Determining Factors that Affect Satisfaction of Students in Undergraduate Tourism Education

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DETERMINING THE FACTORS THAT AFFECT THE SATISFACTION OF STUDENTS HAVING UNDERGRADUATE TOURISM EDUCATION WITH THE DEPARTMENT BY MEANS OF THE METHOD OF CLASSIFICATION TREE

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Students' satisfaction with their department is of importance in their attitudes towards school. When it is considered that the students, who receive tourism education at universities, are also consumers of the education service provided at the departments, it is necessary to determine the factors that affect student satisfaction. The aim of this study is to determine the factors that affect the satisfaction of the students, who receive undergraduate tourism education, with the tourism undergraduate programs where they are registered. With this purpose, a questionnaire was performed on 1734 students. The method of classification tree was used in determining the factors affecting students' satisfaction. As a result of the classification tree analysis, it was observed that the variable, which affected students' satisfaction most, was the job considered to be done after graduation and that this was followed by sufficiency of job opportunities after graduation, whether the department was chosen after researching or not, whether one can be a good manager with the education received from the department or not, and whether the courses included current subjects or not, respectively.

Keywords: *Student satisfaction, tourism education, classification tree.*

INTRODUCTION

The students, who receive tourism education, are generally employed in tourism industry. Thus, it is of great importance to train the students,

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who receive tourism education, in line with the needs of the industry. In addition, students' satisfaction with the education provided is also an essential element that affects the success of education and, therefore, the expectations of the industry. In their studies, McKercher (2002) and Tütüncü & Doğan (2003) reported that student satisfaction is important in terms of education-instruction quality. Scotland (2006) and others (McKercher, 2002; Waryszak, 1999) supported these studies.

Classification and regression models are observed to be used frequently in data analysis of scientific studies. According to Fu (2003) and Breiman (2003), the assumptions to be used in these models may constrain the opportunities of statistical analysis in some cases. However, since classification and regression trees (CART) do not require any assumptions on the dataset to be examined, they appear as a strong alternative against such statistical classification and regression techniques. Even in cases where the dataset is complex, CART is able to present visually the variables affecting the dependent variable and the importance of these variables in the model by a simple tree structure. If the dependent variable concerned has a categorical structure, the method is called classification tree (CT) while, if it is continuous, it is called regression trees (RT) (Fu, 2003). Since the data collected within the scope of this study bore categorical features, classification tree was used in data analysis.

For organizations, communication with the target mass is quite important. It is observed that organization managements endeavor considerably for determining and developing the satisfaction of target masses with organization activities. The perception of education-instruction provided at universities as product and students as consumers can affect the education-instruction quality and student satisfaction positively. The factors affecting the education and satisfaction of students have been put forth by various studies (Eom, 2006; Swan, 2001; Jiang and Ting, 2000). Also in studies on tourism education, it has been put forth that student satisfaction is important in terms of education-instruction quality (Scotland, 2006; Tütüncü and Doğan, 2003).

Kotler (1999) states that enterprises attach importance to customer satisfaction in order to have advantage over their competitors. Universities also have to consider student satisfaction so as to be preferred by better students in comparison to competing universities and to train successful students.

Customer satisfaction or dissatisfaction includes the emotions developed in the event of and after purchasing a product or service and affects satisfaction (Tütüncü and Doğan, 2003; Kozak and Rimmington,

2000). Customer satisfaction or dissatisfaction may be due to processes such as justice, feature, performance assessment and effect formation as much as the fact that expectations are not confirmed and customer satisfaction may occur depending on satisfaction.

Although quality and satisfaction seem to be close to each other, they differ from each other. Quality is a feature, degree, kind, excellence or suitability standard or a measurement that distinguishes something from another and mostly covers a cognitive evaluation. Satisfaction, however, is rather an emotional evaluation. In other words, the level of meeting the expectation of the customer from the product is expressed as satisfaction (Kotler et al., 1999) and the relationship between expectation level and the realization level of the expectation determines satisfaction level. While choosing universities, students choose their departments with various expectations and students' satisfaction or dissatisfaction occurs according to the level the school meets the expectations concerned in the education-instruction process.

In a study on the university students receiving tourism education in different countries, Waryszak (1999) put forth that students had a high expectation from the tourism programs where they received education. In the study, it was found out that the students had high expectations concerning their preparation for professional life by the institutions providing tourism education for the professional life after school. Such an expectation concludes that the institutions providing tourism education have close relationships with the sector. Thus, it appears that active education-instruction is necessary for practice.

The high number of schools providing tourism education-instruction is also one of the factors that affect student satisfaction negatively. McKercher (2002) stresses that the number of academies providing tourism education in Australia is increasing very rapidly and that at least 27 universities have a program and, as a result, the life curve of tourism education in Australia has begun to fall early. When the rapid increase in the number of schools providing tourism education in Turkey is taken into consideration, this problem is a reality which should not be ignored. The insufficient number of educated instructors despite the increasing number of schools is also another issue required to be discussed.

Scotland (2006) stresses that the philosophy in the institutions providing tourism education plays an essential role on education level and that it is also required in terms of the institutions providing tourism education to measure the education-instruction outputs of students. With the Bologna process, it is observed that outputs are also important in the education-instruction projects supported by the European Union.

Ünlüönen (2005) intended to determine the expectations and perceptions of the students in the Tourism Management Teaching Programs in the Faculty of Commerce and Tourism Teaching at Gazi University,Ankara which trained teachers in the field of tourism in 1965 in order to train teachers for professional high schools of tourism in secondary education. In the study conducted, the findings of research conducted in 1999-2000 academic year and 2003-2004 academic year were compared and the satisfaction rate of the students, who participated in the research in 2003-2004 academic year, with the school fell in comparison to the previous research. According to the studies conducted, it is understood that measuring students' satisfaction with the education they receive is important for observing the level at which the programs attain their objectives and for measuring the education-instruction outputs. It is also essential to determine the satisfaction of students in tourism undergraduate programs with their department and the factors affecting satisfaction.

The satisfaction level of individuals during school is one of the important factors that affect their job preferences after graduation. Determining satisfaction levels of students receiving tourism education during school and making suggestions of solution to this end will give an idea about what has to be done for the employment of students in tourism industry after graduation. This study aimed at determining the satisfaction of students, receiving undergraduate tourism education, with the tourism undergraduate programs where they were registered and the level of influence of the variables that affected their satisfaction. The determination of students' dissatisfaction will accelerate the elimination of deficiencies in educational institutions and the studies for improving quality of education.

MATERIAL AND METHODS

The data obtained from a questionnaire conducted on 1734 students composed the material of this study. The questionnaire forms used in obtaining data were created considering the questionnaire forms used by Ünlüönen (2004) and Tütüncü and Doğan (2003) in their studies. At the stage of applying the questionnaire, the number of questionnaires was determined on the grounds of the first registration quotas specified for 2006-2007 academic year for the undergraduate programs specified by constraints. The target mass was composed of approximately 4080 students having formal education in the second, third and fourth grades registered in tourism programs, which had graduates within 14 state

universities, according to the OSYS (Student Selection and Placement System in Turkey) 2006 Guide of Higher Education Programs and Quotas. The questionnaire forms were applied to the students in one-to-one form. Out of the questionnaire forms applied to the students specified by convenience sampling between November 15, 2006 and January 15, 2007, 1928 were returned and 1734 questionnaires among them were regarded as suitable for analysis. The questionnaire was composed of 25 questions for determining the satisfaction levels of participants with their demographic information and their education-instruction.

The proposals in the questionnaire form were prepared for finding out students' satisfaction with faculty members, school administration, the courses they study, the physical adequacy of the school, administrative services, educational instruments and tools and the internet services at school. In the questionnaire form that was composed of two pages, the proposals stating their satisfaction were arranged according to 5-point Likert scale (5: Very Satisfied, 4: Satisfied, 3: Neither satisfied nor dissatisfied, 2: Dissatisfied, 1: Very Dissatisfied). The preliminary test of the questionnaire was applied on 85 students. As a result of the application, the cumulative grade point average of the student as of the current academic semester, which was considered to be explanatory for the satisfaction levels of students, was included in the questionnaire form as well.

STATISTICAL ANALYSIS

Before beginning with the statistical analyses, the reliability analysis was applied to the data. As a result of the reliability test, the Cronbach's Alpha was found as 0.87. This rate demonstrates that the scale is highly reliable (Ural and Kılıç, 2005: 262). The statistical method of Classification Tree (CT) was used in the evaluation of the obtained data.

Classification Tree (CT) is a non-parametric statistical method developed for estimating the values of the dependent variable in categorical structure. CT is used as an alternative for many traditional methods such as multiple regression, logistic regression, cluster analysis and discriminatory analysis and has many advantages in comparison to these techniques (Lewis, 2000). Since CT is a non-parametric method, it does not require any assumptions pertaining to the distribution of variables. In addition, it considers the higher order interactions among independent variables, is not influenced by missing values and can be applied easily to complex datasets (Lewis, 2000). Moreover, it facilitates the interpretation of results as it also presents the results visually.

Although it is a quite strong analysis technique, CT has some constraints. The most important constraint of CT technique is that the results do not rest upon any probability models.

Prior probabilities are used to create a classification tree in CT method. Prior probabilities affect the determination of the class that experimental units will belong to. The prior probability value for j class is shown with (π) and these values are either calculated from the dataset or reported by the researcher (Temel et al., 2005).

In a classification model, error rate is calculated when the number of misclassified events is divided by the total number of events whereas correct classification percent is calculated when the number of correctly-classified events is divided by the total number of events (Lewis, 2000: 7). Risk matrix is used in order to decide on the error rates of the models created for the classification of data. The optimal class to be assigned to any nodes resulting from splitting is estimated as follows. Considering that

$C_{(j/i)}$: cost of classifying i class like j class (coefficients of risk matrix);

π_i : prior probability of i class;

N_i : number of experimental units in i class in Learning Sample;

$N_i^{(t)}$: number of experimental units in i class in t node,

if the inequality

$$\frac{C(j/i)\pi_i N_i^{(t)}}{C(j/i)\pi_j N_j^{(t)}} > \frac{N_i}{N_j}$$

is ensured for all values of j (j = 1,2,...,k and j≠ i), i class is assigned to t node optimally (Lewis, 2000).

In some cases, more than one class ensures the above-mentioned inequality and becomes the optimal class depending on the node structure or none of the classes can ensure this inequality. In the event that the optimal class is determined, there are two alternative rules, namely, plurality and minimum risk (Temel et al., 2005).

The class with the largest rate within the node is assigned as the optimal class in the rule of plurality without considering the misclassification cost (by supposing equal). However, the rule of minimum risk determines the class, which minimizes the misclassification cost within the node, as the optimal class without considering the distribution of experimental units into classes within the node (by supposing equal). Homogeneous subgroups are obtained by binary recursive partitioning in CT models and the tree keeps on growing in this

way. The growth in CT (Lewis, 2000; Chipman et al., 2000; Bevilachqua et al., 2003) stops

1. if the number of observations in each child node is only one observation or ten observations,

2. if there is intra-group homogeneity in each node,

3. if the level number of tree is limited by the analyst,

4. if it does not create so much change in the nodes to be created further.

The tree obtained at the end of tree building is called maximal tree and it is the optimal tree for the experimental units in Learning Sample. Nevertheless, maximal tree has two practical disadvantages. (Temel et al., 2005, p.114).

1. Maximal tree defines Learning Sample perfectly since each added independent variable reduces the misclassification percent. In this case, maximal tree presents an overfitting estimation model for Learning Sample. However, the overfitting maximal trees for the Learning Sample are unable to provide a good estimation when there is a different dataset (for instance, Test Sample).

2. The complexity measurement of a classification tree is equal to the number of terminal nodes of that tree. It is difficult to understand and interpret a maximal tree with a high number of terminal nodes and, therefore, high complexity. So as to solve these problems caused by maximal tree in practice, it is necessary to prune the maximal tree or choose a simpler tree generated by the maximal tree.

Pruning the maximal tree generates a sequence of simpler trees and optimal tree is chosen among this created sequence. Optimal tree is less complex than maximal tree; however, it fits the Learning Sample less than maximal tree does and its misclassification percent is higher.

RESULTS

According to the findings from the evaluation of data obtained from questionnaire forms, where the satisfaction of undergraduate tourism students with their education-instruction is measured, the demographic features of 1734 students having participated in the research are presented in Table 1.

Out of all students who participated in the research, only 1710 replied the question "are you glad with your decision of choosing the department". The students, who did not reply this question (missing values), were not considered while building the classification tree. The factors that affect the students' satisfaction levels most are given in Figure

1 and Graphic 1. When Graphic 1 is examined, it is observed that the variables affecting students' satisfaction most are the job considered to be done after graduation, sufficiency of job opportunities after graduation, whether the department was chosen after researching or not, whether one can be a good manager with the education received from the department or not, and whether the courses include current issues or not, respectively.

Table 1. Demographic features of students

Gender	N	%	Choice rank	N	%
Boy	*987*	*56,9*	*1–5*	*754*	*45,3*
Girl	*747*	*43,1*	*6–10*	*332*	*20,0*
			11 and above	*578*	*34,7*
Department					
Tourism Management	*765*	*44,1*	**Average Grade Point**		
Travel Management	*305*	*17,6*	*0–0,99*	*14*	*,9*
Accommodation Management	*453*	*26,1*	*1,00–1,99*	*251*	*16,5*
Tourist Guiding	*90*	*5,2*	*2,00–2,99*	*893*	*58,5*
Travel Management and Tourist Guiding	*121*	*7,0*	*3,00–4,00*	*359*	*23,7*
Class			**High school graduation**		
2	*567*	*32,7*	*High school has given tourism education*	*507*	*29,2*
3	*625*	*36,0*	*Science or Anatolian High School*	*354*	*20,4*
4	*542*	*31,3*	*Others*	*873*	*50,3*

Figure 1. Importance of independent variable
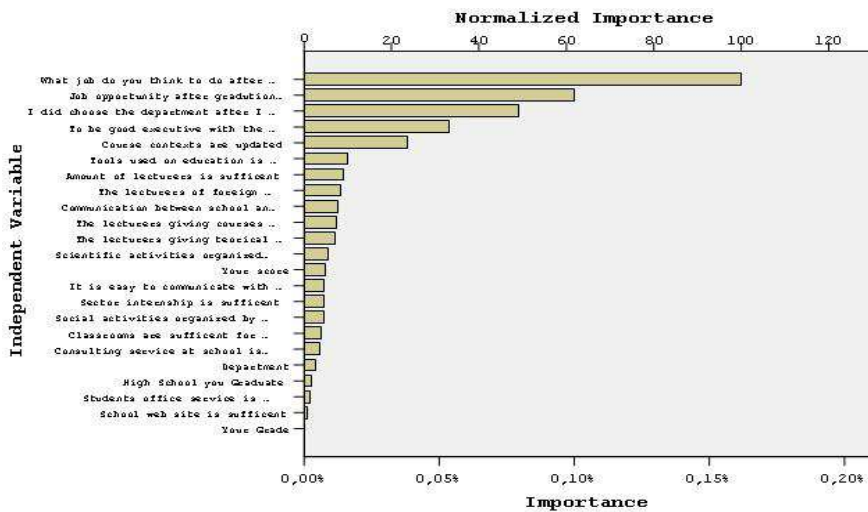
Growing Method:CRT

Dependent Variable:are you glad with your decision of choosing the department

When Figure 1 is examined, it is observed that all students (n=1710) were analyzed by including in the same group (node 0) at the first step. When the classification tree is examined, it is observed that 66.2% of the students were satisfied with their choice of department while 33.8% were dissatisfied. As it is noted, whether the students are satisfied with their department or not varies depending on the job they will do after graduation. Thus, initially node 0, which covered all students, was split into two new subgroups, namely, node 1 and node 2. Node 1 was the subgroup composed of the students who considered working outside the tourism industry whereas Node 2 was the subgroup composed of students who considered working in tourism industry or becoming an academician after graduation. 39.9% of 584 students in Node 1 and 79.8% of 1126 students in Node 2 stated that they were satisfied with their department. When Figure 1 is examined, it is observed that Node 1 and Node 2 were split into new Nodes (Node 3, Node 4, Node 5 and Node 6) according to the question "I did choose department after I researched sufficiently". Therefore, the answer given to the question "what job do you consider doing after graduation" is not enough solely in demonstrating whether the

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students were satisfied with their department or not. As it is noted, the students, who considered working in tourism industry or becoming an academician", were split into two new subgroups as Node 5 and Node 6 depending on "whether they chose the department after researching sufficiently or not". It is observed that 65.2% of 511 students (Node 5), who chose the department without researching sufficiently, were satisfied with their choice of department whereas 92.0% of 615 students (Node 6), who chose the department after researching sufficiently, stated that they were satisfied with their choice of department.

As it is noted, it is observed that the students in Node 5 were split into new subgroups (Node 11 and Node 12) depending on "whether the job opportunities were sufficient after graduation" while there was no more any partitioning in the students in Node 6. Thus, Node 6 is called terminal node. The students in this node now constitute a homogeneous group. In other words, it is possible to conclude that 92.0% of the students, who considered working in tourism industry or becoming an academician after graduation and who consciously chose their departments, were satisfied with their choice of department. In other words, it is observed that whether the students, who considered working in tourism industry or becoming an academician after graduation but did not choose their department consciously, were satisfied with their department or not also varied on the grounds of "whether the job opportunities after graduation were sufficient or not" (Node 11 and Node 12). It is observed that 73.8% of the students, who considered that job opportunities after graduation were quite sufficient (Node 12), were satisfied with their choice of department and that this subgroup is another terminal node since there is no new partitioning in this subgroup. Thus, it is possible to conclude that 73.8% of the students, who considered working in tourism industry or becoming an academician after graduation but who did not choose their department consciously and who considered that job opportunities after graduation were sufficient, were satisfied with their choice of department. It is observed that the satisfaction of the students, who considered that job opportunities after graduation were insufficient, (Node 11) with their department also varied depending on "the updating of course contents" of these students (Node 15 and Node 16). As it is noted, no new partitioning is observed in Node 15 and Node 16, which are composed of both the students who believed that course contents are updated and the students did not believe that the course contents are updated. Therefore, these two nodes are terminal nodes. Considering this, it is possible to conclude that, out of the students, who considered working in tourism industry or becoming an academician after

graduation but did not choose their department consciously and considered that job opportunities after graduation were insufficient, 37.9% of those, who stated that the course contents were not composed of current subjects, and 65.9% of those, who stated that the course contents were composed of current subjects, were satisfied with their choice of department.

Figure 1. Structure of optimal tree
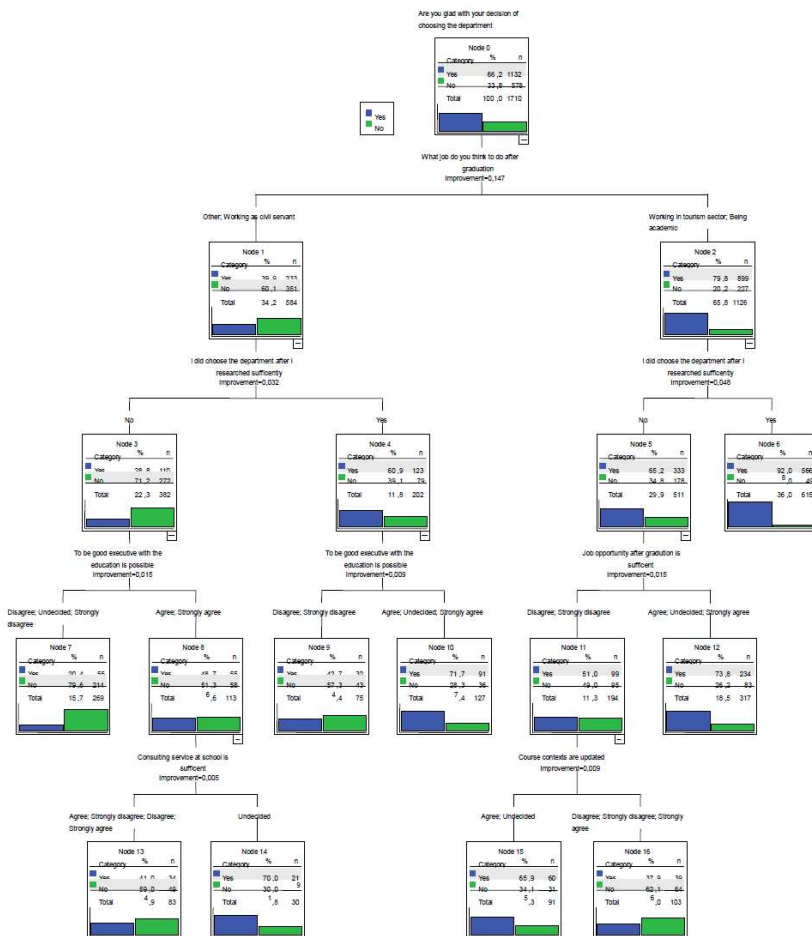
The participants, who were included in Node 1 and who considered working outside the tourism sector, were split into two nodes depending on the question of choosing the department consciously. As it is observed in Node 4, 60.9% of the students, who chose the department consciously (n=202), were glad with choosing the department. 71.7% of the students (n=127), who considered that one can be a good manager by the education received at the department, among the students who chose the department consciously, were satisfied with their choice of department (node 10) whereas 42.7% of the students, who considered that one cannot be a good manager, were satisfied. From the participants in Node 3, it is observed that, among the students who both considered that one can and cannot be a good manager by the education received at the department (nodes 7 and 8), the rate of the students who were satisfied was less than the students who were dissatisfied. It is observed that the sufficiency of consultancy services at school were also influential on the statement of satisfaction by the participants constituting Node 8 (Nodes 13 and 14). Accordingly, all the participants excluding the indecisive participants about consultancy service (n=83) were observed to be dissatisfied with their choice of department.

Table 2. Correct classification percent

Observed	Predicted		
	Yes	**No**	**Percent Correct**
Yes	972	160	85,9 %
No	208	370	64,0 %
Overall	69,0%	31,0%	78,9 %

Correct classification percent was found as 78.9%. This value is high for practice. As seen in table 2, 85% of the students, who stated that they were satisfied with the school, were classified correctly. This value is higher than the overall correct classification percent.

DISCUSSION

As a result of this study, it was found out that the variable that affected students' satisfaction most was the job considered to be done after graduation and this was followed by the sufficiency of job opportunities after graduation, whether the department was chosen after researching or not, whether one can be a good manager by the education received from the department or not, and whether the courses included current subjects or not, respectively. It can be put forth that the first five

variables concerned have to be taken into account in the studies to be conducted pertaining to student satisfaction.

As it is also observed in the research on university students receiving tourism education in different countries (Waryszak, 1999), it is known that the students have high expectations from the tourism programs concerning the education they receive for the professional life after school. When it is considered also in this study that the professional life after graduation is the most important determinant in satisfaction, the relationship of institutions providing tourism education with the sector becomes outstanding. Hence, conducting the tourism education, which is included in applied sciences, in such a way that will meet the needs and expectations of the sector will improve the satisfaction of the student with school. Moreover, the close relationship to be developed with the sector will also increase job opportunities for students after graduation. In this case, this will affect student satisfaction positively.

The sufficient number of instructors in schools that provide tourism education-instruction is also included as a factor that affects student satisfaction in the study by McKercher (2002). When the finding in the study concerned that life curve in tourism education has begun to fall early despite the increasing number of schools in Australia is taken into consideration, it is observed that the number of educated instructors is insufficient in spite of the increasing number of schools in Turkey and that this affects the satisfaction of students receiving tourism education negatively. The increase in course load as a consequence of the insufficient number of instructors makes it difficult to update the courses. This supports the conclusion that course contents are one of the important factors that affect student satisfaction.

In the studies conducted with respect to student satisfaction, it is concluded that the factors that affect student satisfaction, the quality of education and the teaching skill and attitude of the instructor are important in determining satisfaction (Tütüncü and Doğan, 2003; Devebakan et al., 2003; Eom, 2006). It may be stated that the difference in findings between the studies concerned and this study are likely to be due to the difference in the methods used, the numbers of participants and areas of practice.

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