HEALTH EDUCATION PLANNING IN MARKETING PERSPECTIVE USING CONJOINT ANALYSIS

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Abstract

In this study, it is aimed to determine the relative weights (importance) of the chosen properties of the medical schools according to preferences and demands of the prospective students. The data was collected from the students who attend already a health vocational high school and examined using conjoint analysis approach, a widely accepted method for evaluating multiattribute alternatives in marketing. There are 6 attributes presented to students for taking their view. These school attributes are type (state or private), history (old or new), location (downtown or uptown), hospital ownership (yes or no), duration of education (short or long) and campus life (yes or no). Conjoint analysis was used as the research tool to identify the relative importance of the attributes. The most important factors were found as Campus Life (24.24%), School Type (24.17%) and Duration of Education (23.47%). These factors are followed by the moderate important two factors History (16.11%) and Location (11.70%) where the latter one has slightly lower weight. On the other hand, importance score for factor Hospital Ownership was estimated as 0.31% and surprisingly has no effect on preferring a medical higher school. Results of this research can be took into account by the decision makers and managers of both available and planned to be established medical schools to increase popularity of these institutes.

Keywords: Marketing, Conjoint Analysis, Health Education, Planning, Turkey

1. Introduction

Nowadays, both state and private universities are competing with each other in a very competitive high school leaver market. It is important to identify prospective students' requirements. Consequently, choice processes of them are needed to be investigated carefully. In the present study, medical schools in Turkey are chosen as a special case and students who already enrolled a medical high school and planning to proceed with an undergraduate medical school were examined. There are many factors, included but not limited to duration of education, location, campus life, type, history and hospital ownership of university, students take into account when determining their preference for a particular university. Whatever factors are evaluated by a student, importance of those factors will have different weights and some factors will be more important than the others. The aim of this study is to determine:

- Major factors influencing medical high school students' medical higher education preference, and
- Relative importance of the selected factors and which values of those factors are preferred,
- Which combinations of factor levels are preferred most and least.

Before discussing research design and empirical findings, relevant prior studies and their results are discussed in the next two sections of the paper.

2. Marketing in Higher Education

Marketing in the higher-education (HE) sector is not new. Literature on education marketing, which originated in the UK and US in the 1980s was based on models developed for use by the business sector (Gray, 1991; Holcomb, 1993; Kotler and Fox, 1995; Pardey, 1991 cited in Oplatka and Hemsley-Brown, 2004). Later, Nicholls et al., (1995) said that HE was not a product, but a service, and the marketing of services needs to different approaches as they have different characteristics from the marketing of products.

Taking the "education" context as a "product" can also be seen at the definitions which were given. The definition of marketing used in the context of business and service sector companies have continued to be used in education and a complete definition of educational marketing is suggested by Kotler and Fox (1985, p. 6 cited in Hemsley-

Brown and Oplatka, 2006) who defined education marketing as "the analysis, planning, implementation and control of carefully formulated programs designed to bring about voluntary exchanges of values with a target market to achieve organizational objectives". A similar definition was given by Davies and Ellison (1997, p. 3 cited in Oplatka and Hemsley-Brown, 2004, p. 376) and defined education marketing as "the means by which the school actively communicates and promotes its purpose, values and products to the pupils, parents, staff and wider community". As can be seen from these definitions, they mostly concentrated on "product marketing". For example, in Kotler and Fox's definition (1985), students were the "product" and employers were the customers (Hemsley-Brown and Oplatka, 2006). Later in the 1990s higher education marketing was defined based on service marketing definition. Some researchers (Umashankar, 2001; Athiyaman, 1997; Mazzarol, 1998; Ford et al., 1999) mentioned in their studies that the concept of education needs to be handled as a service and suggested that programmes of higher education should be marketed on the basis of the principles of service marketing.

In order to understand the education marketing thoroughly, it is worth mentioning the four basic characteristics of the services which were identified by Zeithaml et al. (1985). These are intangibility, inseparability of production and consumption; heterogeneity; and perishability. Mazzarol (1998) said that all of these can be found in education. Having known these features make "managers" of the schools develop appropriate marketing strategies.

Also in order to apply correct marketing strategies it is important for the universities to know who their target market is. According to Soutar and Turner (2002) the current university market has three main segments (international students, mature-age students and high-school leavers) and each segment considers different factors when making their choice of program and university. In the present study, school leavers were examined. Having known that what the school leavers expect from a university and based on which criterions they make a decision are important issues which needs to be examined by university management. In the next section the factors which Influence student's selection of higher education institutions was discussed.

3. Factor Influencing Students' Selection of Higher Education Institutions

There are plenty of studies which examined criteria students use to select a university. Soutar and Turner (2002) gave a review of some related literature in their study about the attributes which prospective students emphasize as important. According to Soutar and Turner (2002) one of the earliest studies was made by Krampf and Heinlein (1981) in the USA with potential students for a large mid-western university. According to results, students rated the attractiveness of the campus, informative campus visits, recommendation of family, good programs in their major, informative university catalogue, closeness to home and the friendliness of the campus atmosphere highly. Another decision-making process of forthcoming students was examined by Hooley and Lynch (1981) in UK. Six attributes were identified which were namely course suitability, university location, academic reputation, distance from home, type of university (modern / old), and advice from parents and teachers. By using conjoint analysis it was found that course suitability was highlighted as the most important trait when choosing a university.

Several other studies have also addressed the issue of students' choice criteria and have identified several determinants. Discenza et al. (1985) and Hossler (1985 cited in Joseph & Joseph, 2000) named academic reputation, peer influence, financial assistance, and location as the most important factors. Joseph and Joseph (1998) identified academic and programme issues, cost of education, location and recreation facilities and peer and family influences as four of the most important factors that influence students' choice of institution. Moogan et al. (1999) mentioned in their studies that the location of the university and the geography of its surroundings are stressed as traits which will influence the selection of a specific university. Coccari and Javalgi (1995) and Vaughn et al. (1978) said that the universities' infrastructure, such as the library facilities, classrooms, computer labs, campus security and accommodation provided by the university have been reported to be the things which students give importance when choosing a university.

Joseph and Joseph (2000) identified "course and career information" and "physical aspects and facilities" as the most important factors. Soutar and Turner (2002) found in their studies that course suitability, academic reputation, job prospects and teaching quality were the four most important determinants of university preference for Western Australian school leavers.

Past research has found social life to be a factor in the final decision of which school to attend (Kallio, 1995; Brokemier and Seshadri, 1999). Capraro, Patrick, and Wilson (2004) analysed in their studies whether there is a positive relationship between attractiveness of social life at a school and likelihood to undertake decision approach actions. They found that "attractiveness of social life, defined in terms of characteristics of the people and experiences to be found at a school, is at least as important as quality of education in determining the likelihood of a candidate undertaking decision approach actions toward an institution of higher education" (p. 93)

Kusumawati (2011) made a study with prospective undergraduate students in Indonesia and it was found that social networks have a great influence on the decision process. It was followed by high reputation and good job prospect.

Another study which was conducted by Ruslan et al. (2014) in Malaysia had proved also that campus characteristics, academic quality, financial consideration, and external factors are important in influencing the selection of the higher education institution.

There are also a few studies about HE conducted in Turkey. Yamamoto (2006) analysed the important criteria of students who already enrolled for a foundation university in Turkey. She found that web pages of universities, families and friends have a great influence in the selection process. On the other hand, it was found that high school advisers are not very influential in decision process. Another study was conducted by Aydın (2013) and she specifically researched whether or not the location of a university is a sustainable competitive advantage to be a magnet for the students. Results showed that the closeness of university to the city centre and the proximity of university to home have an effect on students' university choice decisions. Çokgezen (2014) also identified Turkish students' choice criteria and results indicated that students prefer universities that have a good academic reputation, are located in bigger cities, and in which the education language is in English. They also want to receive these services without paying too much. The results also showed that the impact of tuition fees is higher for public university students, while private university students care more about academic performance than do their counterparts in public universities.

Main purpose of this study is to determine the relative weights of the chosen properties of the medical schools according to preferences and demands of the prospective students.

4. Conjoint Analysis

Conjoint analysis is a multivariate family of methods especially developed to evaluate and understand individual preferences. Consumers' preferences about the attributes of a product or service are measured by conjoint analysis to get quantitative information to model consumer preference for any combination of the designed attributes. The most important attributes of desired product are determined by modelling decision making process of the consumers. An assumption made in conjoint analysis is that preferences are not made based on a single factor, instead, are made on several factors jointly and name "conjoint" comes from this assumption (Kuzmanovic et al., 2013). In conjoint analysis literature, attributes and attribute values are called as factors and factor levels respectively. Each combination of factor levels is named as a profile.

Although Conjoint Analysis is originated in mathematical psychology (Ryan & Farrar, 2000), today it is widely used in various areas for designing optimal services and products (Kuzmanovic et al., 2013). Kuzmanovic et al. (2013) briefly summarizes study areas using Conjoint Analysis to gather consumer preference about the attributes of a service or product as retail (Kuzmanovic, Panic, & Martic, 2011), transportation (Hensher, 2001), telecommunication (Kim, 2004; Kim, Choe, Choi, & Park, 2008), health care (Kuzmanovic, Vujosevic, & Martic, 2012) and human resource (Biesma, Pavlova, van Merode, & Groo, 2007; Popovic´ , Kuzmanovic´ , & Martic´ , 2012).

Even though there are various kinds of conjoint analysis methodology, basic three methodologies are traditional, adaptive (or hybrid) and choice based conjoint analysis. Each of these three basic conjoint methods have some unique characteristics among themselves (Orhunbilge, 2010). The choice of which method to use depends on characteristics of the research such as number of attributes used, level of analysis, choice task of respondents and the form of the model assumed.

Traditional conjoint analysis is used for additive models with factors generally less than ten. Respondents evaluate complete products that are comprised a combination of one factor level chosen from each factor under study. The adaptive conjoint was developed especially for designs in which there are many factors and instead of all factors, composed subset of factors can be shown to respondents. Choice based conjoint has more complicated choice task and small number of factors is used to evaluate (Hair et al, 2014). Interactions between factors can be modelled in choice based conjoint, whereas main effects without interaction with additivity assumption are considered in both traditional and adaptive conjoint methods (Orhunbilge, 2010).

Research steps given below are carefully planned before estimating a conjoint model (Ryan & Farrar, 2000; Orhunbilge, 2011; Hair et al., 2014):

- Target consumers are determined,
- Key attributes (factors) of the product to be explored are identified,
- Values (levels) of identified attributes to be served to consumers are planned,
- All or some combinations (scenarios, profiles, stimuli) of factor levels are designed to show sampled consumers,
- Preferences of consumers are established by using one of three methods which are ranking, rating and discrete choices,
- Collected data are analysed by applying one of the conjoint methodologies briefly emphasized above.

One of the widely used approach in traditional conjoint analysis is named as "full profile approach" which depends on consumers' ranking alternative products, called profiles, defined by gathering one specific level from each factor. Most studies used full profile approach, run a method known as "fractional factorial design" instead of "full factorial design". In full factorial design, all possible combinations of all factor levels are produced and shown to consumers to rank them based on their preferences.

Table 1. Examples of Number of Profiles for Full Factorial and Fractional Factorial Designs

	Factors							**Full Factorial Design**	**Fractional Factorial Design**
	A	**B**	**C**	**D**	**E**	**F**	**G**	**No. of Profiles**	**Minimum No. of Profiles**
Numbers of Factor Levels	**Five Factors Desired**								
	2	2	2	2	2	-	-	32	8
	5	4	3	2	2	-	-	240	25
	5	4	3	3	2	-	-	360	25
	6	5	4	4	2	-	-	960	49
	Six Factors Desired								
	2	2	2	2	2	2	-	64	8
	4	3	3	3	2	2	-	432	16
	5	5	4	3	3	3	-	2700	25
	6	5	5	4	4	3	-	7200	49
	Seven Factors Desired								
	2	2	2	2	2	2	2	128	8
	4	4	3	3	3	2	2	1728	32
	5	5	4	4	3	3	2	7200	49
	6	5	4	4	4	3	3	17280	49

Note: Minimum number of profiles for Fractional Factorial Design were generated by the authors using IBM SPSS Conjoint version 20.

A study involving five factors with number of factor levels five, four, three, two and two respectively, has 240 (5x4x3x2x2) different profiles respondents to rank. Fractional factorial design is used because total number of combinations is usually too large to be judged and ranked by consumers. A random subset of profiles sized 25 is generated by the fractional factorial design for consumers to evaluate, instead of all 240 profiles of the given example. Number of profiles needed to be generated to capture the main effects for each factor level, were calculated for various number of factors and factor levels to compare how fractional factorial design reduces number of profiles to be judged and results were shown above in Table 1. Subset of all possible profiles generated by fractional factorial design is called as "orthogonal design", "orthogonal array" or "orthogonal design".

Necessary product profiles are composed after orthogonal design is generated. These profiles are presented to the consumers altogether and their rankings are collected. A sample size of 50 to 200 is generally enough to conduct traditional conjoint analysis (Hair et al., 2014).

Utility scores called as "part-worth" for each factor level are estimated by analysing collected data. Part-worths are quantitative measures of the consumer preference for each factor level. A factor level with larger part-worth shows that it is preferred more than the other level(s) of that factor. Because part-worths are calculated as unit free, total utility score for each profile is obtained by taking sum of all part-worths in that profile when the model is conducted as additive without interactions. If the model is designed using fractional factorial design, predicted total utilities for the profiles not contained in the stimulus are predicted for each by taking sum of these profiles' part-worths again.

Additive conjoint analysis model without interactions can be written as:

$$Y_k = \mu + \sum_{j=1}^{J} \sum_{l=1}^{L_j} \beta_{jl} \mathbf{I}\left(X_j = x_{jl}\right), \text{ for } k = 1,...,\mathrm{K} \text{ and } \forall j \sum_{j=1}^{L_j} \beta_{jl} = 0$$

$X_j \ (j = 1,...,J)$ denote the factors, $x_{jl} \ (l = 1,...,L_j)$ are the levels of each factor X_j , and the coefficients β_{jl} are the part-worths. The constant μ denotes an overall level and Y_k is the observed preference for each stimulus. K is given as

$$K = \prod_{j=1}^{J} L_j \ .$$

K shows number of all factor level combinations (number of profiles in a full factorial design), *J* is number of factors and L_j is number of levels of factor *j*.

Estimates of part-worths (β_{jl}) can be obtained by using metric or nonmetric estimators. Both Analysis of Variance (ANOVA) and Least Squares (OLS) methods are metric estimators and one of them can be applied to get estimates of part-worths. An important assumption for metric solutions to be used here is that the "distance" between any two adjacent preference orderings corresponds to the same difference in utility (Hardle & Simar, 2012).

If the assumption that utilities are measured on a metric scale is dropped, a nonmetric estimator should be used and the technique called as "monotone ANOVA" developed by Kruskal (1965) can be used to estimate part-worths.

Conjoint analysis ensures estimations of part-worths for each respondent. The means of estimated part-worths of respondents are used as overall part-worth estimations for the factor levels in the model.

In the next section research questions are stated, details on methodology and data are presented and results of the analysis used to answer research questions are summarized.

5. Design and Analysis

In this empirical study, answers of the research questions below are searched:

1) What are the relative weights of attributes, which are chosen as school type, history, location, hospital ownership, duration of education and campus life, on the medical school choice of prospective students? Are all criteria equally important to all students?

2) Which combinations of attribute values are preferred by prospective students most and least??

Because of the nature of the research questions, medical higher schools are considered as "products" and target population is determined as medical high school students who are planning to attend those medical higher schools in Turkey. Members of that population (called as prospective students in this paper) are research units of the analysis.

5.1. Survey Design and Data

It was first needed to determine which attributes would be used as factors in the survey. Literature review, a brainstorming session among the researchers of this study and group discussion with five prospective students were used to generate attributes for medical higher schools. Base questions in this process were what prospective students would value on the features of a medical higher school and which aspects would place the greatest importance for those students. Six selected attributes thought as feasible are school type, history, location, hospital ownership, duration of education and campus life. Attributes and possible values are shown in Table 2 and Figure 1.

Table 2. Considered Factors and Factor Levels

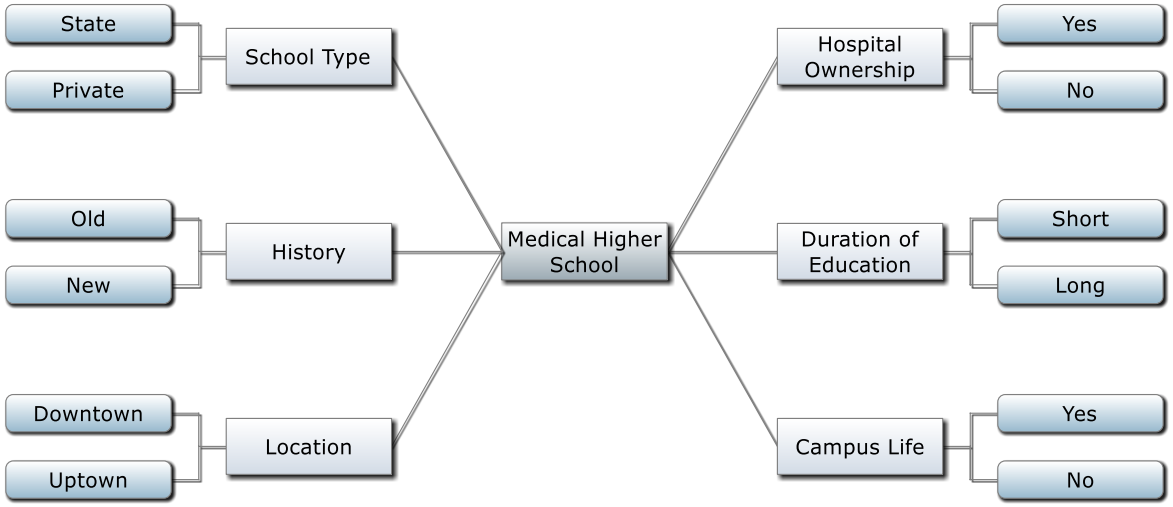
Attributes (Factors)	**Values (Levels)**	**Attributes (Factors)**	**Values (Levels)**
School Type	State	Hospital Ownership	Yes
	Private		No
History	Old	Duration of Education	Short
	New		Long
Location	Downtown	Campus Life	Yes
	Uptown		No

There are $2^6 = 64$ profiles that can be generated for a full factorial design but this total number of combinations is too large to be judged. It was decided using of the fractional factorial design to generate an orthogonal design. 4 holdout profiles were planned to be generated alongside the model profiles. Holdout profiles were generated by using another orthoplan. They are used to evaluate the validity of the conjoint estimates. 8 profiles with fractional factorial design were generated to use as representative subset of the 64 profiles. There were no unrealistic profile in the design (orthoplan). Profiles used to estimate the model are given in Table 3.

Table 3. Selected profiles (orthoplan profiles) to be surveyed

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Profile No.	School Type	History	Location	Hospital Ownership	Duration of Education	Campus Life
1	Private	New	Downtown	Yes	Long	Yes
2	State	New	Uptown	No	Long	Yes
3	Private	New	Uptown	Yes	Short	No
4	Private	Old	Downtown	No	Long	No
5	State	New	Downtown	No	Short	No
6	Private	Old	Uptown	No	Short	Yes
7	State	Old	Uptown	Yes	Long	No
8	State	Old	Downtown	Yes	Short	Yes
9 Hldt.	Private	New	Uptown	Yes	Short	No
10 Hldt.	Private	New	Downtown	No	Short	No
11 Hldt.	Private	New	Uptown	Yes	Long	Yes
12 Hldt.	Private	New	Uptown	Yes	Long	No

Figure 1. Factors and Factor Levels



Six factors, defined before, of medical schools were chosen and generated orthoplan was deployed to prospective students to get factors' relative importance. Responder students to be surveyed were randomly chosen of size 150 from the students of a vocational high school of health. A total of 107 students from 150 responded by ranking 12 (8+4) profiles. Obtained survey forms were examined and 97 of them were found analysable but 10 were not.

All factors have two values and each combination of those values was thought as a "product". Because there are six factors under evaluation and interactions are thought as negligible, an additive main effects model without interactions between effects was constructed. Traditional conjoint analysis was performed as the main research tool to investigate relative importance of the attributes of medical schools. Besides designed orthoplan, six more questions were added to survey to get students' gender (male or female), monthly family income level (TL), education level of parents (both for father and mother; primary, secondary, high and higher schools), household size (numeric) and answer of the question if any family member was a health care personnel (No, Yes). Frequency distributions and proper graphs for these demographic variables of the sampled 97 students are all summarized together in Table 8.

IBM SPSS 20 and Microsoft Office Professional Excel 2013 were used in the design, analysis and simulation processes.

5.2. Results of Conjoint Analysis

According to conjoint analysis results, two slightly different relative importance scores for each factor were calculated. These results are shown in Table 4. Obtained scores shown in column marked with (a) were calculated by using only overall part-worths whereas scores (overall) shown in column marked with (b) were calculated by averaging all importance scores for each factor. Those calculation steps can be summarized as below:

1) Part-worths for each respondent are calculated,
2) Importance scores are obtained for each respondent by using part-worths found in step (1),
3) Overall part-worths are estimated by averaging corresponding part-worths found in step (1),
4) Importance scores are estimated by using part-worths calculated in step (3),
5) Importance scores (overall) are estimated by averaging corresponding importance scores found in step (2).

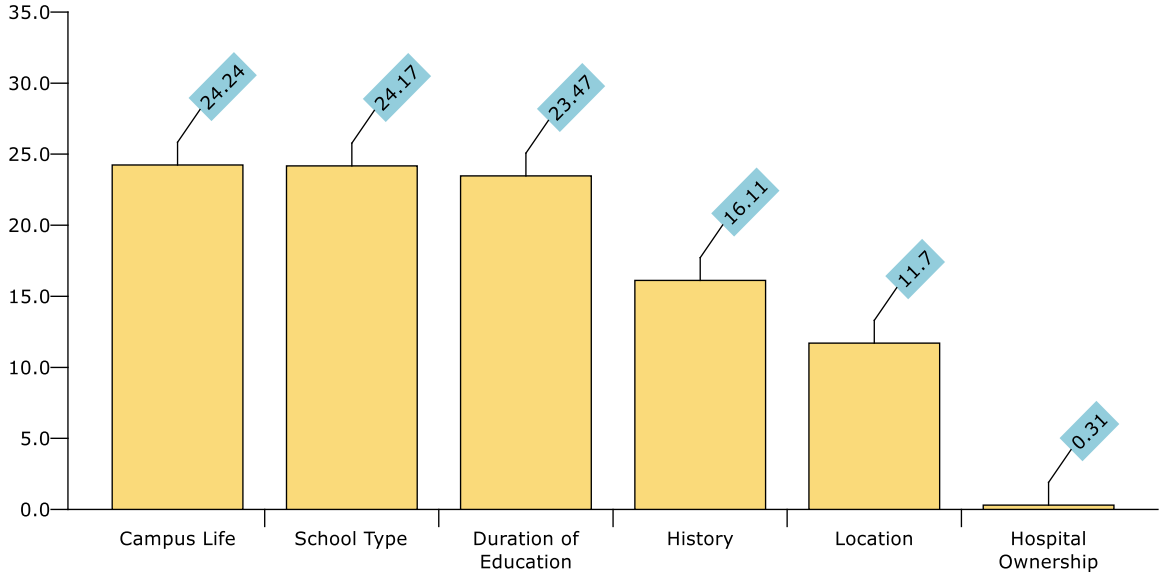
According to important scores (calculated as in step 4), the most important factors were found as *Campus Life* (24.24%), *School Type* (24.17%) and *Duration of Education* (23.47%). These factors are followed by the moderate important two factors *History* (16.11%) and *Location* (11.70%) where the latter one has slightly lower weight. On the other hand, importance score for factor *Hospital Ownership* was estimated as 0.31% and surprisingly has no effect on preferring a medical higher school. Importance scores are shown in Figure 2 to make them visually comparable.

Table 4. Importance Scores (weights) of Factors with part-worths

Factor	Level	Relative Importance[a] (%)	Overall Part-worth utility (Ranking)	Overall Relative Importance[b] (%)
Campus Life	Yes	24.24	0.807	18.09
	No		-0.807	
School Type	State	24.17	0.804	22.06
	Private		-0.804	
Duration of Education	Short	23.47	-0.781	21.26
	Long		0.781	
History	Old	16.11	0.536	17.54
	New		-0.536	
Location	Downtown	11.70	0.389	18.07
	Uptown		-0.389	
Hospital Ownership	Yes	0.31	0.010	2.99
	No		-0.010	

Notes: (a) Scores were calculated by using overall part-worth values in MS Excel 2013. (b) Scores were obtained by averaging calculated importance scores for each of 97 respondents. Calculations were made by SPSS 20.

Figure 2. Importance Scores calculated by Overall Part-worths

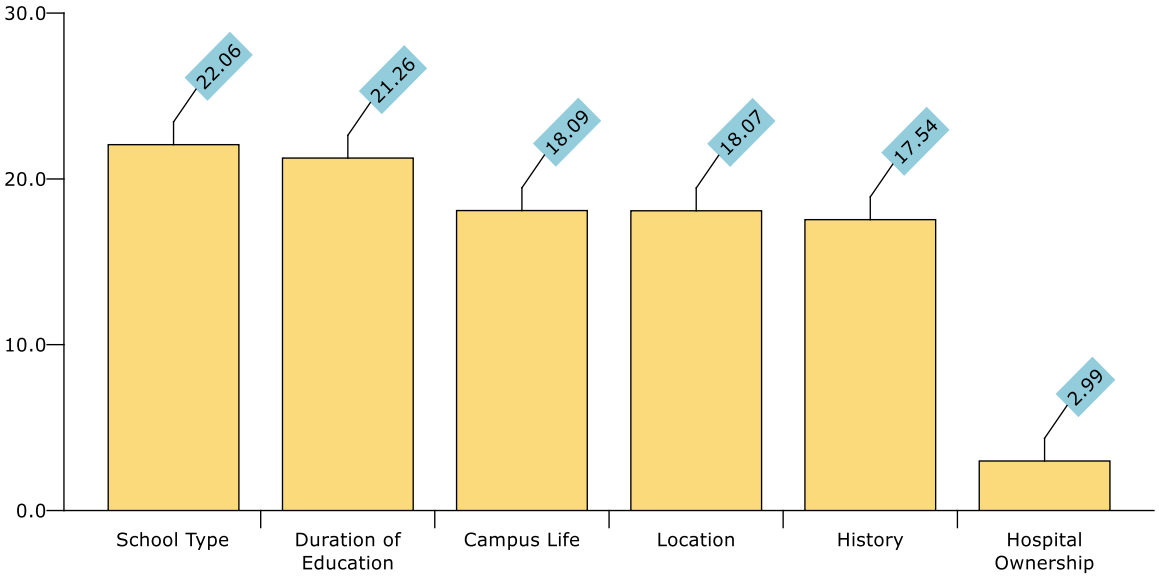


Note: These important scores were obtained from overall part-worth utilities reported in Table 4. These scores are slightly different than those given in Figure 3 because of calculation differences.

Overall Importance scores, *calculated as in step 5*, have some differences than importance scores calculated directly from overall part-worths (Step 4). *School Type* (22.06%) and *Duration of Education* (21.26%) were found as the most influencing factors according to overall importance scores.

Three other considered factors *Campus Life* (18.09%), *Location* (18.07) and *History* (17.54%) have a vaguely lower effect on preference decision than the former two factors. Hospital Ownership of the school practically has no effect on preferring as pointed out before. These scores are visualized in Figure 3.

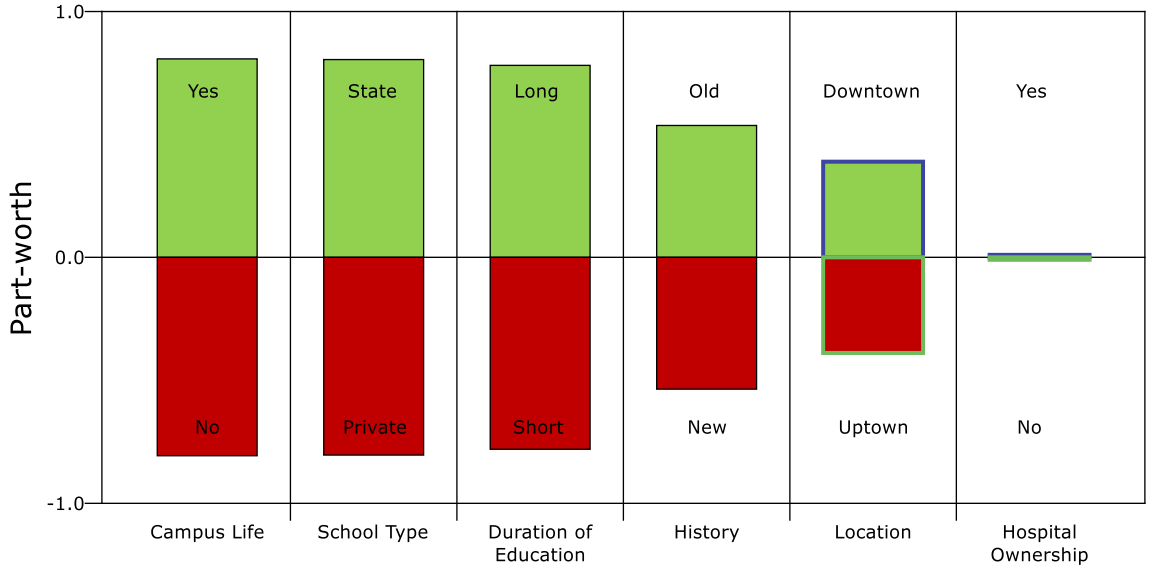
Figure 3. Averaged (Overall) Importance Scores



Note: These importance scores were obtained individual importance scores of 97 respondents by calculating their means (Scores were calculated by SPSS Conjoint 20).

Estimated part-worths are indicated both in Table 4 and visually in Figure 4. Preferred factor levels with their part-worths were estimated as *Yes* (0.807) to *No* (-0.807) for *Campus Life*; *State* (0.804) to *Private* (-0.804) for *School Type*; *Long* (0.781) to *Short* (-0.781) for *Duration of Education*; *Old* (0.536) to *New* (-0.536) for *History*; *Downtown* (0.389) to *Uptown* (-0.389) for *Location* and finally *Yes* (0.010) to *No* (-0.010) for *Hospital Ownership*.

Figure 4. Estimated Part-worths (Overall)



Performance of the estimated conjoint model was evaluated by analysing relationship between observed and estimated rank numbers. Kendall's Tau correlation coefficient was chosen to measure the strength of the relationship because variables were in ordinal scale. Kendall's correlation coefficient was estimated as 0.86 with the p-value 0.001. According to test result, there is evidence to reject null hypothesis at the 0.1 significant level and estimates of the model have a good fit to observed data. Hypotheses and test results are given in Table 5.

Table 5. Correlations between Observed and Estimated Preferences

	Statistic	p-value
Kendall's Tau for the Model		
Null Hypothesis $H_0 : \tau = 0$	0.86	0.001
Kendall's Tau for Holdouts		
Null Hypothesis $H_0 : \tau = 0$	1.00	0.021

Both Kendall's Tau tests (for the model and for holdouts) compare observed and estimated rankings. Because part-worths of the model were estimated by orthogonal design generated by 8 profiles not containing 4 holdouts, the latter test indicates the performance of the model for out of sample individuals. Kendall's tau coefficient for holdouts was estimated as 1.00 and p-value was found as 0.021. There is enough evidence to reject null hypothesis given in Table 5 at the 2.1% significance level. Both tests indicated that the model estimates well.

For simulation purpose, the full factorial design having 64 profiles was generated and total utility scores for 64 profiles were estimated by using (overall) part-worths from the model. They are shown in Table 6.

Table 6. Best and worst 5 Profiles

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	
Ordering No.	School Type	History	Location	Hospital Ownership	Duration of Education	Campus Life	Total Utility Score
1	State	Old	Downtown	Yes	Long	Yes	7.827
2	State	Old	Downtown	No	Long	Yes	7.807
3	State	Old	Uptown	Yes	Long	Yes	7.049
4	State	Old	Uptown	No	Long	Yes	7.028
5	State	New	Downtown	Yes	Long	Yes	6.755
…	…	…	…	…	…	…	…
60	Private	Old	Uptown	No	Short	No	2.225
61	Private	New	Downtown	Yes	Short	No	1.952
62	Private	New	Downtown	No	Short	No	1.931
63	Private	New	Uptown	Yes	Short	No	1.723
64	Private	New	Uptown	No	Short	No	1.153

6. Conclusion

As the number of both state and private universities are increasing, the competition between them also fostered in terms of attaining prospective students. For this reason, developing competitive advantage via marketing strategies for the university management has become an important issue. This study identified five critical success factors (school type, duration of education, campus life, location and history) that "management" can use to plan appropriate strategies which satisfies the needs of potential students. As it is seen at the results being a state and old university are also attracts the students. In a similar vein, being in a downtown and having long duration of education are the factors that prospective students place importance.

However "hospital ownership" factor was found that students do not take it into account when choosing a university. This was an unexpected result and a similar outcome was found in the study of Capraro et al. (2004). They found that social life attractiveness has a greater effect on decision approach than educational quality. They gave a possible explanation for this interesting finding and said that emergence of Generation Y in the college candidate pool may be the reason. They also gave reference to Lancaster and Stillman (2002) and mentioned that "that Generation Y is more concerned with a balance between work and relaxation than previous generations.

Given this, one might expect today's traditional aged high school students (increasingly representing Generation Y values) would find an attractive social life to be more important than the generations who were the respondents in past studies". For this reason it is important for both state and private universities to mention campus and social life in their marketing strategies.

To sum up, when a medical high school positions itself on their prospective students' minds, it is important to mention its characteristics that students attach significance.

Acknowledgment

This study was supported financially by Istanbul University (BAP - UDP Project no: 51744).

Biographies

Nihat Taş, PhD, was born in 1979 and graduated in Mathematics at the age of 23. He received his M.D. from Marmara University and Ph.D. from Istanbul University, School of Business, Department of Quantitative Methods. He is currently research and teaching assistant at the same department. He has over fifteen publications in various Journals. His main research interests are applied statistical analysis, multivariate statistics, time series analysis, operations research and mathematics.

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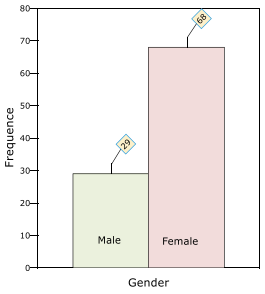
Emrah ÖNDER, PhD, graduated as an electronic engineer from I.U. Electronic Engineering Department, and received MSc and PhD degrees from the I.U. School of Business, Department of Quantitative Methods. He also received MBA diploma from Ball State University, Indiana/USA. He is currently a research and teaching assistant of I.U. School of Business. His dominant scientific interest focuses on: quantitative methods.

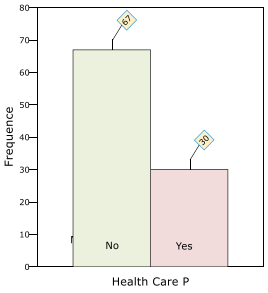
Güler ÖNDER, MSc, received her BSc degree from Istanbul University Florence Nightingale Faculty of Nursing, in 2008. She finished "Pedagogical Competence" certification program in 2012. She obtained her MSc degree from Hospital & Health Care Organization Management department in Istanbul University in 2013. She is currently working as a critical care nurse in Neurosurgery Critical Care Unit of Istanbul Medical Faculty and employed as a part time teacher at a private vocational high school of health. Her research interests include health care management and health education.

Table7. Distributions of the demographic attributes of the sampled 97 students

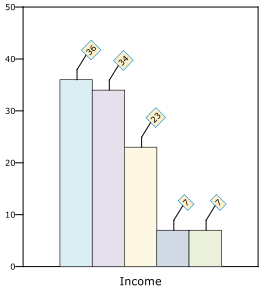
Gender	Frequency	Percent
Male	29	29.9
Female	68	70.1
Total	97	100.0

Health Care P.	Frequency	Percent
No	67	69.1
Yes	30	30.9
Total	97	100.0

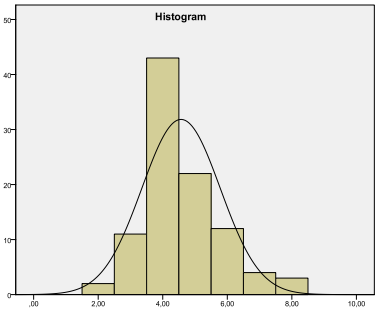




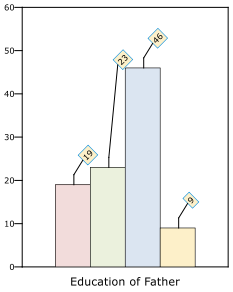
Income	Frequency	Percent
0-2000 TL	26	26.8
2000-3000 TL	34	35.1
3000-4000 TL	23	23.7
4000-5000 TL	7	7.2
5000+ TL	7	7.2
Total	97	100.0



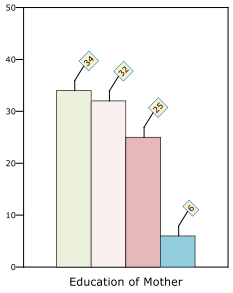
Household Size	Frequency	Percent	Statistic	Value
2	2	2.1		
3	11	11.3	Mean	4.57
4	43	44.3	Median	4.00
5	22	22.7	Std. Deviation	1.22
6	12	12.4	Skewness	0.78
7	4	4.1	Std. Err. of Sk.	0.25
8	3	3.1	Kurtosis	0.80
Total	97	100.0	Std. Err. of Kur.	0.49



Education of Father	Frequency	Percent
Primary Sch.	19	19.6
Secondary Sch.	23	23.7
High Sch.	46	47.4
Higher Sch. +	9	9.3
Total	97	100.0



Education of Mother	Frequency	Percent
Primary Sch.	34	35.1
Secondary Sch.	32	33.0
High Sch.	25	25.8
Higher Sch. +	6	6.3
Total	97	100.0



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