Soutar and Turner, 2002). Secondly, they are in a position to provide true, reliable and accurate information as they are themselves involved in the process of selection of an educational institution. The sampling area for this study is the Chandigarh region as it is an important education hub that serves students from three states namely Punjab, Haryana and Himachal Pradesh. The sample size for the study was 200 students and researchers used snowball sampling technique which is also known as the reference based sampling technique to select the sample.

Reliability and Validity

In order to ascertain the consistency of conjoint model, the reliability and validity of the model should be checked. The major aim of testing the reliability and validity is to ascertain the consistency of the model of preference evaluations under various situations. The present conjoint model in this study is reliable and valid as:

1. While evaluating the goodness of fit of the estimated conjoint model, it has been found that value of Pearson's R is 0.825, and the value of adjusted R square is 0.656. Both these values are reasonably high and these results are significant at 5 percent level of significance (asymptotic significance =0.000) (Table 3(a) and (b))

2. The value of Durbin-Watson statistic is 2.616 (Table 3a), which lies in the range (1.25-2.75), showing that auto-correlation in error terms is not present.

Table 3(a): Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.825[a]	.680	.656	.64074	.680	28.109	14	185	.000	2.616

a. Predictors: (Constant), Location_Othercity, ECA_Very.often, Fees_Average, Position_holders, Private_college, Average, Co_Educational, ECA_Often, Aided_College, Fees_Subsidized, Location_Outskirts, Fees_High, ECA_Very_Less, Unknown

b. Dependent Variable: Rating

Table 3(b): ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	161.560	14	11.540	28.109	.000[b]
	Residual	75.950	185	.411		
	Total	237.510	199			

a. Dependent Variable: Rating

b. Predictors: (Constant), Location_Othercity, ECA_Very.often, Fees_Average, Position_holders, Private_college, Average, Co_Educational, ECA_Often, Aided_College, Fees_Subsidized, Location_Outskirts, Fees_High, ECA_Very_Less, Unknown

DATA ANALYSIS AND INTERPRETATION

(a) Data Analysis-: The sample considered for the study comprised of 200 students from Chandigarh**.** It comprised of respondents within the age range of 17-19 years with majority of them (62.5%) having age 18 years. There were 57.5% of male students and 42.5% of the female students that formed the sample. The students belonged to different streams of education with majority (43%) from the commerce field, followed by arts (23.5%), medical (17.5%) and non-medical (16%). The majority of the respondents (56%) had family income in the range of Rs. 2lacs to Rs. 5lacs.

Table 4: Demographic Profile of Respondents

DEMOGRAPHIC VARIABLE (s)		Number of Respondents	% of total
AGE	17 years	45	22.5%
	18 years	125	62.5%
	19 years	30	15%
	Total	200	100%
GENDER	Male	115	57.5%
	Female	85	42.5%
	Total	200	100%
EDUCATION STREAM	Arts	47	23.5%
	Commerce	86	43%
	Medical	35	17.5%
	Non-Medical	32	16%
	Total	200	100%
FAMILY INCOME	Below Rs. 2 lacs	38	19%
	Rs.2lacs – Rs. 5lacs	112	56%
	Above Rs. 5lacs	50	25%
	Total	200	100%

As had been mentioned earlier in the methodology part, utilities of different levels of attributes and relative importance of the attributes were estimated. These utilities and relative importance of attributes have been presented in table 5 below:

**Table 5: Utility of Different Levels of Attributes**

ATTRIBUTE	LEVEL	UTILITY ESTIMATE	RELATIVE IMPORTANCE
Affiliated Authority	Government College	.325	15.01
	Government Aided College	-0.39	
	Private College	.075	
Achievements	Position Holders	.859	30.27
	Average	-0.60	
	Unknown	-0.26	

Fee Structure	High	-0.455	19.05
	Subsidized	0.46	
	Average	0.01	
Extra-Curricular Activities	Very Often	0.27	7.4
	Often	-1.9	
	Very Less	-0.09	
Gender Specific/Co-educational	Gender Specific	-0.45	18.7
	Co-Education	0.45	
Location	Home city	0.227	9.57
	Outskirts of Home City	0.01	
	Other City	-0.226	

The table 5 above summarizes the relative importance of different attributes and the utility of each of the levels of attributes as per the responses given by respondents. A graphical representation of relative importance of attributes is given in figure 1.

**Figure 1: Relative Importance of Attributes**
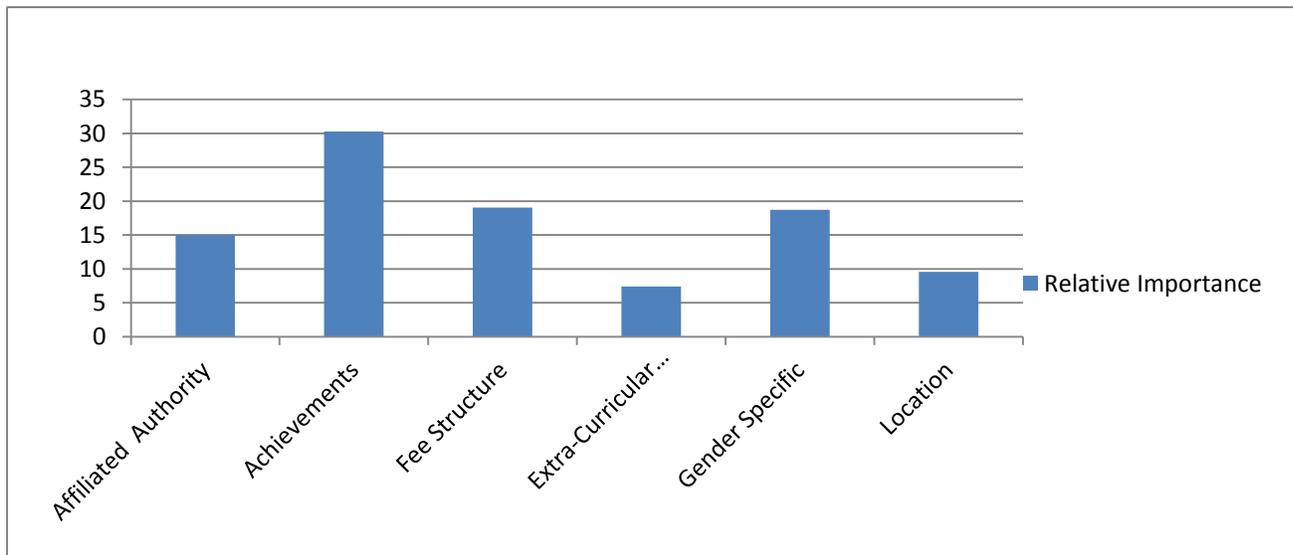
Here six salient attributes and their levels were identified for consumer choice process in the selection of college. Full profile conjoint analysis was used for construction of preference structure. Analyzing the preference structure or the relative importance assigned by students to the six salient attributes, it was found that students assigned maximum importance to the attribute of Past Achievements of the university with 30.27 percent.

**Figure 2: Utilities of Different Levels of Achievement Attribute**
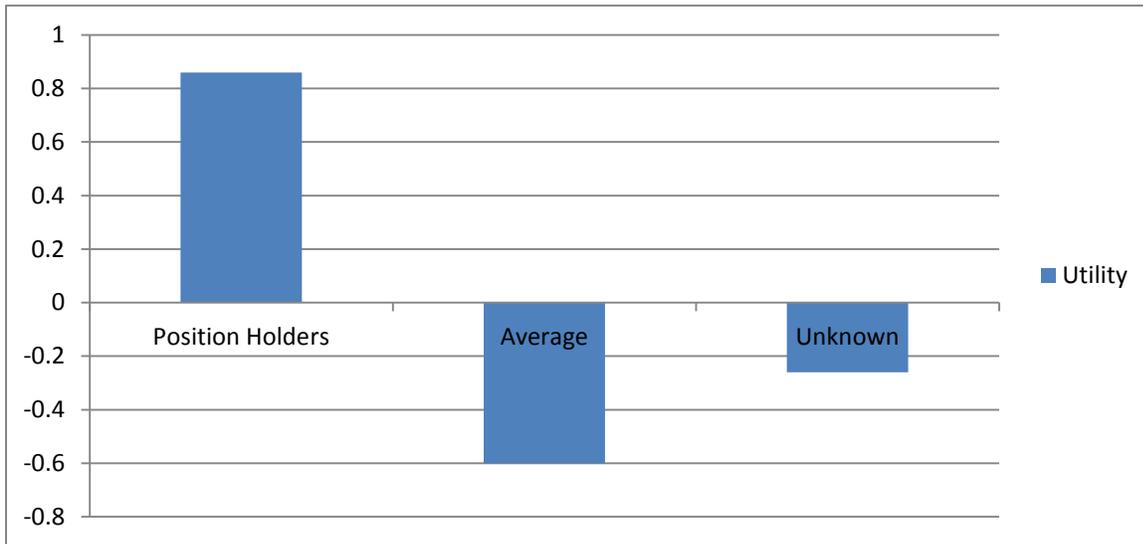
The figure 2 depicting the utilities of different levels of achievement attribute highlights that students prefer that college which have position holders as the utility for this level of achievement attribute is the highest at 0.859. The second most important attribute is fees structure with relative importance of 19.05 percent (Table 5)

Figure 3: Utilities of Different Levels of Fees Attribute
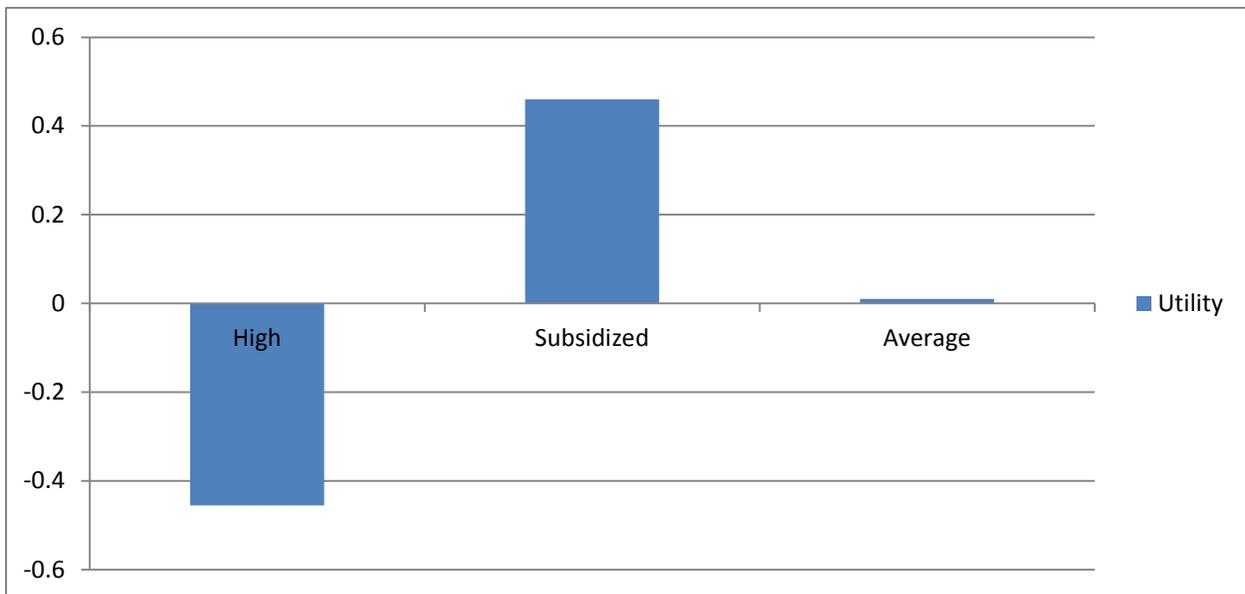
The above graph depicting the utilities of different levels of fees attribute highlights that students prefer that college which have subsidized fees structure as the utility for this level of achievement attribute is the highest at 0.46. On the other hand there is very less value for average fees and negative value for high fees structure which shows students are willing to pay average fees if they get good facilities. Then third important attribute is of Gender Specific/Co-Educational with relative importance of 18.70 percent (Table 5).

Figure 4: Utilities of Different Levels of Gender Based/Co-Educational Attribute
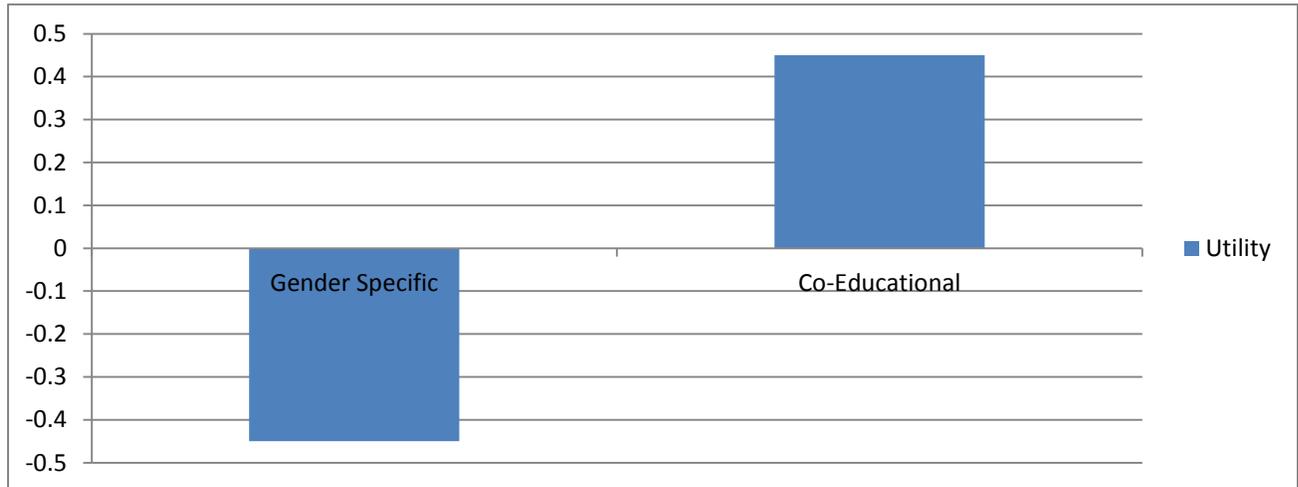
The above graph highlights that students prefer a co-educational institution (0.45) instead of traditional gender specific educational institute (-0.45). Then at the fourth place of hierarchical frame work, is the attribute of "affiliated authority" with value of relative importance at 15.01 percent.

Figure 5: Utilities of Different Levels of Affiliated Authority Attribute
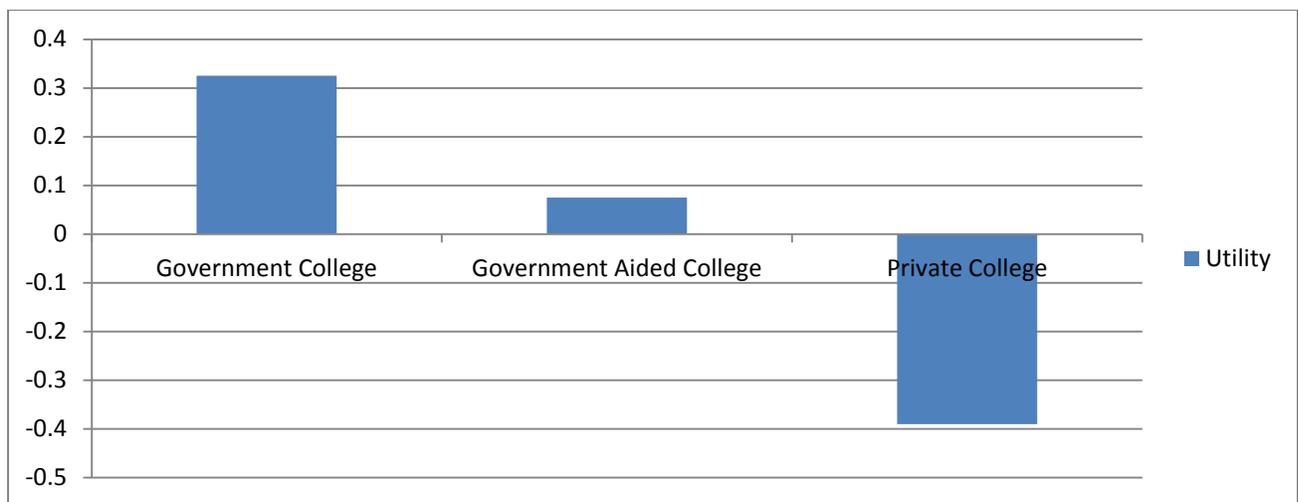
The graph above highlights that students attached highest priority to Government institutes (0.325) over government aided (0.075) and private university (-0.39). It can be observed that private university has negative value of utility for the respondents. Next in the hierarchical preference structure is the attribute representing Location (with relative importance of 9.57 percent).

Figure 6: Utilities of Different Levels of Location Attribute
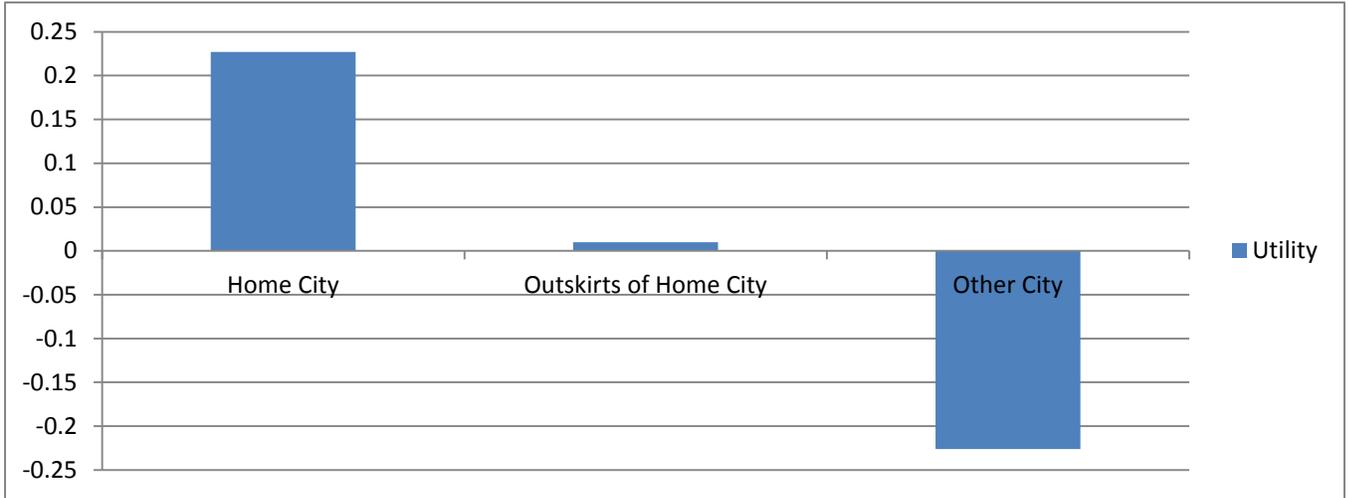
The above graph highlights that students stressed upon educational institute that is located within their home city (0.227).

The last attribute was the "Extracurricular Activities" as the students did not accord much importance to it (7.4 percent).

Figure 7: Utilities of Different Levels of ECA Attribute
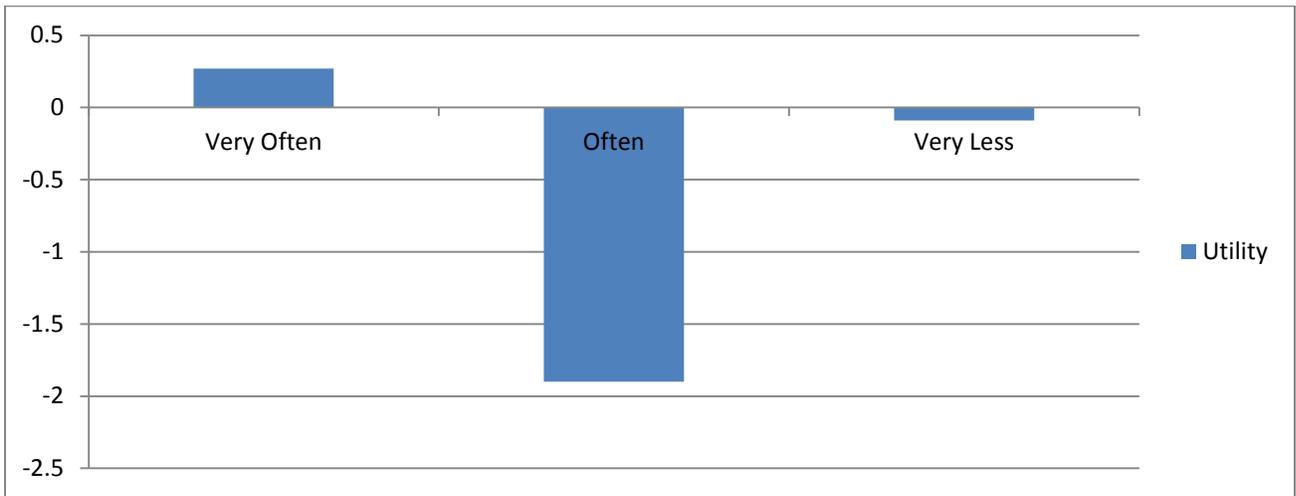
Further, students stressed upon educational institute in which extracurricular activity take place very often (0.27).

(b) Discussion of Results:

Based on the above analysis of data we may infer that the student's considered the past achievements of an institute as the most important factor that influences their selection criteria.

The good achievements in the past of the institute will lead to enhanced reputation of the institute. The results of our study are consistent with the findings of Lin (1997) and Mazarrol et al. (1996) where reputation was considered an important factor in the selection criteria of students. The order of importance of the factors was past achievements, fee structure, gender-specific or co-educational, affiliated authority, location and extra-curricular activities.

(c) Best Choice of a Higher Educational Institute

In table 6, the best choice of educational institute is projected where respondents have expressed their best choice.

Table 6: Best Choice of Educational Institute

Best Choice	Government	Position holder	Subsidized	Very often	Co-education	Home city
Utility	.325	.859	.455	.2713	.451	.227

So the most preferred educational institute that students prefer should be a government institute that has produced position holders in the past. The fees of the institute should be subsidized and the extra-curricular activities should be conducted very often. Moreover the institute should be located within the home city and it should be a co-educational institute..

CONCLUSION AND MARKETING IMPLICATIONS

The basic aim of this study was to understand the relative choice criteria used by prospective students while taking admission to an educational institute post their schooling. The research has verified and confirmed that the prospective students take into consideration certain attributes and rank them according to their choice criteria while selecting an educational institute. The results revealed that educational institute that students prefer should be a government institute that has produced position holders in the past. The fees of the institute should be subsidized and the extra-curricular activities should be conducted very often. Moreover the institute should be located within the home city and it should be a co-educational institute. The findings provide an insight to the management of educational institutions that they should focus more on the attributes that are considered relatively important by the students.

 The study also highlighted that conjoint analysis is capable of identifying the relative importance of different intangible attributes that are considered while making a decision about the selection of an educational institute. It undoubtedly contributes to the framing of marketing strategies by an educational institute to attract more and more students. The results are of great help to the administration of educational institutions as it has highlighted the need for customization of marketing strategies as per the needs of the prospective students.

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APPENDIX

ORTHOGONAL CARD DESIGN

Please provide suitable marks out of 10 for each Card ID.
Rate 1 for Least Preferred and 10 for Most Desired Combination

Card Id	Affiliated authority	Achievements	Fee structure	Extra Curricular activities	Gender Specific/ Co-ed	Location	Rating
1	Government College	Average	Average	Very less	Gender Specific	Home city	
2	Government Aided College	Average	High	very often	Gender Specific	outskirts of home city	
3	Government College	Position holders	Government/ Subsidised	Often	Gender Specific	outskirts of home city	
4	Government Aided College	Average	Subsidized	Often	Co-Education	Home city	
5	Private College	Position holders	Average	very often	Gender Specific	other city	
6	Private College	Average	High	Very less	Co-Education	other city	
7	Government Aided College	Position holders	High	Often	Co-Education	other city	
8	Private College	Unknown	Subsidized	very often	Co-Education	outskirts of home city	
9	Private College	Average	Average	Often	Co-Education	outskirts of home city	
10	Government College	Unknown	Average	Often	Co-Education	other city	
11	Private College	Unknown	High	Often	Gender Specific	Home city	
12	Government College	Position holders	High	very often	Co-Education	Home city	
13	Government College	Unknown	High	Very less	Co-Education	outskirts of home city	
14	Government Aided College	Unknown	Average	very often	Co-Education	Home city	
15	Government College	Average	Government/ Subsidised	very often	Co-Education	other city	

	Affiliated authority Card Id	Achievements	Fee structure	Extra Curricular activities	Gender Specific/ Co-ed	Location	Rating
16	Private College	Position holders	Government/ Subsidised	Very less	Co-Education	Home city	
17	Government Aided College	Unknown	Government/ Subsidised	Very less	Gender Specific	other city	
18	Government Aided College	Position holders	Average	Very less	Co-Education	outskirts of home city	