Uluslararası Sosyal Araştırmalar Dergisi / The Journal of International Social Research
Cilt: 12 Sayı: 65 Ağustos 2019 Volume: 12 Issue: 65 August 2019
www.sosyalarastirmalar.com Issn: 1307-9581
Doi Number: http://dx.doi.org/10.17719/jisr.2019.3507

AN ANALYSIS ON GREEN CONSUMER PURCHASING DECISION

Tolga ATİKBAY•
Sualp DAVUT**

Abstract

In recent years, because increasing environmental problems, it is observed that governments, businesses and also individuals have developed some behaviors about environmental sensitivity. In this context, while governments are making legal regulations about environment protection, businesses are trying to be environmentally friendly and to offer green (environmentally friendly) products because some of the consumers demand these products. Hence, these developments have led to the emergence of environmentalist (green) marketing insights. In this study, current literature on environmental awareness, green consumer, green marketing and green product concepts were examined and a field study was carried out. This study which aims to investigate the relationships between consumers' environmental attitudes and consumer purchasing decisions on green products includes the individuals residing in the Turkish Republic of Northern Cyprus (TRNC). According to the results of this research, there are significant relationships between consumers' environmental awareness, green product awareness and green consumer purchasing decisions. In addition, it has been determined that consumers with high environmental and green products awareness are also inclined to purchase of green products at high level but this relationship is not strong enough. Other findings are those consumers are willing to pay more approximately an average of 10% for green products compared to other products and male consumers are able to pay more for green products than female consumers.

Keywords: Environmental Awareness, Green Consumer, Green Marketing, Green Product.

1. Introduction

Human beings who have the ability to use living and non-living assets for their own purposes and have the ability to change the environment have realized these desires for many centuries without considering living or inanimate assets or even themselves. His natural resource requirements, a development process based on earning the most profit in a short time, and therefore an unlimited and unconscious consumption, caused environmental degradation which is impossible to be recycled. Today, mankind face with many serious environmental problems due to rapid population growth and industrialization, such as global warming, starvation, air pollution, marine and coastal pollution, desertification, soil pollution, nuclear pollution and waste problems. The understanding that natural resources are unlimited is the main reason of environmental problems. Because of this, the use of natural resources by human beings, as if they are limitless, leads to environmental destruction. The unconscious behaviors displayed by humans have ruined the balance of the world and have caused many environmental problems such as global warming and climate change. Just because, solar rays including carcinogenic rays reach our earth much more dangerously. Depending on global warming and climatic change, while the droughts are occurring in many places of the earth, the many regions of the earth stays under the water (Kuduz, 2011, 1-2).

Therefore, in time, mankind has begun to perceive the harm that he gives to the environment and he, from individuals to the governments, has sought to do something to compensate and prevent this damage. Therefore, an environmental awareness began to emerge due to the necessities and these facts. In this context, while individuals have changed their lifestyles and consumption habits, governments have put some legal rules and signed agreements in international area. On the other hand, it would be a very optimistic approach to say that these efforts are valid for the whole of the world people and countries. For this reason, there is a need to increase awareness of the environment by both in the context of governments and people.

• PhD (c), Girne American University, Institute of Social Science, Business Management.
** Assoc. Prof. Dr., Girne American University, Faculty of Business and Economics.

As a result, day by day, the environment has become a more important issue, and consumers have begun to question their habits and pay more attention to the environment (Peattie & Crane, 2005, 357). With all these developments and with the increasing tendency of consumers to choose environmentally sensitive products and services, the understanding of production and service of enterprises has also changed (McDougall, 1993, 69-70). While some business enterprises are making this voluntarily, some of them, because of the reasons such as competitive pressure, made it in order to be able to respond the changing desire of consumers and to survive in the business world and there are some evidences in various researches to suggest that consumers reactions about choosing or avoiding products based on their environmental impact became an important factor (Ottman, 1998, 20-31). As a result of these developments, the concepts such as "environmental (ecological or green) business", "green marketing", "green consumption", "green consumer" and "green product" have emerged. Polonsky (1994, 44-53) defines green marketing as "consisting of all activities designed to generate and facilitate any exchanges intended to satisfy human needs, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment". According to Shamdasani, Chon-Lin and Richmond (1993, 488-493), green product is the product that does not pollute the world or end natural resources and that can be recycled or stored. Green consumers are emerged as consumers who have more environmental concerns than their counterparts in purchasing and consumption. Additionally, the green consumers are interested in production, scarcity of consumed resources, and post-use issues of products (Zinkhan & Carlson, 1995, 1–6).

Some business enterprises that are aware of the sensitivity of the consumers to the environment see this as an opportunity and they have begun to use it as a means of competition. Then, they have tried to influence the green consumers, by with such terms as "environmentally friendly ", "friendly with nature", "ozone-friendly", "organic", "phosphate free", "recyclable", "refillable" etc. While some businesses are really respectful to the environment in their activities; some other ones use this situation as a weakness of consumers. Gan, Han, Lucie and Tzu Hui (2008, 10-11) argued that the consumer awareness and environmental consciousness are significantly higher in developed countries rather than developing countries. Therefore, in this study, environmental awareness, green products awareness and "green products purchasing decisions" of consumers were examined in the Turkish Republic of Northern Cyprus (TRNC), as a developing country.

1.1 Statement of Research Problem

Green marketing can be defined as an approach involving the development of non-environmentally harmful activities by balancing the interests of individuals, society, the environment and the enterprise in the stages of the creation, promotion, pricing, distribution and use of goods and services that will meet consumer needs and eliminating wastes to be generated after use. Therefore, there is a need for people and businesses to exhibit and sensitize their environmentally sensitive behaviors at every stage and area of life. But, at this point, we, as mankind, have to question our sincerity about sensitivity and respect to the environment. Do we have enough environmental awareness? Are we aware of green products and how much do we, as consumers, realize our environmental sensitivity in daily life? Those questions are the basis of the research problem and this research problem will be examined from the aspect of consumer purchasing decision about green marketing activities. Therefore, problem of this study highlights on identifications about the green marketing activities on consumer purchasing decision in the TRNC.

1.2 Significance of the Study

In literature, while there has been several studies on environmental awareness, green product awareness and green consumer purchasing decision, very few of them have been conducted in the TRNC. Therefore, there should be more studies on this issue and there is a need for more studies in different context and in different countries in order to add a better understanding the environmental awareness of consumers, consumer awareness of green products and the green product purchasing decisions.

1.3 Aim of the Research

The aim of this study is to investigate the relationships between consumers' environmental attitudes and consumer purchasing decision on green products in the TRNC.

1.4 Research Objectives

The following objectives were identified as relevant to the study.

O1: To investigate the awareness level of consumers about environmental issues.

O2: To investigate the awareness level of consumers about green products.

O3: To investigate the consumer's decision to purchase green products.

O4: To determine how much more the consumers can pay for green products compared to other products.

1.5 Research Questions

This study will focus on the following research questions.

Q1: Is there any relationship between "environmental awareness" and "green products awareness" of consumers?

Q2: Is there any relationship between "environmental awareness" and "green products purchasing decisions" of consumers?

Q3: Is there any relationship between "green products awareness" and "green products purchasing decisions" of consumers?

Q4: Are the consumers willing to pay more for green products compared to other products? If so, how much can they pay for more?

2. Literature Review

2.1 Environmental Awareness

As a part of nature, man makes some changes in the environment in order to live and produce. If these changes happen in negative, it will lead to degradation of ecological balances. It is closely related to the education that a person has harmed or protected the nature. All educational activities will increase the environmental awareness and prevent the degradation of the natural and cultural environment (Güney, 2003,1-20). The best way to protect the environment is possible only with the participation of all citizens. That is why, countries should enlighten the public about environment and ensure their active participation for these efforts (Akdur, 2005, 30-34).

With the environmental problems growing, environmental awareness of human beings have also increased. Because of these serious problems, people have begun to change their lifestyles and tried to minimize the harm given to the environment. By reflecting this on their consumption habits, they, during the purchase, have begun to prefer products of the business enterprises which give the least damage to the environment or make up for the damages that they give. Consequently, businesses also have begun to be sensitive to the environment. Therefore, what and how businesses produce have also become important as what and how consumers have consumed (Kuduz, 2011, 2-3).

2.2 Green Product

According to Ottman, Stafford and Hartman (2006, 24-36), green product is defined as a product that protects the natural environment by protecting energy and resources or by eliminating pollution, waste and toxic substances. Lu (2013) also defines it as an activity of designing goods and services by minimizing environmental impact during the production cycle. Moisander (2007, 404-409) ranked the characteristics of the "green products" as follows.

- Not to be dangerous to human or animal health,
- Not to damage the environment during production, usage or removing,
- Not to consume excessive energy and other resources,
- Not to cause unnecessary garbage with unnecessary packaging or short life span.
- Not to consist of harmful materials to the environment.

2.3 Green Consumer

The green consumer can be expressed as "rational decision makers who pay attention to the environmental impacts of purchasing and consumption activities, who behave according to their beliefs in this direction and who strive for these purposes". Such consumers are ready to buy green products, even at higher prices. In the studies which adopt green marketing concept, it is advocated that the consumer demand will be in the direction of green products day by day, it can never be stopped and it will be a trend rather than a fad (Aslan & Çınar, 2015, 169-184). Green consumers are ordinary people who believe that business activities have a vital role in the fight to protect the environment. They also believe that their individual consumption activities will make a difference in the environmental aspects. Green consumers also create demand and job opportunities for goods and services that combine production and consumption with environmental and social costs (Straughan & Roberts, 1999, 558-575).

2.4 Green Marketing

The production style and consumption habits that have been applied for the last 200 years have upset the ecological balance of the world. The negative impact of human activities throughout the years brought a new concept of marketing-green marketing. The green marketing concept has been recently

immensely studied due to its impact on day-to-day purchasing decisions. This concept can also be perceived as environmental marketing or ecological marketing (Henion & Kinnear, 1976, 1-168). With the emergence of a customer model that researches, inquires, toughs and does not tolerate businesses harming their natural environment, business culture has become widespread with a sense of social responsibility that adopts post-modern systems in businesses. In this challenging competitive environment, businesses no longer have to meet only the needs and desires of consumers to survive. Enterprises with social responsibility and social awareness gain a very important image in the eyes of consumers (Kuduz, 2011, 157-158). Additionally, consumers realized that only institutions are not responsible for environmental protection and they will contribute to the protection of the environment by their purchasing decisions as consumers. Therefore, by purchasing the product that gives the least damage to the environment, it will ensure that these kinds of products will be placed in the market (Fraj & Martinez, 2006, 26-33).

2.5 Studies in Literature

Until now, many researches in the field of green marketing aimed to reveal the general consumer profile of the green consumer and to determine the demographic and psychological characteristics of these consumers. Most of the past studies have focused on determining the relationship between environmental attitudes and consumption habits and demographic variables. The main reason for this is that market segmentation is perceived as an effective and efficient way, according to demographic variables, as long as significant results are obtained in terms of marketers (Straughan & Roberts, 1999, 558-575). For example, in researches conducted in the United States, it is determined that the consumers who prefer green products are mostly middle-aged and over middle-aged consumers. In addition, the rate of green products' preference by female is higher than that of male consumers (Ekinci, 2007, 46).

In studies, socio-demographic characteristics such as gender, age and income are frequently used. However, consumer profile surveys based on socio-demographic characteristics didn't have always produced statistically significant and meaningful findings, and also even it has been found that those researches sometimes has contradiction between each other (Peattie, 1999, 131-148). Nonetheless, recent research and scientific findings on consumers who prefer green products suggest that the consumer segment that best responds to environmental marketing activities is the well-educated, 35-44 year-old women (Tirkeş, 2008, 132-134).

The relationship between income-environmental sensitivity is generally considered to be positive. The most common justification for supporting this idea is that high-income individuals may be able to counter the marginal increases in cost that they must bear to support environmentalism and purchase environmentally-friendly products. It is also stated that researches which examine the environmental sensitivity-education relationship according to other demographic variables have yielded more consistent results (Straughan & Roberts, 1999, 558-575). Although there are several studies that have produced different results, it is generally supported that there is a positive relationship between education and environmental sensitivity.

Another study by Alkibay (2001, 76-93) stated that female consumers are more supportive of green products than male consumers. It has also been found that male consumers are able to pay more for green products than women consumers and that there is a right ratio between income and paying more for green product. Furthermore, many studies show that consumers' awareness and knowledge impose significant influence on different types of effective consumers' behaviors (Vasanthi & Kavitha, 2016, 5-12). Whereupon environmentalism have become an important criterion for marketers, as consumers are influential in procurement decisions. 60% to 90% of consumers in North America carry environmental concerns at the time of purchase. In a few retail product categories, the market share of the environmentally sensitive product (green product) is between 20% and 30% (Follows & Jobber, 2000, 723-746).

In another study, it is determined that there is a relationship between consumer environmental awareness and consumer purchasing behavior, and also consumer who has higher level of environmental awareness, have also higher level of environmentally friendly purchasing behavior (Çabuk & Nakıboğlu, 2003, 39-54). As a result, there are many studies from different aspects in the literature about environmental awareness, awareness of green products and green consumer purchasing decisions.

3. Methodology

3.1 Research Design and Instrument

In this study, in order to achieve the research objectives and to maximize the validity of results, quantitative research methods have been utilised. A questionnaire was developed from a review of relevant literature on the area of research by Kuduz (2011, 369-370). Some of the questions have been rearranged

and improved by the researchers in the light of the related research. Most of the questions in the questionnaire developed by Kuduz were used as it is; but some of them were reshaped because of the characteristics of population and the purpose, time and features of the research. The questionnaire consists of 4 sections. Section "A" covers questions based on environmental awareness of consumers. Section "B" consists of questions on consumer awareness of green (eco-friendly) products. Section "C" covers questions based on green purchasing decisions of consumers and the last section which is the Section "D" covers the demographic or personal information of the respondent. It was asked 41 questions to the respondents. The questions except the demographic characteristics section of the survey, a 5-point Likert scale was used to measure consumers' attitudes toward participation in the statement. All questions except the one question in the questionnaire are close-ended questions. Only the last question in Section "C", "how much do you pay more for an eco-friendly product compared to other products?" is an open-ended question. In order to test the questionnaire for pre-testing, 30 respondents were randomly selected from the experts and consumers that were not be the part of the sample population so that necessary revisions were made before applying the survey.

In this context, the following changes were made in the questionnaire developed by Kuduz due to the reasons stated above and also because of feedbacks of pre-testing. First, the section on demographic characteristics was organized as the last section of the survey. Secondly, the fourth question in section "A" that covers questions based on environmental awareness of consumers, was changed by being emphasized the statement "TRNC". Moreover, in the same section, the fifth question, "I am careful when using natural resources", was changed as "When I go to outdoor areas such as the picnic area, the seaside and the natural and public areas, I bring back my own garbage to the appropriate places". Additionally, the fifth question in section "B" that consists of questions on consumer awareness of green (eco-friendly) products was divided into two parts and the question style was changed. In section "C" that covers questions based on green purchasing decisions of consumers, the locations of questions 11 and 14 were changed. Finally, the questions, "Educational Status", "Monthly Average Household Income" and "Profession" in the Section "D" which covers the demographic or personal information of the respondent were organized according to time of survey and the characteristics of population. By these changes, the questionnaire became more available for the target group.

3.2 Sampling and Survey Method

The entire population of this research, which was carried out in order to determine the environmental awareness and the tendency to purchase environmentally sensitive products, includes the individuals residing in the Turkish Republic of Northern Cyprus (TRNC). According to official census results of 2011, the population of the TRNC is 286,257. Later, the minimum number of questionnaires that must be applied, was found to be as 323, (for p=0,3; q=0,7; d=0,05; Z_α : 1.96, while α=0.05 and confidence interval is 95%), by help of the following formula which is used for preparing Table 1, by Yazıcıoğlu and Erdoğan (2004, 70-84). In this study, the non-probability sampling technique was used. Hence, the research was based on the convenient and purposive non-probability sampling. This helped achieving the purpose of the study.

In other words, this study adopted the convenient sampling, because questionnaires were applied to the respondents who were ready and willing to answer. Moreover, the target population for this study were the consumers which were doing shopping in supermarkets, buying white-goods from stores, getting service from café, restaurants, hairdresser, barber and etc. in the TRNC. The survey was conducted between 15 November-20 December 2017 by 8 pollsters. The completion of a survey lasted an average of 5 minutes.

$$n=\frac{P.Q.Z_\alpha^2}{d^2}$$

Here, (p = 0,3) ; (q = 0,7) ; (d = 0,05) ; (Z_α : 1.96, while α= 0.05 and confidence interval is 95%).

Table 1: Sample Sizes for α= 0.05 [25]

Population size	±0.03 sampling error (d)			**±0.05 sampling error (d)**			±0.10 sampling error (d)		
	p=0.5 q=0.5	p=0.8 q= 0.2	p=0.3 q=0.7	p=0.5 q=0.5	p=0.8 q= 0.2	**p=0.3 q=0.7**	p=0.5 q=0.5	p=0.8 q= 0.2	p=0.3 q=0.7
100	92	87	90	80	71	77	49	38	45
500	341	289	321	217	165	196	81	55	70
750	441	358	409	254	185	226	85	57	73
1000	516	406	473	278	198	244	88	58	75
2500	748	537	660	333	224	286	93	60	78
5000	880	601	760	357	234	303	94	61	79

10.000	964	639	823	370	240	313	95	61	80
25.000	1023	665	865	378	244	319	96	61	80
50.000	1045	674	881	381	245	321	96	61	81
100.000	1056	678	888	383	245	322	96	61	81
1.000.000	1066	682	896	384	246	**323**	96	61	81
100 million	1067	683	896	384	245	323	96	61	81

4. Conceptual Framework

4.1 Research Model

In this study, a research model was developed to investigate whether there is a statistically significant relationship between environmental awareness, green products awareness and purchasing decisions of green products by the consumers living in the TRNC. Moreover, this research model was formed according to some studies in the literature, such as Kuduz (2011), Çabuk & Nakıboğlu (2003) and Fonseca (2015, 34-35). This research model is shown in Fig. 1.

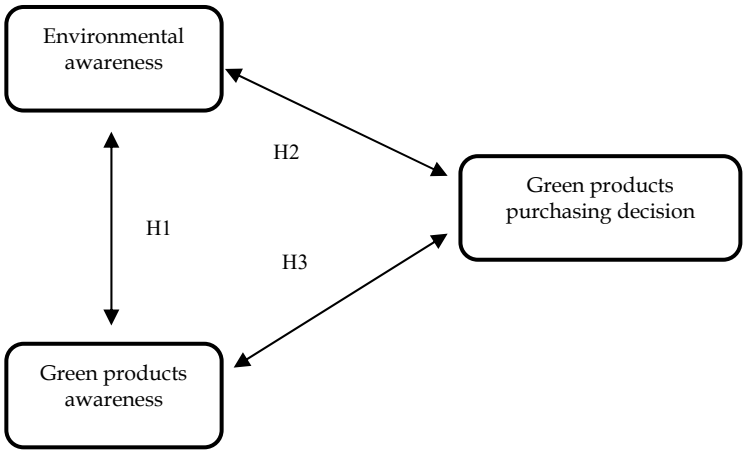

Figure 1: Research Model

4.2 Research Hypotheses

H1 : There is a significant relationship between the levels of "environmental awareness" and "green products awareness" of consumers.

H2 : There is a significant relationship between the levels of "environmental awareness" and "green products purchasing decisions" of consumers.

H3 : There is a significant relationship between the levels of "green products awareness" and "green products purchasing decisions" of consumers.

5. Findings and Results

As a result of the survey which is conducted within the scope of this research, a total of 332 usable questionnaires were obtained after the elimination of faulty questionnaires. The data obtained from these questionnaires were analyzed by the help of IBM SPSS Statistics 24.0 Program. In the analysis of the data, consumers were clustered according to the level of environmental awareness, awareness of green products and green products purchasing decision by using clustering analysis. Subsequently, the relationships between the levels of environmental awareness, awareness of green products and green products purchasing decision were questioned by Chi-square analysis.

5.1 Demographic Characteristics

Information about the demographic characteristics of consumers participating in the survey is shown in the tables below.

Table 2: Distribution of Consumers by "Sex"

	Count	**Percent**
Female	155	46,7%
Male	177	53,3%
Total	**332**	**100,0%**

As seen in Table 2, the percent of female is 46,7% and the percent of male is 53,3%, and the distribution of the number of male and female in the sample is close to each other.

According to the marital status in Table 3, while 4.5% of the participants are divorced / widowed / separated, the number of married and single consumers are very close to each other.

Table 3: Distribution of Consumers by "Marital Status"

	Count	Percent
Single	161	48,5%
Married	156	47,0%
Divorced / Widowed / Separated	15	4,5%
Total	**332**	**100,0%**

Table 4: Distribution of Consumers by "Age"

	Count	Percent
18 and under	27	8,1%
19-29	109	32,8%
30-39	86	25,9%
40-49	52	15,7%
50-59	45	13,6%
60 and over	13	3,9%
Total	**332**	**100,0%**

As seen in Table 4, most of the consumers join in survey are composed of relatively young people. Among the consumers participating in the survey, the minimum participations are "60 and over" segment by 3.9% and "18 and under" segment by 8.1%.

Table 5: Distribution of Consumers by "Educational Status"

	Count	Percent
Primary School	9	2,7%
Secondary School	28	8,4%
High School	112	33,7%
Associate Degree	17	5,1%
License	135	40,7%
Postgraduate	31	9,3%
Total	**332**	**100,0%**

The distribution of consumers participating in the survey according to "Education Level" is shown in Table 5. The most part of the respondents who answered the questionnaire is "License" part by 40,7%. The second part by 33,7% is "High School" ones. Additionally, the least participation in survey comes true with the "Primary School" segment by 2,7%.

Table 6: Distribution of Consumers by "Monthly Average Household Income"

	Count	Percent
Less than 1.000 TL	14	4,2%
1.000- 2.000 TL	19	5,7%
2.000-3.000 TL	46	13,9%
3.000-4.000 TL	68	20,5%
4.000-5.000 TL	108	32,5%
More than 5.000 TL	77	23,2%
Total	**332**	**100,0%**

Furthermore, the distribution of consumers participating in the survey according to "Monthly Average Household Income" is shown in Table 6. According to this table, while the most participation in the survey is "4.000-5.000 TL" section by 32,5%, the least one is "Less than 1.000 TL" part by 4,2%.

Finally, the distribution of consumers by "Profession" is shown in Table 7. As seen in this table, the percent of "Private Sector Employee" is 19,9% and it is the highest value for this demographic characteristic. "Students" by 16,3% and "Public Employees" by 14,8% follow "Private Sector Employees". Others are as shown in the table.

Table 7: Distribution of Consumers by "Profession"

	Count	Percent
Professional Job (doctor, lawyer, engineer etc.)	22	6,6%
Business Owner / Partner	12	3,6%
Executive (Private Sector)	9	2,7%
Executive (Public Sector)	7	2,1%
Public Employee	49	14,8%
Private Sector Employee	66	19,9%
Artisan	24	7,2%
Farmer	7	2,1%
Laborer	24	7,2%
Retired	18	5,4%
Artist/Athlete	11	3,3%
Housewife	25	7,5%
Unemployed	2	0,6%
Student	54	16,3%
Others	2	0,6%
Total	**332**	**100,0%**

5.2 Results of Reliability Analysis

In order to test the reliability of the scale, the alpha (α) coefficient (Cronbach's Alpha) which is one of the coefficients frequently used in reliability analyzes and that indicates the internal consistency of the measurement by calculating the average correlations within the test was used. The alpha coefficient is between 0 and 1 as it is shown below and there are four segments for reliability. As a result of the reliability analysis, it is expected that the value of the alpha coefficient is higher than 0.60 so that it can be said that the scale is reliable (Hair et al., 1998, 391).

- $0.00 \leq \alpha < 0.40$ the scale is "not reliable"
- $0.40 \leq \alpha < 0.60$ the scale has "low reliability"
- $0.60 \leq \alpha < 0.80$ the scale has "high reliability"
- $0.80 \leq \alpha < 1.00$ the scale has "very high reliability"

The reliability test results and the calculated alpha coefficients of the research scale are given below in Table 8. As can be seen from Table 8, alpha coefficient for environmental awareness is 0,774, for green products awareness it is 0,653 and for green products purchasing decision it is 0,791. The alpha coefficient for reliability of the scale (as a whole) is 0,867. As a result, it can be argued that internal consistency according to the alpha coefficients are provided because reliable values are determined at high and very high levels.

Table 8: Results of Reliability Analysis

	Cronbach's Alpha	Reliability Level
Environmental awareness	0,774	high reliability
Green products awareness	0,653	high reliability
Green products purchasing decision	0,791	high reliability
Scale (as a whole)	**0,867**	**very high reliability**

5.3 Results of Clustering Analysis

Clustering analysis is a "multi-variable statistical analysis" aimed at collecting in groups or clusters according to the similarities of individuals or objects. Clustering analysis focuses on the clusters or groups that will arise when the values of the individuals on all variables measured in the survey are included in the calculation. According to the clustering analysis, if two individuals in a subject are similar in quality to each other than in a pair of other individuals, these two individuals are similar (Kurtuluş, 1998, 495). Clustering analysis is an effective method that researchers can use in developing or identifying hypotheses (Hair et al., 1998, 424).

In this study, it is used the distance measure as the similarity measure and also it is used the K-Means clustering approach, as the clustering method, which is based on assigning the individuals with the closest values to the same cluster according to the mean values of all data. Subsequently, in order to determine the number of clusters, firstly, different sets of clusters were created, and then, the process of examining the cluster centers and average values are followed, and finally the number of clusters that can be controlled for each variable group and which are suitable for the research aim was determined. In addition, each cluster was named by taking into account the average values of the individuals that make up the cluster.

According to the responses given to the 14 statements prepared to determine the environmental awareness levels of the consumers participating in the survey, the clustering analysis results of consumers' environmental awareness level are shown in Table 9. While 67,5% of individuals participating in the survey are at very high level environmental awareness, 7,8% of them are at high level, 13,0% of them are at low level and 11,7% of the individuals are observed at very low level environmental awareness.

Table 9: Clusters for the Levels of "Environmental Awareness"

Clusters	Number of members	Percent
Very high level awareness	224	67,5%
High level awareness	26	7,8%
Low level awareness	43	13,0%
Very low level awareness	39	11,7%
Total	**332**	**100,0%**

According to the responses given to the 6 statements prepared to determine the green products awareness levels of the consumers participating in the survey, the clustering analysis results of consumers' green products awareness level are shown in Table 10. As seen in this table, while 69,9% of individuals participating in the survey are at high level green products awareness, 30,1% of them are at low level green products awareness.

Table 10: Clusters for the Levels of "Green Products Awareness"

Clusters	Number of members	Percent
High level awareness	232	69,9%
Low level awareness	100	30,1%
Total	**332**	**100,0%**

According to the responses given to the 14 statements prepared to determine the green products purchasing decision levels of the consumers participating in the survey, the clustering analysis results of consumers' green products purchasing decision level are shown in Table 11. As a result of this clustering analysis, it is observed that 47,0% of individuals participating in the survey are at very high level about green products purchasing decision, 27,1% of them are at high level, 14,8% of them are at low level and finally 11,1% of the individuals are at very low level about green products purchasing decision.

Table 11: Clusters for the Levels of "Green Products Purchasing Decision"

Clusters	Number of members	Percent
Very high level purchasing	105	47,0%
High level purchasing	88	27,1%

Low level purchasing	109	14,8%
Very low level purchasing	30	11,1%
Total	**332**	**100,0%**

5.4 Results of Chi-Square Analysis and Hypothesis Testing

Chi-square analysis is a type of statistical analysis which is most commonly used in marketing researches. One of the most important reasons for this widespread use is those it is a very wide area of use, it is very easy to apply and it can be applied to measured data on various scales. The aims of Chi-square analysis are determining the degree of a distribution of sample values conforms to a certain theoretical distribution and determine the degree of interest between these qualifications by evaluating the data classified on the basis of two or more qualifications. (Kurtuluş, 1998, 386-387).

In this context, each of the hypotheses of this research shows the relationship between the two variables as mentioned in the research model. Therefore, in this study, the Chi-square analysis was used to determine the degree of relationship between the variables in the research hypotheses. Consequently, the results of research hypotheses and hypothesis tests are as follows.

Hypothesis testing **(H1)** *between the levels of "environmental awareness" and "green products awareness" of consumers.*

H0 : There is no significant relationship between the levels of "environmental awareness" and "green products awareness" of consumers.

H1 : There is a significant relationship between the levels of "environmental awareness" and "green products awareness" of consumers.

The contingency table and the calculated Chi-square value are shown in Table 12 and Table 13 in order to test the hypothesis that promotes the existence of the relationship between the levels of environmental awareness of consumers and the levels of green products awareness. According to Chi-Square Analysis, 0 cells (0,0%) have expected count less than 5 and the minimum expected count is 7,83. Consequently, while the H_0 hypothesis is rejected, H_1 hypothesis can be accepted and it can be concluded that there is a significant relationship between the levels of "environmental awareness" and "green products awareness" of consumers.

Table 12: Relationship between the levels of "Environmental Awareness" and "Green Products Awareness" of Consumers

			Green Products Awareness		Total
			1	2	
			High level awareness	Low level awareness	
Environmental Awareness	**1**	Very high level awareness	185	39	224
		Expected Count	156,5	67,5	224,0
		Percent	82,6%	17,4%	100,0%
	2	High level awareness	2	24	26
		Expected Count	18,2	7,8	26,0
		Percent	7,7%	92,3%	100,0%
	3	Low level awareness	26	17	43
		Expected Count	30,0	13,0	43,0
		Percent	60,5%	39,5%	100,0%
	4	Very low level awareness	19	20	39
		Expected Count	27,3	11,7	39,0
		Percent	48,7%	51,3%	100,0%
Total		Total Count	232	100	332
		Expected Count	232,0	100,0	332,0
		Percent	69,9%	30,1%	100,0%

Table 13: Results of Chi-Square Tests for the First Research Hypothesis (H1)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	75,071[a]	3	,000

Likelihood Ratio	73,307	3	,000
Linear-by-Linear Association	29,112	1	,000
N of Valid Cases	332		
0 cells (0,0%) have expected count less than 5. The minimum expected count is 7,83.			

Hypothesis testing **(H2)** *between the levels of "environmental awareness" and "green products purchasing decisions" of consumers.*

H0 : There is no significant relationship between the levels of "environmental awareness" and "green products purchasing decisions" of consumers.

H1 : There is a significant relationship between the levels of "environmental awareness" and "green products purchasing decisions" of consumers.

The contingency table and the calculated Chi-square value are shown in Table 14 and Table 15 in order to test the hypothesis that promotes the existence of the relationship between the levels of "environmental awareness" and "green products purchasing decisions" of consumers. According to Chi-Square Analysis, because 3 cells (18,8%) have expected count less than 5 and the minimum expected count is 2,35, the H0 hypothesis is rejected and H1 hypothesis can be accepted. As a result, it can be concluded that there is a significant relationship between "environmental awareness" and "green products purchasing decisions" of consumers.

Table 14: Relationship between the levels of "Environmental Awareness" and "Green Products Purchasing Decisions" of Consumers

			Green Products Purchasing Decisions				Total
			1	2	3	4	
			Very high level awareness	High level awareness	Low level awareness	Very low level awareness	
Environmental Awareness	1	Very high level awareness	87	31	99	7	224
		Expected Count	70,8	59,4	73,5	20,2	224,0
		Percent	38,8%	13,8%	44,2%	3,1%	100,0%
	2	High level awareness	0	19	1	6	26
		Expected Count	8,2	6,9	8,5	2,3	26,0
		Percent	0,0%	73,1%	3,8%	23,1%	100,0%
	3	Low level awareness	15	16	4	8	43
		Expected Count	13,6	11,4	14,1	3,9	43,0
		Percent	34,9%	37,2%	9,3%	18,6%	100,0%
	4	Very low level awareness	3	22	5	9	39
		Expected Count	12,3	10,3	12,8	3,5	39,0
		Percent	7,7%	56,4%	12,8%	23,1%	100,0%
Total		Total Count	105	88	109	30	332
		Expected Count	105,0	88,0	109,0	30,0	332,0
		Percent	31,6%	26,5%	32,8%	9,0%	100,0%

Table 15: Results of Chi-Square Tests for the Second Research Hypothesis (H2)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	123,639[a]	9	,000
Likelihood Ratio	132,431	9	,000
Linear-by-Linear Association	3,973	1	,046
N of Valid Cases	332		
3 cells (18,8%) have expected count less than 5. The minimum expected count is 2,35.			

Hypothesis testing **(H3)** *between the levels of "green products awareness" and "green products purchasing decisions" of consumers.*

H0 : There is no significant relationship between the levels of "green products awareness" and "green products purchasing decisions" of consumers.

H1 : There is a significant relationship between the levels of "green products awareness" and "green products purchasing decisions" of consumers.

The contingency table and the calculated Chi-square value are shown in Table 16 and Table 17 in order to test the hypothesis that promotes the existence of the relationship between the levels of "green products awareness" and "green products purchasing decisions" of consumers. According to Chi-Square Analysis, 0 cells (0,0%) have expected count less than 5 and the minimum expected count is 9,04. Consequently, while the H_0 hypothesis is rejected, H_1 hypothesis can be accepted and it can be concluded that there is a significant relationship between the levels of "green products awareness" and "green products purchasing decisions" of consumers.

Table 16: Relationship between the levels of "Green Products Awareness" and "Green Products Purchasing Decisions" of Consumers

			Green Products Purchasing Decisions				Total
			1	2	3	4	
			Very high level awareness	High level awareness	Low level awareness	Very low level awareness	
Green Products Awareness	1	High level awareness	91	35	90	16	232
		Expected Count	73,4	61,5	76,2	21,0	232,0
		Percent	39,2%	15,1%	38,8%	6,9%	100,0%
	2	Low level awareness	14	53	19	14	100
		Expected Count	31,6	26,5	32,8	9,0	100,0
		Percent	14,0%	53,0%	19,0%	14,0%	100,0%
Total		Total Count	105	88	109	30	332
		Expected Count	105,0	88,0	109,0	30,0	332,0
		Percent	31,6%	26,5%	32,8%	9,0%	100,0%

Table 17: Results of Chi-Square Tests for the Third Research Hypothesis (H3)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	64,195[a]	3	,000
Likelihood Ratio	63,227	3	,000
Linear-by-Linear Association	2,773	1	,096
N of Valid Cases	332		
0 cells (0,0%) have expected count less than 5. The minimum expected count is 9,04.			

Conclusion

According to the findings of the analysis and researches mentioned above, the final conclusions, comparisons with studies in literature and some suggestions are presented below.

- As a result of investigation, it is found that 67,5% of individuals participating in the survey are at very high level environmental awareness, 7,8% of them are at high level, 13,0% of them are at low level and 11,7% of the individuals are observed at very low level environmental awareness.
- While 69,9% of individuals participating in the survey are at high level green products awareness, 30,1% of them are at low level green products awareness.
- It is also observed that 47,0% of individuals participating in the survey are at very high level according to green products purchasing decision, 27,1% of them are at high level, 14,8% of them are at low level and finally 11,1% of the individuals are at very low level according to green products purchasing decision.
- According to the hypothesis test results, it has been found that there is a significant relationship between the levels of "environmental awareness" and "green products awareness" of consumers. This conclusion is also come out by the findings that 82,6% of consumers who have very high level environmental awareness are also at high level green products awareness.
- In addition to this, it has been found that there is a significant relationship between the levels of "environmental awareness" and "green products purchasing decisions" of consumers. Additionally, it was

seen that 55% of consumers who have high levels environmental awareness are also at high level according to green products purchasing decision. But, 45% of consumers who have high levels environmental awareness are at low level about green products purchasing decisions. That is why, it would not be wrong to state that, although there is a significant relationship between two variables, it is not strong enough.

- Another finding has also been determined that there is a significant relationship between the levels of "green products awareness" and "green products purchasing decisions" of consumers. While 54,3% of consumers who have high level green products awareness are also at very high and high levels according to green products purchasing decision, 45,7% of them are at low levels. For this reason, although there is a significant relationship between two variables, it can be argued that it is not very strong.
- In survey form, it has been asked to the respondents Question-14 in Section "C" which is about understanding willingness of consumers to pay more for eco-friendly products than they pay for other products. The findings are shown in Table 18. As a result, it has been found that male consumers are able to pay more for green products than female consumers.

Table 18: Results of Question-14 in Section "C" of Survey Form by Sex

I am willing to pay more for eco-friendly products than I pay for other products.		
Sex	N	Mean
Female	155	2,9742
Male	177	3,2090
Total	332	3,0994

- As a supporting and explanatory question, it has also been asked to the respondents as the last question in Section "C", which tries to determine how much more the consumers can pay for green products compared to other products, as it is stated in Table 19 and Table 20. In this research, the average of respondents' answers to the question was calculated as 9,998% with a standard deviation of 8,91381 and while female consumers accept paying more 8,91%, male consumers can pay more 10,93%. In the context of these findings, it can be concluded that consumers are willing to pay more approximately an average of 10% for green products compared to other products and male consumers are able to pay more for green products than female consumers.

Table 19: Results of Question-15 in Section "C" of Survey Form

How much do you pay more for an eco-friendly product compared to other products? (Please write a number that is appropriate for you) % …….	
Valid	332
Missing	0
Mean	9,9880
Standard Deviation	8,91381

Table 20: Results of Question-15 in Section "C" of Survey Form by Sex

How much do you pay more for an eco-friendly product compared to other products? (Please write a number that is appropriate for you) % …….		
Sex	Count	Mean
Female	155	8,9097
Male	177	10,9322
Total	332	9,9880

As it is stated before, there are many studies from different aspects in the literature about environmental awareness, awareness of green products and green consumer purchasing decisions. This research study have tried to make some contributions to the literature. As a result, the findings from this research are similar to those found in some studies in the literature. For example, the study by Alkibay (2001) has been found that male consumers are able to pay more for green products than women consumers. Additionally, in the research by Kuduz (2011), it was identified that consumers are willing to

pay more for environmentally friendly products than for the alternative products and it was also found that this ratio was mostly in the 1-10% range. Furthermore, in another study by Çabuk & Nakıboğlu (2003), it is determined that there is a relationship between consumer environmental awareness and consumer purchasing behavior, and also consumer who has higher level of environmental awareness, have also higher level of environmental purchasing behavior. Therefore, it can be expressed that the findings of this study are consistent with some other research findings.

For the future studies in this subject, firstly, it is thought that various applications should be conducted in larger sample sizes especially in the TRNC for better understanding green consumer behaviors. Besides, it would be appropriate to conduct researches not only about the relationships between the different variables, but also by focusing on the causes and effects between variables and demographic characteristics. In the context of the findings in this study, it is also suggested that businesses should pay more attention to advertising green products and pay more attention to green labels because the consumers are paying attention to green labels at the time of purchase and are willing to pay more for green products. It is also hoped that these findings may shed light on the businesses regarding the pricing of green products.

REFERENCES

Akdur, Recep (2005). Avrupa Birliği ve Türkiye'de Çevre Koruma Politikaları Türkiye'nin Avrupa Birliğine Uyumu. *ATAUM Araştırma dizisi*, S.23, s. 30-34.

Alkibay, Sanem (2001). Yeşil Pazarlama Faaliyetlerine Tüketicinin İlgisi Üzerine Bir Araştırma. *Gazi Üniversitesi Ticaret ve Turizm Eğitim Fakültesi Dergisi*, S. 4, s. 76–93.

Aslan, Filiz & Çınar, Recai (2015). Yeşil Pazarlama Faaliyetleri Çerçevesinde Kafkas Üniversitesi Öğrencilerinin Çevreye Duyarli Ürünleri Kullanma Eğilimlerini Belirlemeye Yönelik Bir Araştirma. *Kafkas Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi Cilt 6*, S.9, s. 169-184.

Çabuk, Serap & Nakıboğlu, M.A. Burak (2003). Çevreci Pazarlama ve Tüketicilerin Çevreci Tutumlarının Satın Alma Davranışlarına Etkileri ile İlgili Bir Uygulama. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Cilt:12, S. 12, s. 39–54.

Ekinci, Barış Tolga (2007). *Yeşil Pazarlama Uygulamalarinda Yaşanan Sorunlar ve Örnek bir Uygulama*. Yayımlanmamış Yüksek Lisans Tezi, Marmara Üniversitesi, İstanbul.

Gan, Christopher; Han, Yen Wee; Lucie, Ozanne & TzuHui, Kao (2008). Consumers' purchasing behavior towards green products in New Zealand. *Innovative Marketing*, 4(1), p. 1-11.

Güney, Emrullah (2003). *Çevre ve İnsan*: *Toplum Doğa İlişkileri*. İstanbul: Çantay Kitabevi.

Follows, Scott B. & Jobber, David (2000). Environmentally Responsible Purchase Behaviour: A Test of a Consumer Model. *European Journal of Marketing*, Vol.34, No 5/6, p. 723-746.

Fonseca, Joana Cristina Gamboia (2015). *The impact of green marketing practices on consumer buying decision*. Master Dissertation, University Institute of Lisbon, Lisbon.

Fraj, Elena & Martinez, Eva (2006). Ecological Consumer Behaviour: An Emprical Analysis. *International Journal of Consumer Studies*, Vol: 31(1), p. 26-33.

Hair, Joseph F.; Anderson, Rolph E.; Tatham, Ronald L. & Black, William.C. (1998). *Multivariate Data Analysis, Fifth Edition*. NJ: Prentice-Hall Inc.

Henion, Karl E. & Kinnear, Thomas C. (1976). *Ecological Marketing*. Columbus, Ohio: American Marketing Association.

Kuduz, Necla (2011). *Yeşil Pazarlama Faaliyetlerinin Tüketicilerin Satın Alma Davranışlarına Etkilerinin Belirlenmesine Yönelik Bir Araştırma*. Yayımlanmamış Yüksek Lisans Tezi, Selçuk Üniversitesi, Konya.

Kurtuluş, Kemal (1998). *Pazarlama Araştırmaları, 6. Basım*. İstanbul: Avcıol Basım Yayın.

Lu, Carol Y. (2013). The Effects of Hedonic and Utilitarian Values on Consumer Behaviors Toward Green Hotel. *Advances in Hospitality and Tourism Marketing and Management Conference*, ISBN: 978-960-287-139-3.

McDougall, G.H.G. (1993). The Green Movement in Canada: Implications for Marketing Strategy. *Journal of International Consumer Marketing*, p. 69-87.

Moisander, Johanna (2007). Motivational Complexity of Green Consumerism. *International Journal of Consumer Studies*, Vol. 31, p. 404-409.

Ottman, Jacquelyn (1998). *Green marketing: opportunity for innovation*. Pitman, London: New York Press.

Ottman, Jacquelyn; Stafford, Edwin R. & Hartman, Cathy L. (2006). Avoiding Green Marketing Myopia. *Environment*, Vol.48, N.5, p. 24-36.

Peattie, Ken (1999). Trappings versus substance in the greening of marketing planning. *Journal of Strategic Management*, Vol. 7:2, p. 131-148.

Peattie, Ken & Crane, Andrew (2005). Green marketing: legend, myth, farce or prophesy? *Qualitative Market Research: An International Journal*, Vol. 8 Issue: 4, p.357-370.

Polonsky, Michael Jay (1994). Green Marketing Regulations in the US and Australia: The Australian Checklist. *Greener Management International*, Vol: 5, p. 44-53.

Shamdasani, Prem; Chon-Lin, Gloria Ong & Richmond, Daleen (1993). Exploring Green Consumers in an Oriental Culture: Role of Personal and Marketing Mix Factors, in NA. *Advances in Consumer Research Volume 20, eds. Leigh McAlister and Michael L. Rothschild, Provo, UT: Association for Consumer Research*, p. 488-493.

Straughan, Robert D. & Roberts, James A. (1999). Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *Journal of Consumer Marketing*, Vol. 16 Issue: 6, p. 558-575.

Tirkeş, Çiğdem (2008). *Yeşil Pazarlama: Türkiye'de Organik Gıda Ürünlerinin Kullanımını Arttırmaya Yönelik Stratejiler*. Doktora Tezi, Marmara Üniversitesi, İstanbul.

Vasanthi, T. & Kavitha, N. (2016). Consumer awareness and purchasing behaviour of green products - an analytical study. *Intercontinental journal of marketing research review*, 4(2), p. 5-12.

Yazıcıoğlu, Yahşi & Erdoğan, Samiye (2004). *SPSS Uygulamalı Bilimsel Araştirma Yöntemleri*. Ankara: Detay Yayıncılık.

Zinkhan, George M. & Carlson, Les (1995). Green Advertising and the Reluctant Consumer. *Journal of Advertising*, Vol: 24, No: 2, p. 1–6.