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MARKETING HIGHER EDUCATION IN TURKEY: A MULTIDIMENSIONAL SCALING (MDS) ANALYSIS APPROACH

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ABSTRACT

Universities should use marketing strategies efficiently and carefully to sustain their effect in the competition atmosphere and to enlarge their market. The theory here is that, private universities apply marketing strategies to have market share and they affect consumers' preferences. In this sense, aim of the study is to determine marketing activities of private universities and explain responses of consumers towards these activities. In this study it is tried to shed light on how Turkish students perceive different universities by the use of a particular MDS algorithm known as ALSCAL and a number of complementary methods PROFIT (to attribute meaning MDS dimensions) and PREFMAP (to find the ideal point/vector in the same MDS space). As a result of the study, Bilkent University is the most likely one to be the ideal university for the individuals. This university is also superior specially in location, job opportunities, facilities comparing to other universities. This means that, in order to be the ideal university for people, it is necessary to take such features into consideration.

Keywords: *Service Marketing, Higher Education, Perceptual Mapping, Multidimensional Scaling, ALSCAL, PREFMAP, PROFIT.*

TÜRKİYE'DE YÜKSEKÖĞRETİMİN PAZARLANMASI: ÇOK BOYUTLU ÖLÇEKLENDİRME (MDS) ANALİZİ İLE İNCELENMESİ

ÖZET

Üniversiteler rekabet ortamında etkilerini sürdürebilmek ve daha fazla pazara nüfus edebilmek amacıyla, pazarlama stratejilerini etkili ve dikkatli bir şekilde kullanmalıdırlar. Burada varsayım, vakıf üniversitelerinin pazardan pay elde etmek için pazarlama stratejilerini uyguladıkları ve bu yolla tüketici tercihlerine etki ettikleridir. Bu noktadan hareketle; bu araştırmanın amacı vakıf üniversitelerinin pazarlama faaliyetlerini belirlemek ve tüketicilerin bu faaliyetlere yaklaşımlarını ortaya koymaktır. Bu çalışmada Türk öğrenciler tarafından belirlenen farklı üniversitelerin nasıl algılandığı çok boyutlu ölçeklendirme (MDS)yöntemi ile incelenmiştir. Öğrencilerden, üniversitelerin birbirine yakınlığı ile ilgili veri toplandıktan sonra, çok boyutlu ölçeklendirme tekniği kullanılarak üniversitelerin algısal haritasına ulaşılmıştır. Farklı bazı teknikler kullanılarak ise MDS sonucu ortaya çıkan boyutlara anlamlı isimler verilmiş ve "ideal" üniversite noktası bulunmuştur. Çalışmanın sonucunda, bireyler tarafından Bilkent Üniversitesi ideal

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üniversite olarak belirlenmiştir. Bilkent üniversitesi diğer üniversiteler ile karşılaştırıldığında; konumu, iş olanakları ve tesislerinde de üstün bulunmuştur. Bu demek oluyor ki, İdeal bir üniversite olabilmek için bu özelliklere sahip olunması gerekmektedir.

***Anahtar Kelimeler**: Hizmet Pazarlama, Yükseköğretim, Algısal Haritalama, Çok Boyutlu Ölçeklendirme, ALSCAL, PREFMAP, PROFIT*

1. Introduction

Service sector is one of the most rapidly developing sectors in the world. New demands in education services have appeared as service sector developed and enlarged. Therefore, importance of service marketing increases rapidly in the competition and globalized atmosphere.

Service marketing has much more importance further than being a professional marketing area, gaining importance in terms of current marketing approcahes too. Specially in recent years, service marketing has been a very broad area in education services because one of the most important indicators of countries' socio- economic improvement, is education services. Main aim of education services is to grow manpower that is needed for improvement and serve education services the society needs at the desired quality, whenever the customers want and for the lowest cost as possible.

The next section of this paper is the methodology section and explains the research design in terms of sample determination and characteristics, the selection of the universities included in the perceptual map, the selection of attributes used in the PROFIT analysis and the questionnaire design. This section provides the results in terms of perceptual maps and certain numerical measures from the MDS algorithm ALSCAL and the complementary methods PROFIT (to attribute meaning to MDS dimensions) and PREFMAP (to find the ideal point/vector in the same MDS space).

Our aim of this study is to shed light on how Turkish students perceive different universities by the use of a particular MDS algorithm known as ALSCAL and a number of complementary methods PROFIT (to attribute meaning MDS dimensions) and PREFMAP (to find the ideal point/vector in the same MDS space). Finally, we will present a discussion of the results and future directions.

2. Services Marketing

Businesses which are one of the basic elements of life, answer people's need through producing product and service and they distribute profit and shares to their owners. In market-based economy, aims of the business are -with the main aim which is to make profit- to increase sales, take social responsibility into consideration, to increase the product's prestige in the society take over. In order to be able to achieve such aims businesses must do some activities such as; production, management, marketing and finance (Mucuk, 2007).

In such a challange where we might find a huge number of companies, all kind of service providers share the common target. According to Vargo and Lusch (2004), services

are economic activities rather than tangibler pruducts, offered by one party to another. Services marketing typically refers to the marketing of both business to consumer (B2C) and business to business (B2B) services. Common examples of serrvice marketing are health care, financial services and education etc..

3. Higher Education Concept

Gücluol (1996) states that higher education provides to people from private or public organizations, a learning if they have completed their secondary education and want to continue to improve thieir qualifications. These organizations have duties are accountable for; bringing on high level critical manpower, scienfitic research, protecting, developing and spreading scientific potential and producing solutions for problems of people and mankind.

Facing a growing competitive environment, higher education institutions have dramatically increased their efforts in recruiting and retaining students and providing high quality service. Universities are mobilizing all of their resources for recruiting, such as changing their financial aid policies to allow students from low-income families to enroll, and updating their campuses to become more diverse and attractive, as these are what high school seniors and their parents expect (Domino et al., 2006). The educational institution needs to maintain or develop a distinct image to create a competitive advantage in an increasingly competitive market (Akküçük ve Küçükkancabaş, 2007).

3.1.Historical Development of Turkish Higher Education System

Historical development of higher education organizations in Turkey with western codes is so new comparing to the process seen in western countries. The first university founded in the West is Bologna University was founded in 1088. This was followed by Paris University (1160) and Oxford University in 1167. These three universities with Montropeiller, Padua, Orleans and Cambridge universities that were established in the same period, are the 7 oldest universities being still active today.

Turkish universities history are divided into two; before and after the foundation of the republic. During the attoman period, higher education is provided by the muslim theological schools, and divides the educational intitutions in to 3:

- **Religious Education Organizaitons:** These schools giving religional education were began to be closed with the order of Lord Vasıf on 13 march, 1924 who was the deputy of education system.
- **Academical and Occupational Schools:** These schools which were established to grow soldiers, were connected to Ministry of Defence on 22 April, 1925 according to the law:637.
- **Foreign Schools:** The government brought the base of having cooperation in education with the law of Tevhid-i Tedrisat. In this sense, curriculum of foreign schools were connected to the government as well.

Education organizations after the foundation of the republic, foreign schools and the tradional religious schools that had'nt obeyed the order of laic ideology of the state, were closed in the early years of the Republic. During the 1920's Darulfunun was reorganized

that was changed into university with the Law: 4936 and this was followed by law, medical and science faculties and then, theological faculties were founded in 1925.

According to increased demand of young population for higher education, almost 50 high school opened in the middle of 1960, having education in various areas. Consequently the number of students in these schools increased up to 50.000 in a short period of time. When Constitutional Court found that these universities were inconvenient and out of rules, a new legal regulation in higher education was referred compulsorily. These private high schools were connected to academic schools in 1971 with law: 1418.

Growing people with superior features who are to contribute to improvement of the country, is one of the most important functions of higher education. So, it is necessary that the students studying in higher schools must have specific features and keeping academic standarts in higher education is extremely important.

The most important education aims of societies today are; to grow members of information society. In the period of information, education; individual focused, being a system with education technologies aims to grow; people with self-confidence, of whom problem solving abilities developed, features and capable of working in more than one areas. The education activities that should be applied to eliminate having poor information and technology in out country and to accomplish the aim of new societies; being an information society, are mostly found in working areas of the universities. As a result of activities of state universities that are the most accountable in growing people of the information society, they should control the behavior change list that they aim to see on students and plan it.

The statement by Keever (1998), "Create an image for your company or your competitors will do it for you," is equally relevant to the higher education sector. Institutions are becoming more aggressive in their marketing activities and need to be clear about their positioning and the image they wish to convey to their public (Russell and Marilyn, 2005).

4. Methodology

In order for institutions to understand how customers review their products in relation to other products in the market, a number of multivariate techniques for data visualization can be used. These visualization techniques give decision makers a snapshot of how the customers see products (in this case, universities) relative to another. In this study one of the visualization techniques used to study the interdependence of a number of variables is used namely Multidimensional Scaling. Obtaining perceptual maps by MDS is a commonly used marketing practice to show how brands within a product category are similar to one another and how they differ from other brands (Parasuraman et al., 2004).

4.1. Sampling

The total number of private universities in Turkey was 38 (YOK, 2009). In order to reduce the number of universities for the sampling purposes, the universities that have the largest number of students are identified. After the examination of the universities that have the largest number of students, the universities is also undergone to a selection according to the number of the private universities in the biggest cities in Turkey namely, Istanbul,

Izmir, Ankara. As Istanbul has the largest number of universities (23) it is selected 4 universities from that city. As there are 4 private universities in Izmir it is decided to include 2 of these universities into the group of objects. In Ankara there are 6 private universities and it is selected 3 universities from that city.

4.2. Questionnaire Design

The questionnaire is organized in four parts. The first part (Part A) asks the respondents to rate the similarity of a pair of universities on a scale from one to seven, where seven corresponds to most similar and one corresponds to least similar. Since 9 universities are selected, this represents 36 (n(n-1)/2 where n is equal to the number of objects) pairwise similarity judgments to be completed by the respondents. The second part (Part B) contains questions about particular attributes that have generally been used to identify universities, as explained previously. In this part the respondents are asked to rate the 9 universities on a scale from one to seven (one being very bad and seven being very good) based on the aforementioned six attributes. In the third part (Part C) the students are expected to provide a rank order of the 9 universities in terms of preference. Finally, the students answer a number of demographic questions including gender, and type of high school they are studying at. The six categories of different high schools include Anadolu Lisesi (Anatolian High School), Fen Lisesi (Science High School), Özel Fen Lisesi (Private Science High School), Özel Lise (Private High School), Devlet Lisesi (State High School), Other (Foreign, Vocational School, etc.).

4.3. Results

The sample consisted of 143 prospect students living in Izmir. The sample was mainly a convenience sample. In terms of gender, 72 respondents were female and, 72 were male. In terms of high schools from which the students are studying at, a predominant percentage were Anatolian High School (61 respondents), the second largest were Public High Schools (56 respondents), the third largest were Private High Schools (17 respondents) and the last were Science High Schools (7) and Private Science High Schools (2).

Table 1.*Demographic Characteristics*

Gender	**71 Female**	**72 Male**
Anatolian High School		61
Public High School		56
Private High School		17
Science High School		7
Prıvate Scıence Hıgh School		2

Asking pairwise judgments from the entire set of pairs would entail the respondents to answer 703 questions.

4.3.1. Common Two-Dimensional Space as Seen by the Respondents

In order to see the common space as seen by the average respondents, the 143 responses from the respondents were averaged in order to get an average value of perceived similarity between the universities. Table 2 shows the average perceived similarities between universities in the lower rectangular format.

Table 2. *Average Perceived Similarity between Universities*

	Baskent	Bilkent	Cankaya	Yasar	IzmirEko	Yeditepe	BahceS	IstTic
Bilkent	3,664							
Cankaya	4,133	3,944						
Yasar	4,098	4,317	4,063					
IzmirEko	4,448	3,972	4,049	4,224				
Yeditepe	4,154	4,168	3,888	4,154	3,783			
BahceS	4,14	4,049	3,909	4,175	4,063	4,189		
IstTic	4,14	3,818	4,217	4,343	4,196	4,154	4,175	
Bilgi	4,028	3,888	4,175	3,147	4,182	4,182	4,308	4,392

All of the 36 possible pairs are presented above. The lowest similarity is between Istanbul Bilgi University and Yaşar University and the highest is between Izmir Ekonomi University and Baskent University. In order to get a two-dimensional perceptual map of the universities as seen by the respondents, ALSCAL (Young and Harris, 1990) program (a part of SPSS 17.0 data analysis package) was used.

Since ALSCAL program only accepts dissimilarities and the data is originally similarities, the seven-point scale was reverted such that seven corresponded to most dissimilar and one corresponded to most similar. After this necessary transformation, ALSCAL was used to obtain a two-dimensional solution. The resulting map is given in Figure 1. In this map the following mnemonic codes are used in place of the universities' full names: Bahcesehir (Bahcesehir University), Yeditepe (Yeditepe University), Bilgi (Istanbul Bilgi University), IsTic (Istanbul Ticaret University), Baskent (Baskent University), İzmirEko (İzmir Ekonomi University), Cankaya (Cankaya University), Bilkent (Bilkent University), Yasar (Yasar University).

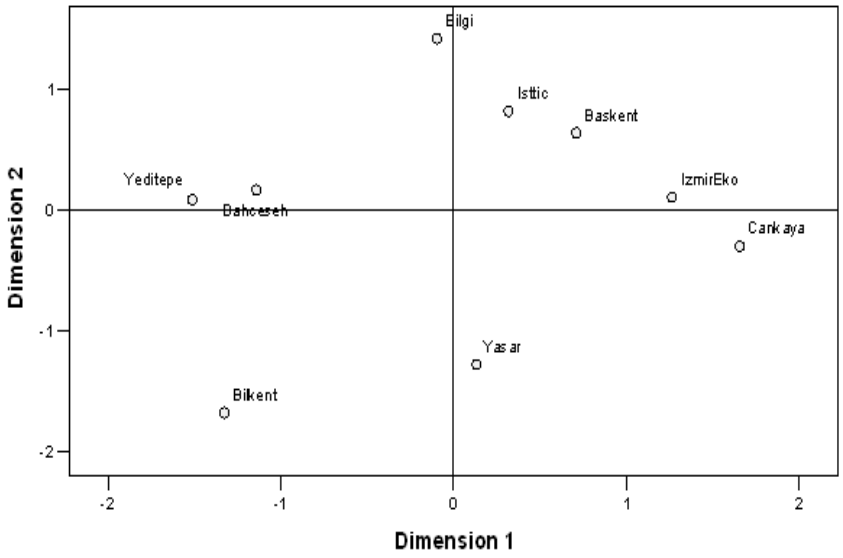


Figure 1. *Two-dimensional Perceptual Map of Average Similarities*

It is evident in Figure 1 the universities form two groups: One group in the upper left quadrant consisting of Yeditepe and Bahçeşehir second group located toward the right of the graph consisting of Istanbul Ticaret, and Baskent, İzmir Ekonomi and Cankaya. Bilkent, which is actually found to be very dissimilar from all other universities, occupies a distinct location in the lower left quadrant. The closest universities are Yeditepe University and Bahcesehir University.

The next section outlines a more formal approach in naming the dimensions, but even without any mathematical analysis, an examination of the two dimensions may reveal some insights. The first dimension may be a price (from left to right on this dimension: Yeditepe and Bahcesehir). Because these universities similar to each other according to their prices.

The second dimension (from left to right in this dimension: Istanbul Ticaret, Baskent, Izmir Ekonomi, Cankaya) may somewhat reflect the financial aid. Many interpretations can be made regarding the perceptual map and these interpretations are only the initial thoughts of the author.

One objective of this analysis is obtaining the best fit with the smallest possible number of dimensions. Interpretations derived in more than three dimensions are difficult and usually is not worth the improvement in fit. The dimensionality used here is two. There are a number of ways of determining how well the two-dimensional solution suits the average similarities calculated from the 143 subjects (Table 1). The most common measure that is used to evaluate how well (or poorly) a particular configuration reproduces the observed distance matrix is STRESS measure. The smaller the STRESS value, the better is the fit of the reproduced distance matrix to the observed distance matrix. STRESS value in this study turns out to be 0.19 which is classified as "poor" fit according to Kruskal's rule of thumb (Lattin et al., 2003). The other goodness of fit measure is R2 (Squared correlation index). R2 indicates how much of the variation in the disparities is explained by the distances calculated from the configuration found by the MDS procedure. The R2 value here is 67.40% which indicates a reasonably low but an acceptable fit. These values can improve as more dimensions are used.

4.3.2. Attributing Meaning to Dimensions Using the PROFIT Approach

Although it is possible to attribute meaningful names to the coordinate axes based on pure inspection and judgment, it is also possible to use answers to Part B of the questionnaire and examine the correlations between coordinate values and ratings of the alternatives of universities on the six attributes. The computer program PROFIT – short for property fitting – (Chang and Carroll, 1989) is helpful in determining dimensions that are highly correlated with the attribute ratings. It employs a more sophisticated technique than the one explained above. PROFIT takes the coordinate values from the ALSCAL output and the average attribute ratings on the six attributes as input. The major aim of PROFIT analysis is to determine which attributes best describe the perceptual positions and are illustrative of the dimensions.

In order to name the dimensions, it is needed to look for the correlations between average attribute ratings and dimensions. These values will help to give names to

dimensions. According to these values, the first dimension is named as Facilities, and the second one as Location (Table 3).

Table 3. *Correlations between Average Attribute Ratings and Dimensions*

	Dimension 1	Dimension 2
Prestige	-0.87	0.49
Facilities	-0.99	0.05
Quality of Education	-0.91	0.40
Social Life	-0.89	0.43
Location	0.15	-0.98
Job Opportunities	0.96	0.24

Table 4 provides the average ratings of the 9 universities on the six attributes. For example, the order of the universities on prestige (from highest to lowest) is Yeditepe (4.23), Bilkent (4.04), İzmir Ekonomi (4.03), Bilgi (3.98), Bahcesehir (3.96), Istanbul ticaret (3.87), Baskent (3.72), Yasar (3.54), Cankaya (3.53). The universities which get the highest average attribute scores highlighted in the Table 4 below.

Table 4. *Avarage Attribute Ratings and Dimensions*

	Baskent	**Bilkent**	**Cankaya**	**Yasar**	**İzmir Eko.**	**Yeditepe**	**Bahcesehir**	**İstanbul Tic.**	**Bilgi Uni.**
Prestige	3,72727	4,04196	3,53846	3,54545	4,03497	4,23077	3,96503	3,87413	3,98901
Facilities	4,06993	4,54545	3,9021	3,90909	4,03497	4,38462	4,1958	4,18881	4,18993
Quality of Education	4,11888	4,55944	4,03497	3,83217	4,60839	4,72028	4,27273	4,1049	4,41563
Social Life	4,44056	4,6993	4,17483	4,25874	4,44755	4,76224	4,65734	4,46853	4,66587
Location	4,65035	4,8951	4,4965	4,34266	4,4965	4,58741	4,65035	4,54545	4,60988
Job Opprotunities	4,53846	5,27273	4,32867	4,16783	4,55944	5,1958	4,71329	4,48252	4,99325

Figure 2 provides a plot of the original stimulus coordinates and the directional vectors. The visual inspection of the figure below also suggest that attribute namely facilities should be the dimension for X-axis while attribute namely location for Y-axis. The figure shows that Bahcesehir University is perceived quite high in facility and job opportunities respects. Yeditepe is perceived high in job opportunities as well. The directions of the three vectors (prestige, quality of education and social life) are towards the upper left quadrant and the direction of the location is towards the lower right quadrant (in which Yasar University is located).

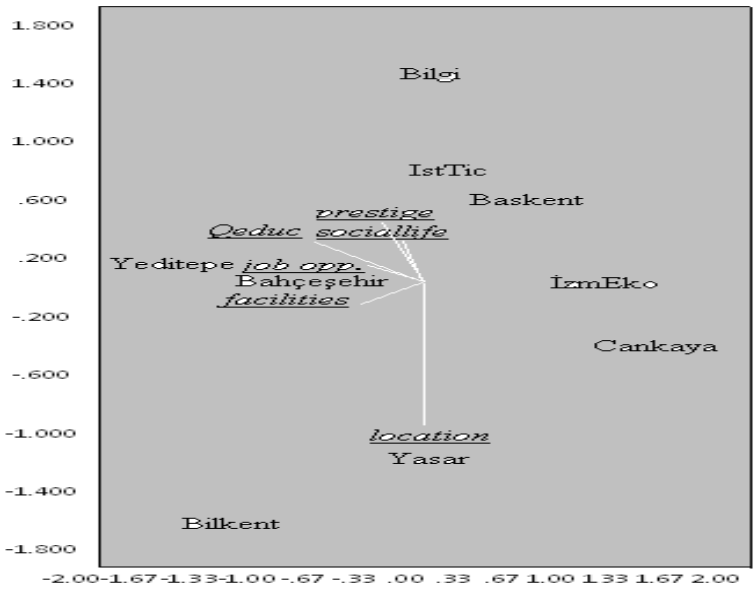


Figure 2. *Direction Vectors of Attributes and Universities (PROFIT)*

4.3.3. Preference Scaling Using PREFMAP

The computer program PREFMAP (Chang and Carroll, 1989a) takes preference data and the stimulus coordinates obtained from an MDS analysis as input, and provides the "ideal point" in the same coordinate space as output. Hence, the so-called "ideal university" can be visualized in terms of the coordinate space already generated for the perceptual map of the universities. This analysis needs the ALSCAL output already discussed and the average preference values for each university computed from the answers to Part C of the survey as input. In this part of the questionnaire respondents are asked to rank the party leaders in terms of overall preference (1= most preferred, 9= least preferred).

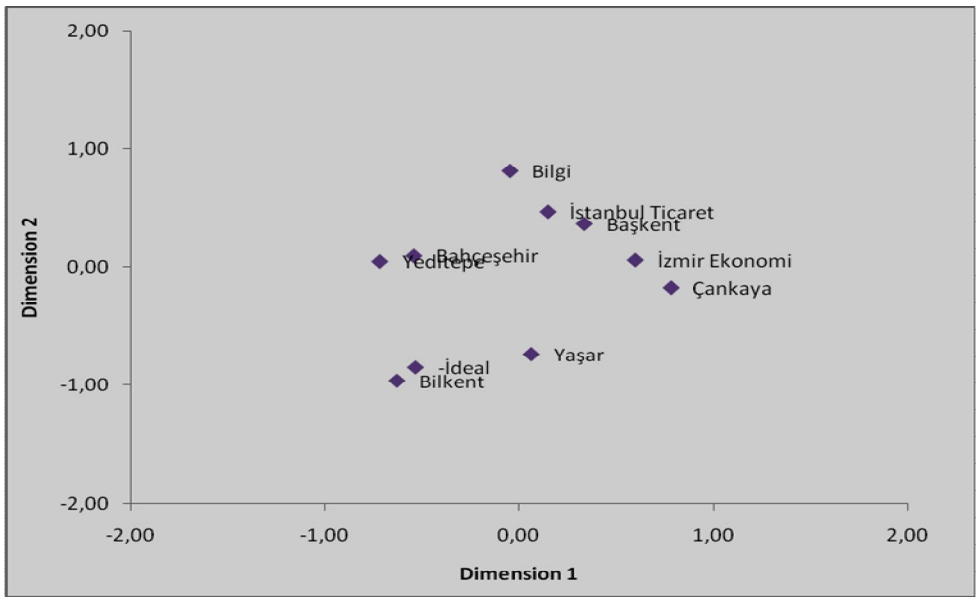
The average preference values for the universities are given in Table 5. It is seen here that Bilkent has the highest average preference with (3.73). The lowest average preference is belong to Bahcesehir University (6.19).

Table 5. *Average Preferences Values of Universities*

Universities	Preference	Rank
Bilkent	3,73	1
Başkent	4.13	2
Yeditepe	4.75	3
Cankaya	5.13	4
Bilgi	5.16	5
İst Ticaret	5.28	6
İzmir Eko	5.31	7
Yaşar	5.36	8
Bahçeşehir	6.19	9

There are a number of different models that PREFMAP uses to display the ideal points relative to the MDS produced coordinates (Point and Vector based). In this study, vector representations are decided to use. The distances of each university to the ideal point are provided in the Figure 3 below. Figure 3 is a crucial step for portraying each university's relative position not only in perception, but also in preference. The position of the ideal point (relative to the universities on the derived perceptual map) defines relative preferences so that universities farther from the ideal should be less preferred. It's seen that respondents' average ideal point is relatively closer to Bilkent. It is an interesting finding that most of the universities are quite far away from that average ideal point.

Figure 3. *Universities and Ideal Point Vector (PREFMAP)*



5. CONCLUSION

Foundation universities that are in a very heavy competition atmosphere in the last years try to provide service with respect and convenient to consumer needs. These universities develop marketing strategies in order to have advantage against the rivals and survive. As the ÖSS selection system now involves making a selection after one's score has been determined, and as the number of public and private universities is increasing, it seems evident that universities will need to use more sophisticated marketing tools than ever. Private university foundations have to carry out studies of creating a positive image, serving to the society besides increasing their income.

Aim of the study is to determine marketing strategies of foundation universities that they use to sell education services they provide to the students and explain and reflect the current situation of this, benefiting from ideas and opinions of the students.

Multi Dimensional Scaling algorithm is used for evaluating the questionnaire. As a result of the study, the most similar universities are Izmir Economy and Baskent universities and universities that are the least similar are, Yasar University and Istanbul Bilgi University. In the second part of the analysis, individuals are required to evaluate the students with respect to specific features and it was seen that features distinguishing universities one from the other are, facilities and location. In the last part, respondents are required to arrange the universities for their wish according to their own criterion and the most preferred university was Bilkent while the least chosen one was Bahcesehir University. Universities should benefit from outcomes of the study while developing marketing strategies.

As a result of the study, Bilkent University is the most likely one to be the ideal university for the individuals. This university is also superior specially in location, job opportunities, facilities comparing to other universities. This means that, in order to be the ideal university for people, it is necessary to take such features into consideration.

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