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**VISUALIZING THE FACTORS AFFECTING
ENVIRONMENTALLY CONSCIOUS BEHAVIOR**

Yüksek Lisans Tezi

NEŞENUR ALTINİĞNE

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Danışman: Prof. Dr. FATMA ZEYNEP BİLGİN

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Marmara Üniversitesi
Sosyal Bilimler Enstitüsü Müdürlüğü

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ABSTRACT

VISUALIZING THE FACTORS AFFECTING
ENVIRONMENTALLY COINSCIOUS BEHAVIOR

The main aim of the study is to determine the factors affecting environmentally conscious behavior whose importance is increasing day by day. Several factors (personality factors, attitudinal factors, intention, and behavior) are evaluated from different perspectives. University students who are the decision makers of today and future are the sample of the study that resulted with significant findings.

ÖZET

ÇEVRESEL BİLİNCİ ETKİLEYEN FAKTÖRLERİN İNCELENMESİ

Bu çalışmanın temel amacı globalleşen dünyada her geçen gün önemi artan çevresel bilince etki eden faktörlerin belirlenmesini sağlamaktır. Kişisel nedenler, geniş bir perspektif dahilinde tutum, niyet ve davranışa ilişkin bakış açılarını yansıtma özelliği bakımından konuyu geniş bir açıdan ele almıştır. Geleceğe ve günümüze ilişkin karar municiler olarak üniversite öğrencileri kapsamında gerçekleştirilen alan çalışması sonucunda önemli bulgular edinilmiştir.

ACKNOWLEDGEMENTS

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1. INTRODUCTION

The environment has been a topic of global interest and the perspective towards environmental issues has changed considerably in recent decades. It might be because environmental problems, such as pollution, loss of biodiversity, global warming, ozone depletion and tropical deforestation became global and they affect whole world in some way without boundaries. Even though environmental problems have long been known, the very first attempt to draw attention towards the environmental problems was Al Gore's "An Inconvenient Truth", documentary about global warming, rewarded with two Oscars and other 23 prizes including Humanitas Prize in 2007 (Jackman,2012). As an environmental activist Al Gore also was rewarded with 2007 Nobel Peace Prize along with the Intergovernmental Panel on Climate Change "for the efforts to build up and disseminate greater knowledge about man-made climate change and to lay the foundations for the measures that are needed to counteract such change" (Nobel Press Release, 2007).

In addition to global warming, water and air pollution, ozone depletion, extinction of species, also agriculture has an effect on environment. The year 2010 was presented as the International Year of Biodiversity that allows a broad range of specific issues to achieve prominence at both public and policy level. Because the topic (biodiversity) is related to the food consumption and production, the presentation of 2010 as the year of biodiversity resulted with discussions on the agriculture's effect on the environment.

Also, the EU's strategy for Europe 2020, as a response to the economic crises contains important environmental components and a central concern for sustainability. In this strategy it is planned to build a strategy for a resource-efficient Europe towards sustainable growth, supporting a shift towards a low-resource use, low-carbon economy (Eurobarameter 295 Report, 2007).

These efforts built a level of awareness in societies in the first decade of 2000's. In the last years events such as the Gulf of Mexico oil spill (April,2010) and the Fukushima nuclear disaster (March, 2011) have featured in the headlines and the reflections of these cases in human life revealed the severity of environmental issues and turned people's attention more than ever into environmental problems. It also brought forward the discussions about that the human influence might have contributed to other natural disasters (Eurobarameter 365 Report, 2011).

According to Eurobarometer 295, (2007) report two propensities can be related to an increased concern of people: Firstly, environmental problems became urgent and there is an ever greater need for a global response to global problems. This is an issue for international environmental agreements and legislation. Secondly, citizens are becoming more aware of both the potential and actual effects of these problems in their daily lives and the role they could play in protecting their environment. On the other hand increasing pressure on natural resources caused higher prices with the belief of natural sources getting closer to their limit. As a result of rising costs, most of people started to take into account the importance of energy and other resources.

In this context, it is important for a country to know how its citizens understand the concept of the environment, and how they feel and act about related problems, and the way they responded them. Most of the research in the literature focuses on the attitudes, knowledge level, personality factors to understand people's environmental behaviors (Shwepker, Cornwell,(1991), Leonidou and Leonidou, (2000). Thus this research focused on environmental attitudes, knowledge and the personality factors to understand environmentally conscious behavior of people in Turkey. Because university students are future of the country, and potential executives, teachers, understanding the factors affecting environmentally conscious behavior of them has vital value. Hence, this group of people have been chosen for the sample of the study.

1.1. AIM AND OBJECTIVES OF THE STUDY

Given the increasing concern and attention over environmental issues present research seeks to develop an understanding of factors affecting the environmentally conscious consumer behavior. To reach this aim two research questions follow:

What are the factors affecting environmentally conscious behavior?

How to characterize the environmentally conscious consumers? were the two research questions leading to the objectives.

The five objectives of the thesis are as follows:

1. Analyzing the impact of personality traits on environmental attitudes,

2. Determining the level of environmental knowledge of students,

3. Understanding the effect of environmental attitudes on environmental intention,

4. Examining the effect of environmental intentions on environmentally conscious behavior.

5. Understanding the effect of demographics on environmentally conscious behavior

As a result marketers maybe better equipped to target the ecologically concerned consumer and policy makers may be better able to encourage consumer who are willing to behave in an environmentally conscious way.

1.2. SIGNIFICANCE OF THE STUDY

Change is inevitable part of life. The world goes through rapid and astonishing changes with the effects of technology, globalization and environmental causes. In one hand economic crises decreases the quality of life of societies, on the other hand environmental problems (climate change and air pollution etc.) put burden on countries and companies because of the limitations and regulations. In addition, technology changes the world order that many of us get used to.

All of these changes force various disciplines, including marketing, to reconsider their situation. Because consumer behavior is affected by the changes marketing also evolved over the years. Kotler, Kartajaya, Setiawan (2010) examined the evolution of marketing in their book. They claimed that when the last 80 years of marketing is investigated different areas can be observed. At the beginning product was the focal point of the process, thus all marketing efforts was shaped around it. Later consumers became the main point of the marketing with the increased competition in the market, and companies shift from product centricity to consumer-centricity. In 1980's environmental problems emerged and pushed all levels of strategies to change. According to several marketing gurus marketing transformed once again in response to the new dynamics of the environment. Thus, companies directed their focuses from products to consumers to humankind issues. A well known marketer P.Kotler named this area as Marketing 3.0 that companies turn to human centricity and where profitability is balanced with corporate responsibility.

The environmental marketing and environmentally conscious behavior have been researched in several studies in the literature because of the increasing importance and effect of the topic in people's daily lives. Some researchers conducted in bibliographical studies to identify the literature in different times. Schwepker and Cornwell, (1991) prepared a table of previous research. They tried to explain the synopsis of measures used to examine the ecologically concerned consumer. They listed the researches about the environmental marketing conducted between the years 1971 and 1989. In their study they started with the Kassarjian's (1971) study and continued with the Anderson and Cunninghuam (1972), Kinnear and Taylor (1973), Anderson,

Henion and Cox (1974), Kinnear, Taylor and Ahmed (1974), Webster (1975), Henion and Wilson (1976), Murphy,Kangun and Locander (1978), Murphy (1978), Murphy (1978), Tremblay and Dunlap (1978), Belch (1979), Crosby, Gill and Taylor (1981), Crosby and Taylor (1982), Crosby and Taylor (1983), Gill, Lawrence and Crosby (1983), Balderjahn (1988), Samdahl and Robertson (1989).

In their study Schwepker and Cornwell, (1991) investigated the researches under the titles of ecological concern and related measures, package-related measures, personality measures, Demographic and socioeconomic measures and geographic measures. As a result of the studies it was founded that the environmentally conscious consumers tend to belong to Caucasian race, better-educated, and have higher income, occupational, and socioeconomic status. Also researches presented, younger and politically liberal people are more concerned about the environment than others. However, according to Balderjahn (1988), Van Liere and Dunlap (1980) these variables are limited in explaining the variation in environmental concern. Thus, they contributed to the literature with other variables that will be explained in third part of the study.

According to Schwepker and Cornwell's study (1991), those who were highly involved in community activities scored high on a social responsibility scale. So, they claimed that those who are highly involved in community activities, and/or are socially responsible, might respond to ecologically packaged goods. In terms of personality variables Kinnear, Taylor, and Ahmed (1974) found personality variables to be better predictors of ecologically concerned/conscious consumers than socioeconomic variables. Schwepker and Cornwell's study (1991), illustrates that the use of personality variables as predictors of environmental consciousness started in the early 1970s. Although several personality variables have been examined, two in particular appeared to be worthy of further consideration: locus of control (Kinnear at al., 1974) and alienation (Balderjahn, 1988). Locus of control has been examined in only one study with regard to ecological concern. However, Balderjahn, (1988) used ideology control, a measure similar to locus of control, in his investigation of the ecologically conscious consumer.

In 2010, Leonidou, Leonidou and Kvasova, (2010) also prepared a bibliographic analysis about environmental marketing. They worked on the decades between 1970's and 2000. The researchers investigated under these titles: main marketing themes, key driver, secondary drivers, main environmental problems, attitudes by firms, operative business questions. They aimed to identify, synthesize, and evaluate the research on environmental marketing issues, with the aim to determine the trends in this field. Particularly, they focused on: the characteristics of authors and manuscripts written on the subject; the methodological aspects of empirical studies, in terms of design, scope and methodology; and the thematic areas tackled, as well as the specific issues raised within each area.

They expressed that initial writing on the subject came from Kotler and Levy (1969), who first introduced the concept of societal marketing management. Their pioneering article subsequently stimulated research attention on environmental issues, focusing on such topics as "societal marketing" (Lavidge, 1970; El-Ansary, 1974; Takas, 1974), "social responsibility and marketing" (Kotler and Zaltman, 1971; Davis, 1973), "responsible consumption" (Fisk, 1973), "ecologically concerned consumers" (Kinnear et al., 1974), "ecological marketing strategy" (Kassarjian, 1971), "ecological concerns on brand perceptions" (Kinnear and Taylor, 1973), and "environmental movement" (Leathers, 1972). Crane and Desmond, (2002) claimed that these efforts were trying to address criticisms made about the moral role of marketing in society, and contributed towards altering the general marketing definition to reflect greater sensitivity to environmental issues.

Banerjee, (2002) claims that despite the dynamism of scholars in the field at the beginning, the implementation of studies with an environmental focus remained at low levels for a long time. The fortification of government, public, and company concern in protecting the environment in the 1990s was caused the growth of the discipline, which continues up until 2000's. As a result, several articles were produced (Banerjee et al., 2003). But it is possible to remark that this stream of research is still in an evolving phase, attempting to integrate approaches from various other disciplines, such as ecology, sociology, and economics (Hoffman and Ventresca, 2002).

In the Turkey perspective environmental consciousness is not a very common topic compared to other green marketing issues. In 2001, Gökşen et al. conducted a research about the impact of geographical proximity of environmental problems on environmental concern and willingness to pay for environmental improvement and postmaterialism. The aim of the study was to explore the determinants of concern for the environment and to investigate whether geographical proximity of the environmental problem had on people's environmental concern. The results indicated that individuals differentiate among different types of concern, especially two distinct types of environmental concern, the local and the global ones. Also they found that education and urbanity effects local environmental concern.

In another study Özdemir at al., (2004) conducted a study aiming to identify the awareness and sensibility levels of medical school students in first and last year in education period. Female students found more knowledgeable and more intelligible about environmental issues than males. Medical school students in first and last year did not differ in terms of environmental sensibility.

Erol and Gezer, (2006) tried to understand university students' attitudes toward environment and environmental issues, especially in terms of socio economic status. According to the results of the study students attitude toward environment and environmental issues are not very high,. Furthermore environmental attitude of girls is higher than that of the boys at a significant level. Also, mothers' occupation cause significant difference on students' attitude toward environment.

In addition to articles there are theses prepared in this topic in Turkey. Theses prepared about environmental consciousness and environmental marketing in Turkish Universities are presented in the Table 1-1 and Table 1-2. For this research, these two concepts were entered to subject search area of YOK (Council of Higher Education) thesis center web sit

Table 1-1

Studies Related to the Environmental Consciousness

No	Author	University	Subject	Date
1	Eda Purutçuoğlu	Ankara University	Investigating the relationship between demographic characteristics and materialistic orientations of undergraduate students and their attitudes and behaviors toward environment	2008
2	Tahir Albayrak	Akdeniz University	The effect of environmental policies of the companies on consumer attitude and behavior.	2008
3	Dudu Küçüktüvek	Gazi University	Determining women's present knowledge and attitudes towards the protection of environment (Afyonkarahisar sample)	2007
4	Selcen Tecer	Zonguldak Karaelmas University	Education for environmental: A study on the level of determination of the primary students' environmental behavior, knowledge, consciousness and active participation in Balıkesir city.	2007
5	Meltem Mert	Hacettepe University	Determination of consciousness level of high school students on the environmental training and solid wastes topics	2006
6	Emin Atasoy	Uludag University	Environmental education: A study for elementary school students` environmental attitude and knowledge	2005
7	Burak Nakıboglu	Cukurova University	Environmental marketing approach and an application about effects of consumer environmental attitudes on consumer behavior	2003

Source: YOK Thesis Database http://tez2.yok.gov.tr

Table 1-2

Studies Related to the Environmental Marketing

No	Author	University	Subject	Date
1	Özge Kasalı	Marmara University	Visualizing motivations, strategies and activities of green marketing in organizations: A descriptive study in electronics / battery industry	2010
2	Çiğdem Tirkeş	Marmara University	Yeşil pazarlama: Türkiye'de organik gıda ürünlerinin kullanımını arttırmaya yönelik stratejiler (Green marketing: Strategies to increase the consumption of organic produce in Turkey)	2008
3	Ceyda KELEŞ	Çukurova University	Yeşil pazarlama tüketicilerin yeşil ürünleri tüketme davranışları ve yeşil ürünlerin tüketiminde kültürün etkisi ile ilgili bir uygulama (Green marketing consumers? consumption behavior of the green products and an application related to culture?s impact on the green products consumption)	2007
4	Filiz Aslan	Kafkas University	Yeşil pazarlama faaliyetleri çerçevesinde Kafkas Üniversitesi öğrencilerinin çevreye duyarlı ürünleri kullanma eğilimlerini belirlemeye yönelik bir araştırma (A study intended for determining environmental products tendency of Kafkas University students within green marketing activities)	2007
5	Barış Tolga Ekinci	Marmara University	Yeşil pazarlama uygulamalarında yaşanan sorunlar ve örnek bir uygulama (The problems occur during the practices of greenmarketing and an example)	2007
6	Mehmet Aytaç Demirbaş	Gazi Üniversity	Yeşil pazarlama (green marketing) ve tüketicinin yeşil pazarlamaya yaklaşımı (Green marketing and consumer's approach to green marketing)	1999

1.3. SCOPE OF THE STUDY

After the introduction part of the study, the concept of environmentally conscious behavior is presented in the second part. Previously constructed frameworks on environmentally conscious behavior, studies conducted related to this topic and variables found significant by other researchers and used in the current study's model are explained. In the fourth part the methodology, variables, hypotheses and the sample of the study are explained. Research findings are presented in part five and conclusion is drawn in part six in this study.

2. ENVIRONMENTALLY CONSCIOUS CONSUMER BEHAVIOR

Over the last 35 years, there have been several attempts to conceptualize and to construct the "environmental consciousness". Not only in marketing literature, but also other disciplines (such as psychology (e.g. Maloney et al., 1975), sociology (e.g. Mohai and Twight, 1987), political science (e.g. Jackson, 1983), environmental studies (e.g. Dunlap and Van Liere, 1978) and business research (Balderjahn, 1988) studies have been conducted (Schlegelmilch et al., 1996).

Environmentally conscious behavior refers to acting in a way that helps to protect environment such as purchasing, consuming environmentally friendly products which are also called green products that have minimal impacts on environment, preferring environmentally packaged products or products that produces fewer disposals, using energy saving appliances, collecting wastes in different boxes for recycling (Mainieri et al., 1997). According to this definition green purchase behavior might be evaluated as a part of the environmentally conscious behavior in terms of consumption. In general, green products refer to the products that do not pollute the earth or harm natural resources, and can be recycled or conserved (Richmond et al., 1993). Some of the examples of green products in the market are the "items manufactured with post-consumer plastics or paper, recyclable or reusable packaging, energy-efficient light bulbs and detergent containing ingredients that are biodegradable, non-polluting and free of synthetic dyes or perfumes" (Mostafa, 2007). Green product indicates the environmental issues in terms of its features as recyclability, reusability, durability, degradability or refillability, high quality of green performance, energy saving, and using recycled materials (Eco-product directory, 2008).

Green purchasing behavior can be defined as the purchasing and usage of products which are environmentally friendly and/or produced using ecological processes and materials (Kilbourne & Pickett, 2008). Consumers acting environmentally conscious tend to think about themselves as the type of persons who care for the environment (Thøgersen & Crompton, 2009). The study of Flatters and Willmott, (2009) indicates that many consumers increasingly have propensity for a less wasteful life (e.g. switching off lights, recycling more, and buying less) and show a

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strong interest in green consumption. They claim that tendency towards green products arises from individuals' personal satisfaction from them. Chen, (2010) attributed this satisfaction to both the good performance of green products, and also to a good feeling of individual as a result protecting the environment (Chen, 2010).

The last three decades have witnessed a significant increase in environmental consciousness worldwide. In their study Dembkowski and Hanmer-Lloyd, (1994) found that 82 percent of European citizens rated the environment as an urgent problem , while another study indicates that 69 percent of the general public believe that pollution and other environmental damage have direct impact on their everyday life (Worcester, 1993). The increase in environmental consciousness has a significant effect on consumer behavior; with the green product market broadens at a considerable rate. For example, a Mintel survey concluded that 27 percent of British adults were ready to pay up to 25 percent more for green products (Prothero, 1990). Also Lawrance, (1993) indicated that in the USA, Green Market Alert predicted a market growth rate for green products of 10.4 per cent in 1993 to $121.5 billion, and have projected that this reached $154 billion by 1997.

The concept of ecological behavior in consumer perspective has been measured in several ways and through different variables which are related to each other. This is due to the large amount of indicators (buying, use, consumption, reuse, recycling, willingness to pay more for ecological products; environmental concern, etc.).

The analysis of the environmentally conscious behavior concept includes different approaches from different countries. Some researchers in Spain studied it as the level of environmental responsibility (Stone et al., 1995) and as the level of ecological awareness (Sanchez et al., 1998). Also there are other studies that investigated the consumers' environmental commitment level considering their active or passive contribution to the environmental improvement. Moreover, some other studies from far east evaluate the consumer's commitment through their active and positive attitude towards recycling and the purchase of less harmful products (Ling-yee, 1997).

In the definition process of an environmentally conscious behavior the consideration of the concept of attitude as a variable towards a certain behavior has to be emphasized (Andres and Salinas, 2007). The consumer's attitude towards the purchase of environmentally friendly products, recycling or environmental improvement is considered as a positive environmental attitude (Chan, 2001). Granzin and Olsen (1991) evaluated the donation of products for reuse and recycling as environmental behavior just because they prevent excess consumption and production. Other authors considered diverse activities for the conservation of natural resources and the environmental concern as different ecological conducts (Laroche et al., 2001). When these different environmental perspectives evaluated, the necessity to conceptualize broad ecological behavior frame rather than a specific environmental action or behavior became clear (Kaiser and Wilson, 2000).

In another study Axelrod and Lehman, (1993) defined environmentally conscious behavior as "all actions which contribute to the preservation and/ or conservation of the environment." Thus, environmentally conscious consumer behavior includes several different behaviors related to general environmental issues and green purchase behavior such as willingness to pay more for environmentally friendly products, recycling, not buying environmentally harmful products, preferring environmentally packaged products, and considering environmental issues when making a purchase.

Environmentally conscious behavior consists all components in the psychology of an individual that reflect his/her sensitivity to environmental topics, such as energy saving, keeping places clean, avoiding waste, and excess consumption (Kilbourne & Pickett, 2008). According to Light, Hertsgaard and Martin, (1985) environmental behavior is expected to make the consumers satisfied with their personal life because of their contribution to protecting the environment. Mayer and Frantz (2004) approached the topic from a different perspective and claimed that people derive a sense of well-being from feeling connected to nature, thus individuals who are connected to it experience a higher level of life satisfaction. Individuals are satisfied with their lives when they rationally harmonize their outer and inner world (inner; attitude, knowledge

level, personality; outer behavior and actions). Thus, to live in a self-sufficient way environmentally conscious behavior helps towards achieving this harmony in life (Dierksmeier & Pirson, 2009). Actually, various researches (Eigner, 2001) indicated that life satisfaction can be achieved by caring about nature and protecting one's environment.

A number of different instruments have been used in the above efforts to measure environmental consciousness. These vary in the extent to which they incorporate different green issues, such as population control, natural resources and energy consumption. For instance, on one hand some studies focused on concern about acid rain (Arcury et al., 1987), recycling issues (Vining and Ebreo, 1990) or pollution (Ramsay and Rickson, 1976), on the other hand some practices investigate aggregate items dealing with these various issues into single environmental measures such as environmental concern and knowledge (e.g. Maloney et al., 1975), and some develop a number of measures, each covering specific issues (Witherspoon and Martin, 1992). When the findings of researches took into consideration the last two approaches are accepted to provide a more comprehensive profile of environmentally conscious consumers (Van Liere and Dunlap, 1981).

The existence of environmentally conscious consumers is undeniable and the market consisting of these consumers enlarging day by day as a result of increasing environmental concern derives from unavoidable natural disasters and extinctions. It is important for all parts of society (government, companies, NGO's educators, universities) to understand and analyze the behavior and the reasons behind. Thus, they can fill the gaps among feelings, thoughts and behaviors. Then they can encourage others to benefit, to enhance and to protect.

When the company perspective is investigated today, many firms embrace the concept of environmental marketing and use the environmental issues as a source of competitive advantage in the marketplace. Some marketers defend that, to remain competitive in the market firms have to become more environmentally and socially responsible (Roberts, 1996). Obviously, firms are willing to operate in a sustainable way to gain competitive advantage. In reality, companies that try to built their strategy

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by taking environmental issues into account experience several challenges mainly from the variability of demand, un-favorable consumer perception and high cost (Gurau and Ranchhod, 2005). The key point of environmental marketing lies in the characterizing the environmentally conscious consumers and their profile for helping companies to develop a new target and segmentation strategies (D'Souza et al., 2007).

3. ATTEMPTS TO PROFILE ENVIRONMENTALLY CONSCIOUS CONSUMERS

Environmental psychology, developed in 1960s, in USA, investigates the range of complex interactions between human and the environment (Kollmuss and Agyeman, 2010). Over the last 30 years psychologists, sociologists and marketers tried to understand the roots of direct and indirect environmental action. Indirect environmental actions include donating money, political activities, environmental writing, etc. Even though, these are important they do not have direct impact on the environment. On the other hand, direct environmental actions such as recycling, driving less, buying organic food, etc. have direct (sometimes very small) impact on the environment. In this study stated above direct environmental behavior is generally analyzed. In the literature about environmental behavior the answers for the questions such as 'Why do people act environmentally friendly and what are the barriers to this behavior?' is searched and extremely complex results is reached. The word 'environmentally conscious behavior' simply means behavior that intentionally looks for ways to minimize the negative effects of one's actions on the natural world (e.g. energy consumption, use of non-toxic substances, reducing waste production).

Numerous theoretical frameworks developed to understand the environmentally conscious behavior. Next stage of the study describes a few of the most influential and commonly used frameworks to analyze environmentally conscious behavior. Then the factors that have been found to have some influence, (positive or negative) on environmentally conscious behavior will be explained.

3.1. REVIEW OF SELECTED FRAMEWORKS FOR ANALYZING ENVIRONMENTALLY CONSCIOUS BEHAVIOR

Numerous studies have addressed the characteristics of ecologically conscious consumers either as a primary point of investigation or as a secondary issue. The majority of these studies have looked at, and found, demographic variables associated with self-report measures of environmental commitment, behavioral indicators of

environmental commitment, or psychometric scales measuring environmental consciousness (e.g. Zimmer et al., 1994). Some have offered additional attitudinal or psychographic dimensions associated with green attitudes and behavior (Stern et al., 1993). A review of these studies and several general indicators of an individual's propensity to engage in ecologically conscious behavior are presented below.

The oldest and simplest models of environmentally conscious behavior were based on a linear model of environmental knowledge that leads to environmental awareness and concern (environmental attitudes), which in turn leads environmental behavior. These models assumed that educating people about environmental issues would result in environmental behavior (Kollmuss and Agyeman, 2010).
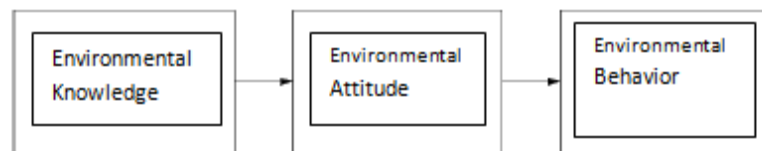
Figure 3-1: Early Models of Environmentally Conscious Behavior

Source: Kollmuss and Agyeman (2010)

These models from the early 1970s frame a linear relationship between environmental knowledge, environmental attitude and environmental behavior. Even today, most environmental NGOs take this model as a base for their communication campaigns on the assumption that more knowledge will lead to more responsible behavior. Owens, (2000) indicated in their research that even governments use this model, for example the UK government's 'Save It' energy conservation campaign in the mid-1970s to create public understanding of sustainable development. The belief that there must be other reasons hidden behind the environmental behavior directed researchers to investigate the topic from different perspectives.

Kinnear et al. (1974), studied the identification of environmentally conscious consumers. The aim of their study was to explore the relationship between socioeconomic and personality characteristics of consumers on ecological concern they indicate. In their study ecological concern includes two dimensions; first a consumer's attitude must express concern for ecology, and second they must indicate purchasing

behavior toward environmental products. They combined behavioral and attitudinal measures of ecological concern into an index of ecological concern; twenty independent variables were examined as potential predictors of scores on the ecological concern index. Seven of them were socioeconomic (age, education, occupation, income etc.), twelve of them were from personality scales (self esteem, tolerance, anxiety, rebelliousness and depression scales etc.). Also Kinnear et al. (1974), were the first who identified the characteristic of perceived consumer effectiveness. This is a measure of the extent to which a person believes that an individual consumer can be effective in reducing the pollution. In their research Henion and Wilson (1976), relate this variable to the concept of locus of control and Balderjahn (1988) named this variable as ideology control in his study.

As a result of their research it was concluded that ecologically concerned consumers tend to have high perceived consumer effectiveness, have need to satisfy their intellectual curiosity (understanding), they need to obtain personal safety (harm avoidance) , and they are open to new ideas (tolerance), in high level income group.

In 1986, Hines, Hungerford and Tomera developed a model of responsible environmental behavior that was based on Ajzen and Fishbein's theory of planned behavior (Hines et al., 1986). They analyzed 128 environmental behavior studies and found that personality factors (attitude, locus of control, personal responsibility), action skills, knowledge of action strategies, knowledge of issues, intentions and situational factor variables should be investigated to understand environmental behavior.
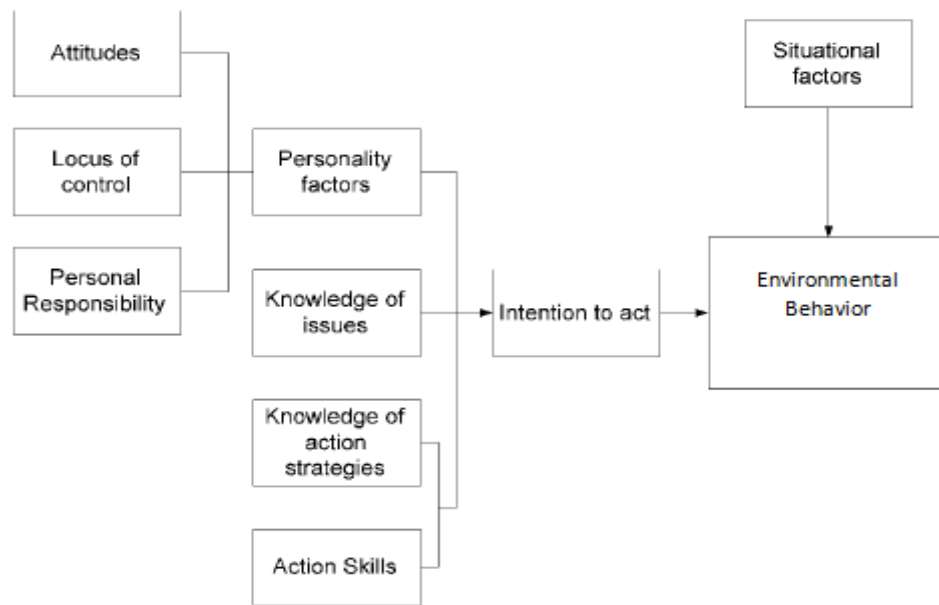
Figure 3- 2: Predictors of Environmental Behavior

Source: Hines et al. 1986

Even though their model seems more sophisticated than others the identified factors did not sufficiently explain environmental behavior. According to Kollmuss and Agyeman, (2010), the relationship between attitudes and intentions, and intentions and actual responsible behavior, were very weak. Thus, further research required to understand relationships among variables. Balderjahn, (1988), tried to take a step forward to present a clearer understanding of the determinants of consumers' environmental consciousness. He developed a causal model to identify the environmentally conscious behavior; by using demographic, socioeconomic, personality and environmental attitude variables to predict ecologically responsible pattern.

In this research Balderjahn (1988) developed a structure between predictors and behavioral patterns. He hypothesized that environmentally conscious consumers are active, even they are more alienated from the core culture, and not willing to control dissatisfaction with the perceived environmental pollution; is an internally controlled person who believes in people's power of changing perceived adverse social conditions.

One of the consumption patterns is the ecological purchase and use of products, Balderjahn (1988), measured this pattern by evaluating the extent to which

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consumers intended to or actually used returnable, fewer detergents, and bought fewer packaged products. The consumption pattern about packaging appeared to be an important issue.

As a result of the study internal control ideology which was also named as perceived consumer effectiveness) was the strongest predictor. The more a consumer believes in the power of the individuals, the more they buy and use nonpolluting products. Also this behavior is supported by a positive attitude toward environmentally conscious living. Study also indicated that better education increases the amount of energy saved and attitude toward environmentally conscious living leads more intensive use of environmental products among men. The effects of income, education attitude toward pollution was relatively poor.
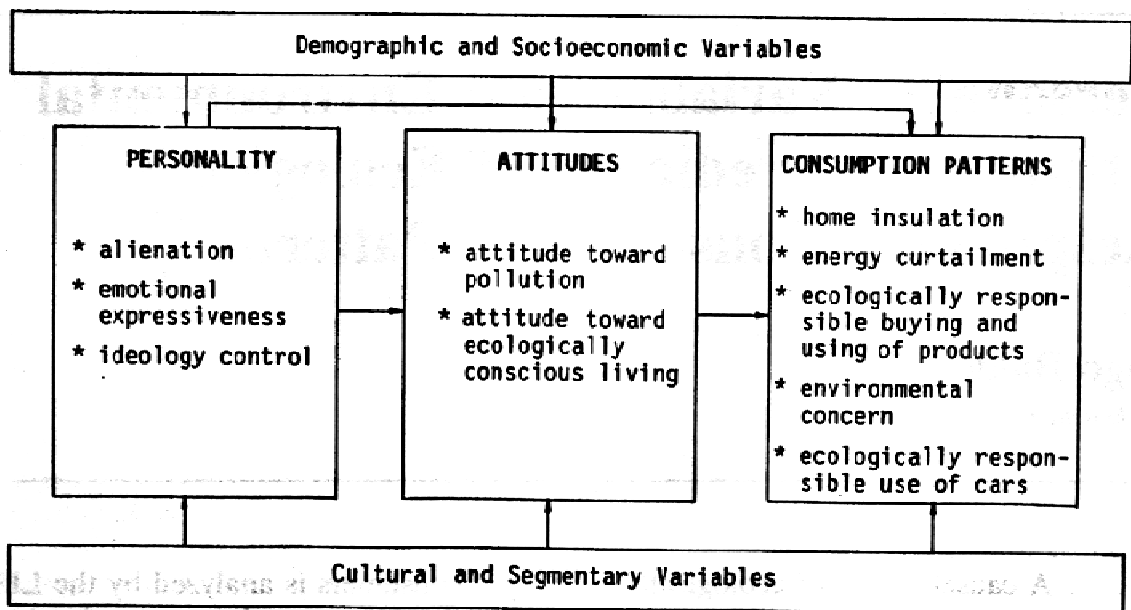
Figure 3-3: Model of Balderjahn's Study,

Source: Balderjahn et al., (1988)

The results indicated that demographic variables are not as important as socio psychological variables in understanding the ecologically concerned consumer. Also ideology control, attitude toward pollution, and attitude toward ecologically conscious living used by Balderjahn, (1988) in Germany are also useful indicators of the ecologically concerned consumer in the U.S.

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Schwepker and Cornwell, (1991), attempted to develop a comprehensive understanding of consumer consumption patterns of ecologically packaged products that make efficient use of materials and lead to less solid waste. They investigated the general features of ecologically concerned consumers and their intention to purchase environmentally friendly packages. The purpose of the study was to isolate useful variables to identify environmentally conscious consumers.

The effect of socioeconomic and demographic (age, income, education, marital status, gender, race, place of residency), personality (alienation, locus of control), attitude (attitude toward litter, attitude toward ecologically conscious living, perception of pollution) variables were also investigated in their study to identify ecologically conscious consumers. They did not take into account cultural variables. The results of this study indicated that there are consumers who are willing to purchase ecologically packaged products and those certain socio-psychological variables are significant for discriminating between consumers who have low and high purchase intentions concerning these products. The analysis showed that individuals with locus of control, who are concerned about litter, who believe there is a pollution problem, and who have a favorable attitude toward ecologically conscious living have more propensities to purchase ecologically packaged products. Thus, the more people become aware of the solid waste problem the more they purchase environmentally friendly packaged products. As a result, even those who do not currently favor environmentally conscious purchasing are candidates to ecologically packaged products if they can be convinced that this issue is problematic.

The results also suggest that consumers would be willing to change their consumption behaviors related to package changes. For instance, consumers have tendency to purchase products in larger packages with less frequency, products in less attractive packages that eliminate unnecessary packaging, and products in packages which contribute less solid waste. Consumers are also willing to purchase products in recyclable and biodegradable packages.

In another research Schlegelmilch and Diamantopoulos' (1996), attempted to describe if variables specific to environmental consciousness are more suitable for

characterizing consumers' environmentally conscious purchasing decisions. Measures of environmental knowledge, attitudes and behavior were linked to two conceptualizations of the purchasing field, green purchasing decisions in general and the specific purchasing habits of five green product categories. The analysis was practiced on marketing students and members of the general public in UK. The survey instrument was first applied to a sample of 160 undergraduates attending a second-year marketing course at a UK university. The vast majority of students were British and aged between 19 and 21 years. For the second sample; questionnaire was implemented to 600 members of public in UK.

The results indicated that consumers' environmental knowledge impact their purchasing decisions. The findings also suggested that attitudes (especially environmental concern) are the most consistent predictor of environmental behavior. Thus, organizations aiming to increase market penetration for green products recommended developing campaigns that can increase concern about environmental quality in the consumer base.
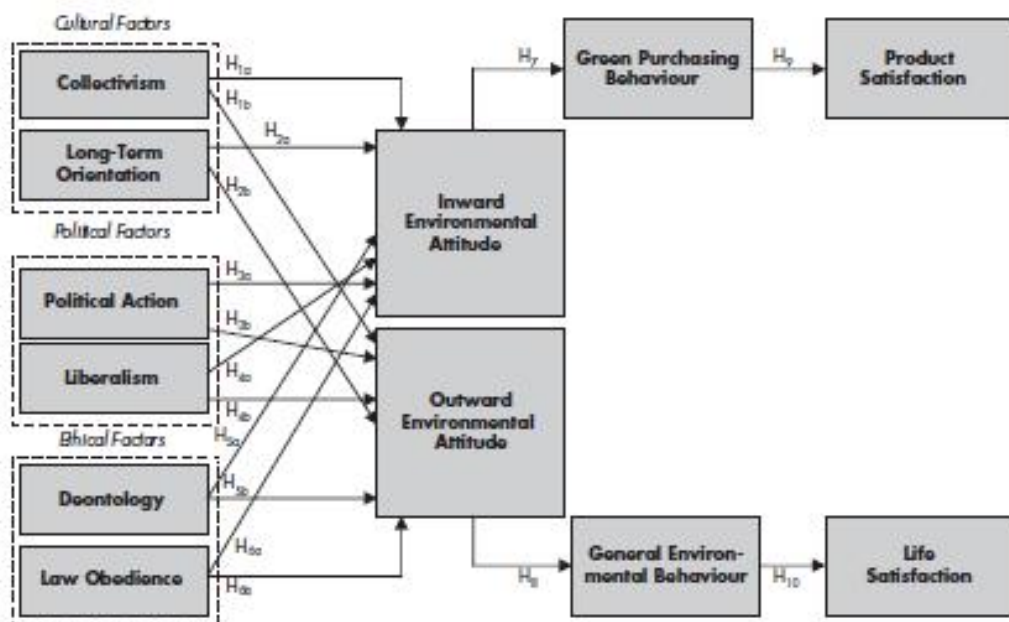
Figure 3-4: Conceptual Framework of Leonidou, Leonidou and Kvasova, (2010)

Leonidou, Leonidou and Kvasova, (2010) generated a conceptual framework that consists of four major parts: antecedent forces, attitudinal factors, behavioral factors, and outcomes. Antecedent forces comprise three sets of background consumer parameters, namely cultural ('collectivism' and 'long-term orientation'), political ('political action' and 'liberalism'), and ethical ('deontology' and 'law obedience'). As Leonidou, Leonidou and Kvasova, (2010) referred to Sarıgöllü, (2009) attitudinal factors refer to the environmental attitudes of the consumer, and these are divided into 'inward', that is, attitudes referring to the abuse of the environment by individual consumers, and 'outward', that is, attitudes about the perceived need for social, political, and legal changes to protect the environment. Behavioral factors include the environmentally conscious behavior of the consumer, which can be 'green purchasing', that is, activities that lie in the personal domain and have a direct effect on the natural environment, or 'general environmental behavior', that is, activities that fall under the public domain and have an indirect effect on the natural environment by influencing public policy initiatives (Dietz, Stern, & Guagnano, 1998). Outcomes refer to both satisfaction with the product and satisfaction with life.

The results of the study of Leonidou, Leonidou and Kvasova, (2010) indicated that certain cultural, political, and ethical factors are responsible for the adoption of an environmental attitude by consumers, whether when specifically making personal purchasing decisions (inward) or when broadly considering issues relating to society (outward). In brief, a environmental attitude is more likely to occur when the consumer is collectivistic, long-term oriented, deontological, and law obedient. The direction of this attitude, inward or outward, will have its effect on different aspects of consumer behavior and its outcomes. An inward environmental attitude will enhance green purchasing behavior and higher product satisfaction; an outward environmental attitude will cause general environmental actions, which will eventually lead to greater life satisfaction.

Leonidou, Leonidou and Kvasova, (2010) study also revealed that an individual can concurrently show both inward and outward environmental attitudes, with each of them influencing a different aspect of behavior. While inward

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environmental attitude is more associated with green purchasing behavior, outward environmental attitude mainly refers to general green behavior. The finding of this study partially help to resolve a problem sometimes cited in the literature, whereby ecologically concerned consumers were not consistently found to prefer environmentally friendly products in their purchases (Kilbourne & Pickett, 2008). In other words, a person with an outward environmental attitude can act in a friendly way to the general environment, but is not necessarily involved in a green purchasing behavior, which is the result of the development of an inward green attitude.

As a result of the investigation of the previous models in the literature significant variables about environmentally conscious behavior from other studies are identified. In the next part these variables and studies specifically related to the variables is presented. It can be stated that from a linear to a holistic perspective attitude formation and behavior aspects range from personality factors to satisfaction outcomes should be investigated.

3.2. IDENTIFYING THE FACTORS EFFECTING ENVIRONMENTALLY CONSCIOUS BEHAVIOR

The demand for green products can come from different market segments (Peattie, 1992). Thus, to position green products and to communicate their environmental contributions, the people who have tendency to present environmentally conscious consumer behavior need to be identified" (Bohlen et al., 1993). Over the last 30 years, there have been several researches using a variety of segmentation variables conducted to classify the environmentally conscious members of the population in general. The measures that have been used can be divided into four distinct categories: socio-demographics, such as sex, age, education and social class (e.g. Schlegelmilch et al., 1994), personality measures, such as locus of control, alienation, conservatism and dogmatism (e.g. Balderjahn, 1988; Crosby et al., 1981; Kinnear et al., 1974),

environmental knowledge (Tan, 2011) , environmental attitude (Schwepker and Cornwell, 1991).

3.2.1. Environmental Attitudes:

Schwepker and Cornwell, (1991) stated that generally studies focused on the influence of attitudes on the consumer's behavior in the literature can be analyze into three perspectives. The first one analyses the relation between attitude and a general ecological behavior (e.g., recycling) (Hines et al., 1986; Kaiser et al., 1999). The second perspective studies the attitudes towards the universe and its elements (e.g., air and water quality) (Maloney et al., 1975). And the third one interests in the New Ecological Paradigm (Dunlap and Van Liere, 1978). Attitude represents what consumers like and dislike (Blackwell et al., 2006) and consumers' product purchasing decisions are often based on their environmental attitudes.

Schultz et al. (2007) defined environmental attitude as "the collection of beliefs, affect, and behavioral intentions a person holds towards environmentally related activities or issues". Environmental attitude explains the degree that an individual perceives himself or herself to be an integral part of the natural environment (Schultz and Zelezny, 1999). Milfont (2007) defined the environmental attitude as the "psychological tendency that is expressed by evaluating perceptions of or beliefs regarding the natural environment, including factors affecting its quality, with some degree of favour or disfavour".

Environmental attitudes can be defined as general level of concern about ecological issues , interest towards natural problems and belief of an individual that his/her actions directly or indirectly affect the ecological balance of the universe, thus they have mutual relationship.

Chyong et al. (2006), defended that attitudes are the most consistent explanatory factor in predicting consumers' willingness to pay for green products. It can be inferred that price is not the main factor that prevents consumers from purchasing

green products if they are pro-environment. Also Tanner and Kast (2003), advocated that green purchases are strongly affected by positive attitude of consumers towards environmental protection. Consumers who adopt an eco-friendly attitude believe that the ecological situation on the planet is devastating and it is a necessity taking precautions to protect the environment (Schlegelmilch et al., 1996). Although such a pro-environmental attitude incurs inconveniences (e.g. extra effort to recycle goods), additional costs (e.g. more expensive green products), and lower levels of product performance (e.g. cars with lower horsepower), consumers having this attitude are more likely to engage in an environmentally conscious consumer behavior, such as avoiding non-disposable merchandise, trying to reach recyclable products, and purchasing biodegradable goods (Laroche et al., 2001).

The literature about environmental attitudes indicates different subdimensions of attitude such as environmental concern, inconvenience, importance, attitude toward litter, attitude toward environmentally conscious living, attitude toward pollution, attitude toward responsibility of corporations.

Laroche et al. stated that some of the environmental sociologists referred to the attitudes towards the natural environment as "environmental concern". The terms of environmental attitude and environmental concern is being used interchangeably in many researches. Cognitive consistency theory of Festinger, (1957) argues that an individual who is concerned about ecological problems is very likely to be motivated to take actions that will minimise them. One of the studies (Schlegelmilch et al., 1996) empirically showing that consumers who are environmentally sensitive are very likely to change their behavior and purchase products that are friendly to the environment, also influence other people towards adopting an ecological approach to their consumption. Also, Meneses and Palacio (2006), found that the major difference between sustainers and non-sustainers is the degree of ecological concern.

Leonidou, Leonidou and Kvasova, (2010) divided attitudes into two categories as inward and outward attitudes; inward environmental attitude, which affects more 'private' actions, an outward environmental attitude refers to a more 'public' involvement of an individual with the society and its problems, particularly those

related to the protection of the environment (Stern, 2000). A person with such attitude shows great interest in social, political, legal, and other issues pertaining to the protection of the natural environment, and for each of these issues s/he has his/her own views and suggestions of how it should be approached (Kilbourne & Pickett, 2008). Individuals having an outward environmental attitude can demonstrate various types of behavior, which can have a direct effect on public policymaking (e.g. putting pressure on political parties, increasing bargaining power of environmental lobbies, becoming a member of an environmental group), but an indirect effect on the natural environment (e.g. new policy on environmental preservation, new rules for animal hunting, harmonisation with international environmental standards) (Dietz et al., 1998). Two studies with their literature found that consumer attitudes about the state of the natural environment are positively associated with such behavior (Kilbourne & Pickett, 2008; Stern et al., 1999).

In their research Forleo et al., (2001), found that the two most influencing attitudes were the importance and the inconvenience of being environmentally friendly. On the one hand, importance can be defined as the degree of concern which one express about ecological issues (Amy et al., 1994). Inconvenience refers to how inconvenient it is perceived for the individual to behave in an ecologically conscious manner (Laroche et al., 2001). For instance one may think that recycling is important but not recycle things (metal cans) because it takes so much time. Also researches indicated that the more individuals believed this activity is inconvenient, the less likely they are to recycle (McCarty and Shrum, 1994). Also regardless of how important individuals believed recycling to be, inconvenience of recycling had a more influence on their actions than importance.

Another type of environmental attitude in the literature is the perception of severity of environmental problems. Ecologically conscious consumers believe that current environmental conditions can endanger life on earth and percept this situation as a serious problem, on the other hand consumers who are less sensible to environmental issues perceive that ecological problems will resolve themselves (Banerjee & McKeage, 1994).

Tan (2011), explained that environmental attitude measures based on various scales as, Ecology Scale (Malonet and Ward, 1973; Maloney, Ward and Braucht, 1975), Environmental Concern Scale (Weigel and Weigel, 1978), and the New Environmental Paradigm Scale (Dunlap and Van Liere, 1978; Dunlap, Van Liere, Mertig and Jones, 2000) are the popular environmental attitude measures used in the past. New Environmental Paradigm Scale (NEP) measures overall relationship between human and the environment. Tan (2011) stated that all types environmental attitudes as explained above are used to predict environmental behavior in different studies.

Various researches about environmental attitude and behavior have been concluded that there is a strong relationship between these two ecological variables (e.g., Kinnear and Taylor, 1973; Maloney et al., 1975; Schwepker and Cornwell, 1991; Baldeıjahn, 1988).

3.2.2. Environmental Knowledge:

In consumer research knowledge is recognized as one of the main characteristics that influences decision process, (Alba and Huıchinson, 1987). Studies of Vining and Ebreo (1990), and Chan (1999), have shown that knowledge about ecological issues is a significant predictor of environmentally friendly behavior.

McDougall (1993) argued that consumers' environmental knowledge has significant effect because the "green revolution" is primarily consumer driven. This means that consumers possess an understanding of environmental issues and convert it into ecologically conscious consumer/consumption behaviors. Thus, profit-driven enterprises should be motivated to apply the concept of green marketing to their operations (Chan, 1999).

In the existing literature, consumer knowledge about ecological issues identified as a significant predictor of environmentally friendly behavior (Vining & Ebreo, 1990). Laroche et al., (2001) analyzed of 128 studies and found an average correlation between environmental knowledge and behavior. Also Amyx et al. (1994),

found that individuals highly knowledgeable about ecological issues are more willing to pay a premium price for green products. Thus the more an individual knows about environmental issues the more they are willing to buy environmentally friendly products. Researches also indicate that a growing segment of individuals recognize businesses related positively to ecological issues in their marketing practices and penalize corporations that ignore them (Carison, Greve. and Kangun, 1993). In the 21st century they witnessed that Procter & Gamble and Wal-Mart were publicly criticized for putting a green label on a brand of paper towels simply because the inner tube for the towel was made of recycled paper but in reality the actual product was made of chlorine bleached unrecycled paper and packaged in plastic (Cairncross. 1992). So that obviously an increase of customer knowledge about environmental issues has direct effects on consumer attitudes and behaviors. But there is still a chance for thatindividuals with little knowledge about the environment exhibit a strong environmental behaviors. (Henion,1972).

In the history of environmental marketing, environmental knowledge evolves in two forms: one is that consumers have to be educated to understand the general impact of the product on the environment, and the other one is the knowledge about the way product being produced in an environmentally friendly way (D'Souza et al., 2006). According to Laroche et al. (1996), consumer's environmental knowledge plays a multifaceted role in influencing his or her behavior; it provides knowledge about action strategies and helps shape attitudes and intentions through the belief system. Furthermore, it outlines the important leverage points that marketers and agencies can influence pro-environmental behavior.
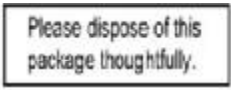
Most consumers would like to make rational choices in purchase of environmentally friendly products, and they want information to be aware of environmental problems and issues in order to form an attitudinal view. As Laroche et al. (2001) pointed out; the education of the consumer is an appropriate method for increasing perceived convenience and establishing credibility in terms of being environmentally friendly.

Ecoliteracy was developed by Laroche et al. (1996) to measure the respondent's ability to identify or define ecological symbols, concepts and behaviors. In the literature correlation between ecoliteracy and attitude, behavior toward the environment

When the relationship between environmental knowledge, environmental attitude and behavior investigated in the literature Schlegelmilch, Bohlen and Diamantopoulos (1996), generated an environmental consciousness framework which consists of environmental knowledge (cognitive), environmental attitudes (affective), and environmental behavior (conative). Rather than the causal links between the variables, researchers were more attracted to the bivariate relationships between each of the variables. In addition, environmental attitude (general) and recycling attitudes (specific) have been distinguished on the framework. In addition to this, Forleo et al. (2002) conducted a study to examine the impact of environmental knowledge on environmental attitude and behavior among consumers in Canada and disconfirmed the hierarchy of environmental knowledge-environmental behavior. They suggested that the environmental knowledge was not a good predictor of behavior among the English Canadian and French-Canadian. Future researchers are suggested to examine the effects of knowledge on environmental attitude.

In regard to previous conclusions an assumption in the environmental studies that the increasing levels of environmental knowledge will increase environmental concern and thereby increase green consumption was tested (Swanson et al., 1991). Arcury (1990) had reported a significant relationship between environmental knowledge and environmental attitude. Also, study of Sharifah et al., (2005) in Malaysia had indicated that environmental knowledge was significant and correlated positively with environmental attitude. Furthermore, environmental knowledge was found significantly associated with both of environmental concern constructs in personal and social (Bedrous, 2007), also a positive correlation between eco-literacy and green purchase attitude was found in Cheah and Phau (2006) as well as Yeoh and Paladino (2007) studies. Consequently, this variable appears to have a great relevance to determine an ecological behavior.

Figure 3-5: Symbols Related to Environmental Issues and Ecoliteracy

Source: http://ecostate.wordpress.com/

3.2.3. Personality Factors

Several studies attempted to identify relationship among personality variables, environmental attitudes and behaviors. But personality variables have not investigated in as a deeply manner as the research into demographics. According to previous researches that will be explained in this part, they provide interesting insight about the environmentally conscious consumer.

In the existing literature related to environmental studies several variables investigated under the title of personality factors. But perceived consumer effectiveness (PCE, also named as locus of control in some studies such as Shwepker and Cornwell, 1991), collectivism, long term orientation, and altruism are main factors that have significant effect on consumer attitudes and behavior.

The concept of perceived consumer effectiveness (PCE) was first described by Kinnear, Taylor and Ahmed, (1974) as a measure of an individual belief that he or she can have an effect on environmental issues. Among the top 10 predictors of environmentally conscious behavior, PCE was found to be the best predictor and the findings have shown that individual who felt strongly that his/her efforts could have positive effect on nature showed a higher environmental attitude than average.

In the environmental marketing literature PCE was measured as an element of the personality variables to predict ecological concern (Kinnear et al., 1974) and ecological consumption responsible patterns (Balderjahn, 1988). Schwepker and Cornwell (1996) preferred to use locus of control to name the variable rather than PCE.

The concept of PCE was distinguished from environmental concern and contributes uniquely in predicting certain environmental behavior (Ellen et al.,1991). It means, attitude and PCE can be modeled as two distinct constructs in the environmental studies. In terms of the research results, PCE was related to environmental attitudes (Kim and Choi, 2003; 2005). People who have exhibited higher PCE are likely to be more environmentally concerned than those who have lower PCE. On the other hand, Ellen et al. reported that the interaction between PCE and concern was not significant. As a result, the relationship between PCE and environmental concern is still inconclusive and it warrants further research.

In terms of behavioral aspect the concept of perceived consumer effectiveness proposed in Theory of Planned Behavior (Ajzen, 1991) by some of the researchers (Vermeir and Verbeke, 2007). It predicts consumer behavior directly. For instance, in previous studies it was reported that PCE was found significant for the purchase of ecologically safe products, recycling, and contribution to environmental groups, but was

not a significant factor in the individual's membership in environmental groups on environmental issues. The results of their findings were consistent with the findings from Balderjahn (1988), who had reported a significant direct linkage between PCE and energy saving, and purchase of non-polluting products.

Furthermore, Straughan and Roberts (1999) found that PCE as a predictor of ecologically conscious consumer behavior (EECB) which explained 33 percent of the variation in ECCB. The finding was consistent with the earlier findings of Roberts (1996) as Roberts demonstrated that 32.8 percent of the variance in ECCB could be explained by PCE. It provides the greatest insight of the roles of PCE on ECCB. In both studies, PCE was measured as one of the personality variables in predicting the behavior and found to be a predictor for ECCB. Lee and Holden (1999) have divided the environmental behavior into high cost and low cost behavior. PCE was reported to be significantly and positively related to high cost consumer behavior (for instance; as an active member of an environmental group, give money to clean up the environment, write to the government about the environment). Also, Kim (2002) had reported that PCE was a significant predictor of energy saving, green purchase, and recycling behavior. Kim and Choi (2003) found that PCE had a direct effect only on energy-saving and recycling behavior, and had an indirect effect on green purchase behavior via environmental attitudes. Moreover, PCE was found to be directly related to green purchase behavior (Kim and Choi, 2005). Thus, PCE exerts different impacts on the different types of environmental behavior. Webb et al. (2008) had reported that PCE was found to be a key variable related to socially responsible behavior. The more the respondents believed that their actions made a difference; the more they were to be influenced by environmental impact in their purchase and usage decisions and to recycle.

The increasing number popular and effective International NGO's in the world can be another indicator how PCE affects consumer behavior.

NAME OF NGO	LOGO	SINCE	OBJECTIVES	ACTIVITIES
Greenpeace	GREENPEACE	1971	ensure the ability of the earth to nurture life in all its diversity	campaigns, regional/global projects, activating publics against harmful operations
UNEP (United Nations Environment Programme)	UNEP	1972	to assess in environmental issues at the global and regional level	global reports, regional/global projects, supporting new technologies
Center for International Climate and Environmental Research	CICERO	1990	to conduct research and provide reports, information and expert advice about issues related to global climate change and international climate policy	research, reports on environment, regional/global projects
European Environment Agency (EEA)		1994	to establish a network for the monitoring of the European environment.	European Topic Centre on Air and Climate Change ;Renewable energy
Center for Environmental Research and Conservation	Center for Environmental Research and Conservation	1994	to proliferate a deeper understanding of ecology in order to inform political, social and economic decision making	seminars, research and regional/global projects
Intergovernmental Panel on Climate Change (IPCC)		1998	to assess information; human-induced climate change, the impacts of human-induced climate change and options for adaptation and mitigation.	publishments of special reports on topics relevant to the implementation of environmental laws

Figure 3-6: International NGOs related to Environmentally Sustainable Development

Adapted from http://library.duke.edu/research/subject/guides/ngo_guide/ngo_links/ environment. html

Altruism is another variable used in studies which aims to profile environmentally conscious consumers. As Keating et al. (2007) referring to August Comte (1875) some social behavior was unselfishly motivated to benefit others. Batson, (1991) defined altruism as a motivational state aiming to increase another's welfare. The impact of altruism on purchase behavior is an important issue for business firms and it is an increasingly seen topic in the literature .

With the increasing effect of technology in today's global economy, environmental and humanitarian issues are increasingly important to some of the consumers. Companies and brands that are perceived positively on these dimensions have a real chance to take advantage of people's growing sense of altruism (Insight,

2005). Although altruism has been researched previously in a social or psychological context, it is considered to have an important influence on consumer behavior (Simon, 1993). Altruistic behavior is defined as "the behavior which is carried out to benefit another without anticipation of external rewards and performed for its own end and restitution" (Rushton, 1989).

Stern et al., (1993) examined the role that altruism and egoism played in influencing environmentally conscious behavior. Specifically, the discussion was about if altruism, a concern for the welfare of others, is a driver of environmentally friendly behavior, or not. It was concluded in the study that altruism has an effect on environmental attitude, thus behavior.

In the literature collectivism defined as the belief that an individual has regarding his/her interaction with others and states interdependence, group-oriented goals, social hierarchies, in group harmony, and low level of competition (Hofstede, 1980). The behavior of the collectivistic people is usually driven by social norms and by willingness to share scarce resources with others (Sinha & Verma, 1987). Thus, it is inferred that collectivistic people are more likely to develop environmentally friendly attitudes because they have propensity to demonstrate cooperative behavior and give priority to the goals of the group rather than their personal goals (Kim & Choi, 2005). In addition, they care about their relationships with others, show concern for the welfare of society, and emphasize the importance of duties and obligations (Laroche et al., 2001). In many cases, being collectivistic shows that a person does not present personal motivations (e.g. inconvenience caused by recycling) for those that are good for the group (e.g. keeping the environment clean). Thus, a person who thinks collectively is expected to protect the environment, and the whole society can enjoy prosperity (McCarty & Shrum, 1994). The positive association between collectivism and environmentally friendly attitudes was confirmed in previous studies (e.g. Chan, 2001; McCarty & Shrum, 2001).

Hofstede (1980) defined the long-term orientation as "the prospects perceived by an individual that a society will be in a position to overcome its problems over time". It is the personality treat that explains an individual has a pragmatic future-oriented

perspective (fostering virtues like perseverance and thrift), rather than a short-term point of view. A long term oriented person preserves social traditions, adheres to family values, and considers reliability, responsiveness, and empathy to be extremely important (Furrer et al., 2000). Since s/he preserves traditions and history, s/he is also likely to respect and preserve the environment, in order to reap benefits for his/her family and friends in the future and provides sustainable conditions for next generations.

Researches have shown that long-term-oriented people have propensity to develop attitudes towards the protection of the natural environment (Joreiman et al., 2004). Such attitudes stimulate environmentally conscious behavior within the household (e.g. decrease in home consumption) and the society. The latest research used long term orientation as a variable was conducted by Leonideu et al. (2010), it was used as a predictor of environmental attitude and significant relationship between environmental attitude and long term orientation.

3.2.4. Demographic Characteristics

Demographic variables have been used in previous studies to understand environmental consciousness. There are different results that previous research shows about demographic variables; in some studies they found to have significant relationships to individuals' environmental consciousness (Kinnear et al., 1974; Schwepker and Cornwell, 1991). However, while this is true for general environmental measures, according to Balderjahn, (1988) the results are somewhat inconsistent for specific pro-environmental behaviors, such as green purchasing decisions.

According to Kollmuss and Agyeman, (2010) two demographic factors are directly related to environmental attitude and pro-environmental behavior; are gender and years of education. Women generally have less environmental knowledge than men but they are more emotionally engaged, show more concern about environmental destruction, believe less in technological solutions, and are more willing to change (Lehmann, 1999). They claimed that the longer the education, the more extensive is the

knowledge about environmental issues. But it is not always true to state that more education does necessarily mean increased pro-environmental behavior.

Various studies have shown significant differences between men and women in environmental attitudes with men having more negative attitudes towards the environment compared to women (Tikka et al., 2000). Women were more likely to buy green product because they believe the product was better for the environment (Mainieri et al., 1997).

Straughan and Roberts (1999) segmented college students based upon ecologically conscious consumer behavior and found that the younger individuals were more sensitive to environmental issues. The results of their study indicated that the demographic variables such as age and gender were significantly correlated with ecologically conscious consumer behavior.

According to Schwepker and Cornwell, (1995) place of residency, is another useful segmenting variable that was not taken the deserved attention by marketing scholars investigating the ecologically concerned consumer. and Cornwell, (1995) explain that Tremblay and Dunlap claimed in 1978 that urban residents should be more concerned with environmental problems since they are generally exposed to higher levels of pollution and other types of environmental problems. Although there is some evidence that environmental concern is related positively to urban residence, they are not clear. A review by Samdahl and Robertson, (1989) suggests that residence is sometimes inadequate in explaining the variance in perceptions of environmental problems or ecological behavior. Samdahl and Robertson stated referring to Van Liere and Dunlap, (1980) based on its potential use for segmentation, even though there are conflicting results, many researchers defend that this variable should not be omitted in a study of environmental consciousness. Clearly, it is plausible that one's place of residence may influence one's attitude toward pollution or litter, which in turn may influence one's environmental behavior.

Table 3-1

Variables Used in Previous Studies about Environmentally Conscious Behavior

Criteria	Variable	Research
Demographic	Age, gender, family dimension, religion, subculture, education, occupation, income, social class, residency type	Webster (1975), Andersen et al. (1977), Robertson(1989), Samdahl and Robertson (1989), Banerjee and McKeage (1994), Roberts (1996), Jain et al.(1997), Laroche et al. (2001), Kaur(2006), DSouza et al (2007)
Psychographic	Lifestyle, personality, motivation, values, altruism, long term orientation, collectivism	McCarty and Shrum (1994), Cornwell and Shwepker (1995), Straughan and Roberts(1999), Vlosky et al. (1999), Furrer, et al.(2000), Perlman 2005, Resick et al 2006, Croson, (2007), Keating et al., (2007), Leonideu et al (2010)
Behavioral	Knowledge, attitude, product usage, purchase behavior, brand loyalty, benefis	Kinnear at al. (1974), Balderjahn (1988), Alwitt and Berger (1993), , Cornwell and Shwepker (1995), Rios et al. (2006), Leonideou (2011)
Environmental	Concern, PCE, knowledge, affect, commitment, ecological consciousness, activism, environmentally friendly behavior, information search, willingness to pat, recycling, skepticism towards environmental claims	Maloney and Ward (1973), Maloney at al, (1975), Schlegelmilch (1996), Mostafa(2007),

A research model is generated according to results of the literature review. This model is presented in the fourth part of the study.

4. RESEARCH DESIGN and METHODOLOGY

In this section of the study, research objectives, research design, research hypotheses, variables of the study, data collection and sampling procedure will be presented as methodological part of the study.

4.1. RESEARCH OBJECTIVES

The aim of the study is to develop an understanding of factors affecting the environmentally conscious behavior. This aim brought two questions into the minds:

What are the factors affecting environmentally conscious behavior?

How to characterize the environmentally conscious consumers? were the two research questions leading to the objectives.

The objectives of the study are as follows:

1. Analyzing the impact of personality traits on environmental attitudes,

2. Determining the level of environmental knowledge of students and its effect on attitudes,

3. Understanding the effect of environmental attitudes on environmental intention,

4. Examining the effect of environmental intentions on environmentally conscious behavior.

5. Understanding the effect of demographics on environmentally conscious behavior.

4.2. RESEARCH DESIGN

This research is a cross-sectional quantitative study that aims to analyze data with a descriptive approach, which was defined by Malhotra, (2002) as "a type of conclusive research that has as its major objective the description of something – usually market characteristics or functions".

4.3. DATA COLLECTION PROCEDURE

Data collection procedure of the study consists the method of data collection, development of data collection instrument and proposed research model with variables list that are used in the research.

4.3.1 Method of Data Collection

In this study, primary data were obtained through e-mails and face to face interviews, administered with students at private and public universities (Marmara University, Istanbul Bilgi University) in Istanbul. Questionnaires as will be explained under 4.3.2 were used to collect the data. Students from School of Health Sciences, Business Administration, Faculty of Communication, Math Department, Engineering Faculty and some other faculties were filled the questionnaires. 300 questionnaires were distributed in course hours and 240 was returned back.

Because young people are familiar with the technology e-mail method was also chosen to contact with them. An online website (online anket) was used to reach the respondents. The link of the questionnaire was;

(http://www.online-anket.gen.tr/anketformu.php?kullanici_id=4599&anket_id=1)   and this link sent to 200 university students and 80 people responded.

Totally 500 questionnaires were distributed and 360 of them was returned. Thus, the response rate is %72. But 40 of them were not completed, and these questionnaires were excluded from analysis.

4.3.2 Data Collection Instrument

A structured questionnaire was used as a data collection instrument. The questionnaire was designed based on literature review in accordance with the research aims and objectives. Prior to main study a pilot study at Marmara University Business Administration class (40 people) performed in order to reveal if there was any wording mistake or misunderstood points etc. Based on the feedbacks received, there was no misunderstanding in the questionnaire.

The questionnaire had 63 statements to measure personality factors, environmental attitudes, environmental intention and environmentally conscious behavior, 6 statements to measure environmental knowledge and 6 questions on demographics and was composed of 6 parts. The first part was related to environmental attitudes. To be more specific, environmental attitude items were composed of environmental concern (Q1-Q5), attitude toward litter (Q6-Q9), perception of pollution (Q10-Q13), attitude towards environmentally conscious living (Q14-Q19), Inconvenience of being environmentally friendly (Q20-Q26), and attitude toward recycling (Q27-Q30),

The second part (Q31-Q46) is related to personality factors; items were composed of PCE (perceived consumer effectiveness, Q31-Q35), collectivism (Q36-Q39), long term orientation (Q40-Q42), and altruism (Q43-Q46).

The third part (Q47-Q52) focused analysis of environmental intention of respondents. The forth part investigated the environmentally conscious behaviors of respondents (Q53-Q63). The fifth part of the questionnaire includes the questions related to environmental knowledge (Q64-Q69). The sixth part was about the information about the demographic features of the respondents.

In the first four parts, the questions were measured by interval scale and expected to indicate the degree of relevancy to specific items for the respondents. The respondents had to choose the degree the statements apply to their life among a 6 point likelihood scale (Never, Seldom, Sometimes, Often, Mostly, Always).

In the fifth part environmental knowledge of the respondents was measured by multiple choice questions. Lastly the sixth part of the questionnaire was about the demographic features of the sample.

4.3.3 Research Model and Variables Used In Research

The variables used in the research were derived from the literature reviewed or developed by the researcher based on the research objectives. The resources for the variables are shown in Table 4-1.

Table 4-1

Variables of the Research

Dimension	Subdimension	Item Statement	Source	Objective(s) related to the variable
Environmental Attitude	Environmental Concern	S1. Plants and animals exist primarily to be used by humans	Roberts (1996)	-Understanding the effect of environmental attitudes on environmental intention Analyzing the impact of personality traits on environmental attitudes
		S2. We are approaching the limit of the number of people the earth can support.	Straughan and Roberts (1999)	
		S3. The balance of nature is very delicate and easily upset	Straughan and Roberts (1999)	
		S4. Mankind is severely abusing the environment	Clark,Kotchen and Moore (2002)	
		S5. When humans interfere with nature, it often produces disastrous consequences.	Clark,Kotchen and Moore (2002)	
	Attitude toward litter	S6. I am concerned with the amount of pollution in my city.	Schwepker,Cornwell (1991)	-Understanding the effect of environmental attitudes on environmental intention Analyzing the impact of personality traits on environmental attitudes
		S7. Seeing litter in streets and parks bothers me.	Schwepker,Cornwell (1991)	
		S8. Seeing someone litter upsets me	Schwepker,Cornwell (1991)	
		S9. Because we live in a big country I believe any pollution can easily spread and I do not have to worry.	Schwepker,Cornwell (1991)	
	Perception of pollution	S10. The world is facing a solid waste disposal problem.	Schwepker,Cornwell (1991)	-Understanding the effect of environmental attitudes on environmental intention Analyzing the impact of personality traits on environmental attitudes
		S11. The city in which I live is running out of places to dispose of its solid waste.	Laroche et al.(2002)	
		S12. I believe that industry could reduce the amount of packaging it presently uses for some consumer packaged goods.	Laroche et al.(2002)	
		S13 The earth is a closed system where everything eventually returns to normal, so I see no need to worry about its present state.	Laroche et al.(2002)	

Dimension	Subdimension	Item Statement	Source	Objective(s) related to the variable
Environmental Attitudes	Attitude towards environmentally conscious living	S14. When I buy products, I try to consider how my use of them will affect the environment and other consumers	Schwepker and Cornwell (1991)	-Understanding the effect of environmental attitudes on environmental intention -Analyzing the impact of personality traits on environmental attitudes
		S15. I think people should prefer environmentally friendly products.	Generated by the researcher	
		S16. I think information about the environmental effect of the product on the label is adequate.	Generated by the researcher	
		S17. I think environmental problems have direct effect on my daily life	Generated by the researcher	
		S18. I think using environmentally friendly products should be a life style.	Generated by the researcher	
		S19. I think protecting environment is important	Generated by the researcher	
	Inconvenience of being environmentally friendly	S20. Keeping separate piles of garbage for recycling is too much trouble,	Laroche et al. (2002)	-Understanding the effect of environmental attitudes on environmental intention - Analyzing the impact of personality traits on environmental attitudes
		S21. Trying to control pollution is much more trouble than it is worth.	Generated by the researcher	
		S22. If I needed to wash out bottles for recycling I would not recycle.	Clark,Kotchen and Moore (2002)	
		S23. I think taking recycle bags from my door may be encouraging for me.	Generated by the researcher	
		S24. I use paper cups even if they are harmful for the environment.	Schwepker and Cornwell (1991)	
		S25. Seeing people who collects paper form garbage encourages me to recycle.	Generated by the researcher	
		S26. I think clothes made from organic cotton are indurable.	Generated by the researcher	
	Attitude toward recycling	S27. I think recycling reduce pollution.	Laroche et al. (2002)	-Understanding the effect of environmental attitudes on environmental intention - Analyzing the impact of personality traits on environmental attitudes
		S28. I think recycling is important to save natural resources.	Straughan and Roberts (1999)	
		S29. I think recycling will save land that would be used as dumpsites	Straughan and Roberts (1999)	
		S30. I think our country has so many trees that there is no need to recycle paper.	Schwepker and Cornwell (1991)	

Table 4-1

Variables of the Research (Continued)

Dimension	Subdimension	Item Statement	Source	Objective(s) related to the variable
Personality Factors	**PCE (perceived consumer effectiveness)**	S31. Each person's behavior can have a positive effect on society by signing a petition in support of promoting the environment.	Rotter (1966),	-Analyzing the impact of personality traits on environmental attitudes
		S32. I feel I can help solve natural resource problem by conserving water and energy.	Schwepker and Cornwell (1991)	
		S33. I can protect the environment by buying products that are friendly to the environment.	Kim and Choi (2005)	
		S34. There is so much that I can do about the environment	Kim and Chung (2011)	
		S35. I think I can help to protect environment by warning people who are throwing litter.		
	Collectivism	S36. I work hard for the goals of a group, even if it does not result in personal recognition	Adopted from McCarty and Shrum (2001)	-Analyzing the impact of personality traits on environmental attitudes
		S37. Working for common aims makes me happy.	Adopted from McCarty and Shrum (2001)	
		S38. I work for social community activities.	Adopted from McCarty and Shrum (2001)	
		S39. I do what is good for most of the people in the group, even if it means that I will receive less.	Adopted from McCarty and Shrum (2001)	
	Long term orientation	S40. I make long term plans.	Generated by the researcher	-Analyzing the impact of personality traits on environmental attitudes
		S41. I show respect for traditions	Hofstede (1980)	
		S42 I believe people should think in an emphatic way.	Generated by the researcher	
	Altruism	S43. It is my duty to help other people when they are unable to help themselves.	Clark,Kotchen and Moore (2002)	-Analyzing the impact of personality traits on environmental attitudes
		S44. Contributions to community organizations can greatly improve the lives of others.	Clark,Kotchen and Moore (2002)	
		S45 Many of society's problems result from selfish behavior.	Clark,Kotchen and Moore (2002)	
		S46. My personal actions can greatly improve the wellbeing of people I don't know.	Clark,Kotchen and Moore (2002)	

Table 4-1

Dimension	Item Statement	Source	Objective(s) related to the variable
Environmental Intention	S47. I think it is acceptable to pay 10% more for groceries that are produced, processed, and packaged in an environmentally friendly way. S48. I would purchase a product in a biodegradable package before purchasing a similar product in a non-biodegradable package. S49. I would purchase a product in a recyclable package before purchasing a similar product in a package which is not recyclable. S50. I would purchase an attractively packaged product even if I knew it is harmful for the environment. S51. I would be willing to purchase some products (now bought in smaller sizes) in larger packages with less frequency. S52. I would purchase a product with an untraditional package design (for example, round where most are square) if it meant creating less solid waste.	Laroche et al. (2002) Schwepker and Cornwell (1991)	-Examining the effect of environmental intentions on environmentally conscious behavior -Understanding the effect of environmental attitudes on environmental intention
Environmentally Conscious Behavior	S53. I buy products in recyclable package. S54. I buy products from companies accused of being polluters. S55. I buy plastic cups, forks, knives even I knew they are harmful for the environment. S56. I use Styrofoam cups. S57. I buy energy efficient household appliances S58. I buy products, which have excessive packaging S59. I switch products for ecological reasons. S60. Even I am aware of the negative effects of some products I buy them. S61. I recycle. S62. I buy environmentally friendly products even they are a little bit expensive. S63. I put my litter in recycle boxes.	Laroche et al. (2002) Awad T. (2011)	-Examining the effect of environmental intentions on environmentally conscious behavior

Table 4-1

Variables of the Research (Continued)

Dimension	Item Statement	Source	Objective(s) related to the variable
Environmental Knowledge	S64. The most common pollutants of water are a- b- c- d- e-	Maloney and Ward (1975)	-Determining the level of environmental knowledge of students and its effect on attitudes
	S65. Which of the following materials usually takes longest to decompose a- b- c- d- e-	Maloney and Ward (1975)	
	S66. Birds and fish are poisoning by a- b- c- d- e-	Generated by the researcher	
	S67. Which of the following material using in the shoe production has carcinogenic effect? a- b- c- d- e-	Generated by the researcher	
	S68. Which of the following material's usage is forbidden in the production of roofs? a- b- c- d- e-	Generated by the researcher	
	S69." Everybody has right to live in healthy and balanced environment" this statement belongs to …. part of the constitutional law? a- b- c- d- e-	Generated by the researcher	
Demographic Factors	70: Age…	Schwepker and Cornwell (1991)	-Understanding the effect of demographics on environmentally conscious behavior
	71. Gender….	Schwepker and Cornwell (1991)	
	72: Education 1. Undergraduate 2. Graduate 3. PhD		
	73. Your monthly income……		
	74.Place of residency in childhood	Schwepker and Cornwell (1991)	

Because the data obtained from the literature review were utilized with researcher'
interpretation, an initial research model was established to be tested as presented in
Figure 4-1.
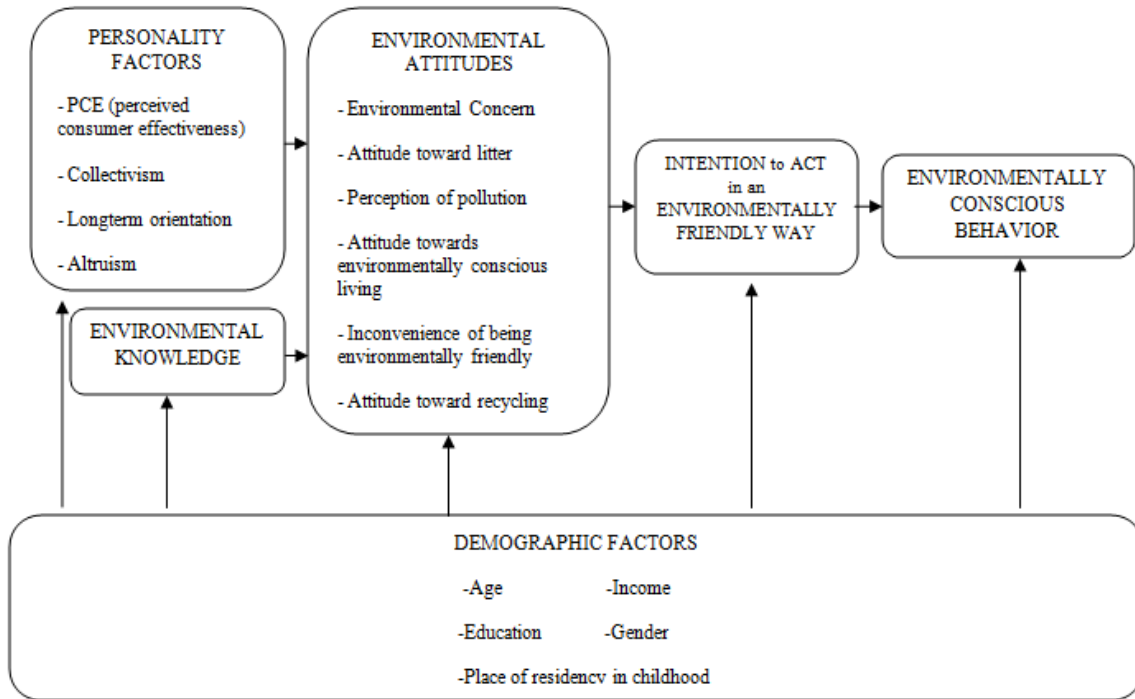
Figure 4-1: Research Model

After investigating the literature about the topic a model for the current study is
generated (Figure 4-1). Personality factors consisting of collectivism, perceived consumer
effectiveness, long term orientation and altruism are included in the model. According to
insignificant results of liberalism it is not taken into account. Since there is no law in
Turkey about littering environment law obedience is also omitted from personality
factors. Due to the significant results of studies in the literature altruism will be
investigated under the title of personality factors.

Even though environmental knowledge's relationship between other variables
was investigated in the literature the most significant results were about its effect on
directing environmental attitudes. According to literature review attitudinal variables are
listed as; environmental concern, attitude toward litter, perception of pollution, attitude
toward environmentally conscious living, inconvenience of being environmentally
friendly and attitude toward recycling.

The importance of intention also taken into account in the model. Because there might be significant differences among groups due to the demographic features, demographic factors (age, income, education, gender, place of residency) are also included in the model.

4.3.4. Hypothesis of the study

H_1: Personality factors have significant and positive effect on environmental attitudes.

H_{1a}: PCE has significant and positive effect on environmental concern.

H_{1b}: PCE has significant and positive effect on attitude toward litter.

H_{1c}: PCE has significant and positive effect on perception of pollution.

H_{1d}: PCE has significant and positive effect on attitude toward environmentally conscious living.

H1e: PCE has significant and positive effect on inconvenience of being environmentally friendly.

H1f: ACL (altruism, collectivism, long term orientation) has significant and positive effect on environmental concern.

H1g: ACL has significant and positive effect on attitude toward litter.

H_{1h}: ACL has significant and positive effect on perception of pollution.

H_{1i}: ACL has significant and positive effect on attitude toward environmentally conscious living.

H_{1j}: ACL has significant and positive effect on inconvenience of being environmentally friendly.

H_2: Environmental attitude has significant and positive effect on intention.

H_{2a}: Environmental concern has significant and positive effect on intention.

H_{2b}: Attitude toward litter has significant and positive effect on intention.

H_{2c}: Perception of pollution has significant and positive effect on intention.

H_{2d}: Attitude toward environmentally conscious living has significant and positive effect on intention.

H_{2e}: Inconvenience of being environmentally friendly has significant and positive effect on intention.

H_3: Environmental intention has significant and positive effect on environmentally conscious behavior.

H_4: Personality significantly differs among age groups.

H_5: Environmental attitude significantly differs among age groups.

H_6: Environmental intention significantly differs among age groups.

H_7: Environmentally conscious behavior significantly differs among age groups.

H_8: Personality factors significantly differ among income groups.

H_9: Environmental attitude significantly differs among income groups.

H_{10}: Environmental intention significantly differs among income groups.

H_{11}: Environmentally conscious behavior significantly differs among income groups.

H_{12}: Personality factors significantly differ among education groups.

H_{13}: Environmental attitude significantly differs among education groups.

H_{14}: Environmental intention significantly differs among education groups.

H$_{15}$: Environmentally conscious behavior significantly differs among education groups.

H$_{16}$: Personality factors significantly differ among gender groups.

H$_{17}$: Environmental attitude significantly differs among gender groups.

H$_{18}$: Environmental intention significantly differs among gender groups.

H$_{19}$: Environmentally conscious behavior significantly differs among gender groups.

H$_{20}$: Personality factors significantly differ according to place of residency in childhood.

H$_{21}$: Environmental attitude significantly differs according to place of residency in childhood.

H$_{22}$: Environmental intention significantly differs according to place of residency in childhood.

H$_{23}$: Environmentally conscious behavior significantly differs according to place of residency in childhood.

H$_{24}$: Environmental Knowledge has significant and positive effect on environmental attitudes.

4.5 SAMPLING

The sampling process includes four dimensions; definition of the target population, specifications of the sampling frame and sampling unit, selection of the sampling method, and determination of the sample size.

4.5.1 Definition of Target Population

A well-known author in the marketing research literature Malhotra, (2002: 347) defines the target population as follows: "Target population is the collection of elements

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or objects that possess the information the researcher seeks and about which the researcher will make inferences. Defining the target population involves translating the research problem into a precise statement of who should and should not be included in the sample". The definition of the population is the university students at public and private universities.

4.5.2 Specifications of Sampling Frame and Sampling Unit

"Sampling frame is the representation of the elements of the target population. It consists of a list or set of directions for identifying the target population" (Malhotra, 2002, 348). The sampling frame is the students who are attending undergraduate or graduate level courses at public and private universities.

4.5.3 Selection of Sampling Method

The non-probabilistic sampling was chosen as convenience type to analyze the factors effecting environmentally conscious behavior. Since university students are future of the country and they are potential governors, managers, professors, their decisions will directly affect the environmental issues. Also they are exposed to situations requiring decision making about environmental issues in their daily lives as a students at universities (paper cups, plastic bottles, cans).

4.5.4 Determination of Sample Size

The data for the current investigation is obtained from university students. The survey instrument was administered in a self-completion format to a sample of 200 undergraduates at Turkish universities (Marmara University, Istanbul Bilgi University). Questionnaires were distributed at the beginning of lectures, with the subjects requested to return the questionnaire on their way out of the lecture theatre. All questionnaires were returned, resulting in a 100 per cent response rate.

In the social psychology, students are generally used as subjects because of the convenience-related factors. Bearden et al., (1993) defended that for their representativeness of the population of interest this sample type is often overlooked. Bernstein et al. (1975), claimed that limited generalizability from student samples should

not be assumed as disadvantage for any social phenomenon. Actually, previous research in the US, proved that the use of student samples in the investigation of environmental consciousness, found students' responses to be very similar to those recorded by the general public as a whole (Synodinos, 1990).

4.6 Limitations of the Research

Because of some factors, there are some limitations for this study. By considering these limitations, recommendations will be presented in the last part of the study in detail. Some of the limitations of this research are explained as follows.

First of all the volume of the sample and sampling technique can be a limitation for this study. When the volume of the universe (university students in Istanbul) taken into account, the sample of the study is expected to be broader. Because of the budget and time constraints the questionnaires reached 500 students. Reaching such a big amount of (all university students in Istanbul) requires a financial support and a well organized team in a longer time period.

Furthermore, permission needed to be taken from universities to conduct a study with their students. Since the researcher works at Istanbul Bilgi University and studies at Marmara University, permissions were taken from the heads of the departments based on the relationships. But taking permission from other universities requires more time and procedures which do not assure positive responses. Selection of the sample can be justified by the difficulties (time, budget, permission), still, it would have been more representative if it was used one of techniques stratified or clustered sampling was used. The research will have been more precious if it is to be applied to more students.

In addition to this, since the respondents were not required to provide their names, it was assumed that the respondents reflect their opinions more truly. However, they may still have not been sincere in their answers.

5. RESEARCH FINDINGS

To identify the significance of the relationships and effects determined before, Statistical Package for the Social Sciences (SPSS) version 17.0. has been used. Statistical methods were chosen based on the measurement scales and type of the issue analyzed, which are, analysis of variance (ANOVA), t test, factor analysis, and regression analysis.

5.1 PROFILE OF THE RESPONDENTS

The characteristics of the sample of this research were presented to explore the respondents. Since objectives aims to understand the effect of demographic factors, it is a necessity to firstly mention the characteristic structure of the respondents.

5.1.1. Age of the respondents

To determine the age of the respondent, the question was asked as an open ended question. Table 5.1 shows the age of respondents. The age of the respondents ranged between 18 and 42, whereas the mean age of respondents is 23.15.

Table 5-1
Age of the Respondents

Age	n	Valid Percent
21 and below	129	40,3
22 -23 years old	75	23.5
24 and above	57	36.2
Total	320	100,0
Mean		23,1
Median		22
Mode		21
Std. Deviation		3,67

In the Table 5-1, among the 320 respondents about 40% are 21 years old or below, 24 % of them are in the age group 22 - 23 and 36 % of them are 24 or older.

5.1.2. Gender of the Respondents

Gender of the respondents was asked as two choice questions with female and male preferences. Even there is a third option provided in other countries, it is not common in Turkey. Table 5-3 indicates that among the 320 respondents 67 % are female and 33 % of the 320 respondents are male.

Table 5-2

Gender of the Respondents

		Frequency	Valid Percent
Valid	Female	215	67,2
	Male	105	32,8
	Total	320	100,0
Mode			1
Std. Deviation			,47

5.1.3. Education Level of the Respondents

The education level of respondents was searched with three alternative questions. PhD, Graduate (master) and undergraduate options were given in the questionnaire. As Table 5-4 indicates that among the 320 participants majority of them are undergraduate level that constitutes 80 % of the respondents, about 12 % pursue master's degree, and a small group of the participants (8 %) are studying for a PhD degree.

Table 5-3
Education Level of the Respondents

		Frequency	Valid Percent
Valid	undergraduate	256	80,0
	master	38	11,9
	phd.	26	8,1
	Total	320	100,0
Median			1
Std. Deviation			,6

5.1.4. Income Level of the Respondents

The income level of the respondents was asked with six option question and answers are grouped in three categories in Table 5-4. Among the 320 respondents nearly 45% have a monthly income of 1000 TL and below, followed by about 44% within 1001-2000 TL range, the third group constituting 11% of the sample stated to have income of 2001 TL and above.

Table 5-4
Income Level of the Respondents

		Frequency	Valid Percent
Valid	1000 TL or below	143	44,6
	1001-2000 TL	141	44,1
	2001 TL and above	36	11.3
	Total	320	100,0
Mean			2,18
Std. Deviation			1,27

5.1.5. Place of Residency in Childhood of the Respondents

To determine the place of childhood residency of respondents 3 options as city, town and village were presented. Majority (80%) of the respondent students had spent their childhood in a city and only about and only 8% grew up in a small county or 12% in a village.

Table 5-5
Place of Childhood Residency of the Respondents

		Frequency	Valid Percent
Valid	city	255	79,7
	county	25	7,8
	village	40	12,5
	Total	320	100,0
Mode			1,00
Std. Deviation			,68

In sum, the majority of the participants are at 22-23 age group, more than 50% of respondents are female. In terms of education undergraduate students composes 80% of the sample, and the dominant group earns 1000TL or below and among the 320 participants 80% of them spent their childhood in a city.

5.2. EVALUATION OF THE FACTORS AFFECTING ENVIRONMENTALLY CONSCIOUS BEHAVIOR

The variables of the study are subjected to test to determine their reliability. Accordingly to this aim, factor analysis is implemented and Cronbach's Alpha coefficients of variables are calculated to evaluate validity and reliability of scales. After this process, some items of scales are dropped because they loaded different factors against expected or they decrease the reliability of variables. Thanks to factor analysis, it is guaranteed that scales of current research are stated clearly and accurately.

5.2.1. Factors of the Turkish Model

Because the scales that are used in our study are generally tested in previous researches, they are theoretically strong. However, explanatory factor analysis is implemented in order to evaluate factor structure of variables for the Turkish environment. Results of factor analysis designates nine factors and these nine factors explain 66.77% of the total variance that is over 0.60 (acceptable lower limit). In addition, Kaiser-Meyer-Olkin and Barlett test were done the results reflect KMO 0.881 and Barlett Test ($p=0.000<0.01$) and assure that result of factor analysis is statistically significant and factor analysis fits the data of study (Mitchell, 1994).

In order to evaluate the reliability of scales, Cronbach's Alpha coefficients are computed for each variable. General criteria to evaluate Cronbach's Alpha coefficients is

$\alpha \leq 0.70$: scale is reliable (Sipahi, Yurtkoru, Çinko, 2006) , but in some studies coefficients $\alpha \leq 0.60$ is also accepted as reliable (Özdamar, 1999; Akgül and Çevik, 2005).

According to these criteria, Cronbach's Alpha coefficients of perceived consumer effectiveness (Cronbach α: 0.864), attitudes towards environmentally conscious living

(Cronbach α: 0.801), Environmentally Conscious Behavior (Cronbach α: 0.808) and attitude toward litter (Cronbach α: 0.805) are highly reliable. Cronbach's Alpha coefficients of personality factors (Cronbach α: 0.765), intention (Cronbach α: 0.741), perception of pollution (Cronbach α: 0.709) and inconvenience of being environmentally friendly (Cronbach α: 0.670) are higher than 0.60 of acceptable lower limit (Nunnally, 1978) and they are quite reliable. Twelve variables belonging to personality factors' subdimensions; altruism, collectivism and long term orientation, did not load separately but some of them that is shown in Table 5-6 are loaded in the factor analysis. Thus, these three subdimensions combined under ACL title to be named at the end of the study in the revised model. Environmental knowledge, attitude toward recycling and environmental concern are removed from the study. Because Cronbach's Alpha coefficients of them are lower than the reliability limit. Factor loadings and Cronbach's Alpha coefficients of variables are presented in Table 5-6.

Table 5-6

Factor Loadings

Factors and Scales	Factors								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
PCE: Perceived Consumer Effectiveness (Cronbach α:0,864)									
PCE2 I think I can help solve natural resource problem by conserving water and energy.	,697								
PCE3 I think I can protect the environment by preferring products that are friendly to the environment.	,653								
PCE1 I believe each person's behavior can have a positive effect on environment and society.	,629								
PCE4 I believe there is so much that I can do about the environment	,563								
ATECL: Attitudes Towards Environmentally Conscious Living (Cronbach α:0,801)									
ATECL1 When I buy products, I consider how my use of them will affect the environment and other consumers		,731							
ATECL2 I think people should prefer environmentally friendly products.		,693							
ATECL5 using environmentally friendly products should be a life style.		,609							
ATECL 4 I think environmental problems have direct effect on my daily life		,605							
ECB: Environmentally Conscious Behavior (Cronbach α:0,808)									
ECB9 I separate garbage to recycle.			,808						
ECB11 I put my litter in recycle boxes.			,760						
ECB10 I buy environmentally friendly products even they are a little bit expensive than others.			,696						
ECB1 I buy products in recyclable package.			,637						
ATL: Attitude Toward Litter (Cronbach α:0,805)									
ATL3 Seeing someone litter upsets me				,838					
ATL2 Seeing litter in streets and parks bothers me.				,832					
ATL1 I am concerned with the amount of pollution in my city.				,593					
ACL: Altruism (A), Collectivism (C), Long Term Orientation (LTO) (Cronbach α:0,765)									
A1 It is my duty to help other people when they are unable to help themselves.					,730				
LTO3 I believe people should think in an emphatic.					,708				
A3 Many of society's problems result from selfish behavior.					,554				
C4 I do what is good for most of the people in the society, even if it means that I will receive less.					,510				
C2 Working for common aims makes me happy.					,416				
LTO2 I show respect for traditions					,406				

Table 5-6

Factor Loadings (Continued)

Factors and Scales	Factors								
	1	2	3	4	5	6	7	8	9
I: Intention (Cronbach α:0,741)									
I2 I would purchase a product in a biodegradable package before purchasing a similar product in a non-biodegradable package.						,810			
I3 I would purchase a product in a recyclable package before purchasing a similar product in a package which is not recyclable.						,700			
I1 I think it is acceptable to pay 10% more for groceries that are produced, processed, and packaged in an environmentally friendly way.						,504			
PP: Perception of Pollution (Cronbach α:0,709)									
PP2 I think the city in which I live is running out of places to dispose of its solid waste.							,807		
PP3 I believe that the amount of packaging can be reduced for some consumer packaged goods.							,695		
PP1 I think the world is facing a solid waste disposal problem.							,624		
EC: Environmentally Concern (Cronbach α:0,584)									
EC3 I think the balance of nature is very delicate and easily upset								,770	
EC2 I think we are approaching the limit of the number of people the earth can support								,653	
EC5 I believe when humans interfere with nature, it often produces disastrous consequences.								,590	
IBEF: Inconvenience of Being Environmentally Friendly (Cronbach α:0,670)									
IBEF5 I use paper cups even if they are harmful for the environment.									,773
IBEF1 Keeping separate piles of garbage for recycling is too much trouble.									,673
IBEF2 Trying to control pollution is much more trouble than it is worth.									,518

5.2.2. Analyzing the Impact of Personality Traits on Environmental Attitudes

In accordance with the objectives of the research, which were indicated at the beginning of the study, relationships between variables are analyzed at this section of the study. Also the effect of personality factors on environmental attitudes is examined in the light of hypotheses developed in Section 4. In order to understand that, a serious of regression analyses is conducted, and the separate effect of both perceived consumer effectiveness and other personality factors; ACL on each sub-dimensions (attitude toward

litter, perception of pollution, attitude toward environmentally conscious living, inconvenience of being environmentally friendly) of environmental attitudes are analyzed.

5.2.2.1 The Relationship between Perceived Consumer Effectiveness and Attitude toward Litter

In the first regression analysis, the separate effect of perceived consumer effectiveness on attitude toward litter is investigated. The results of analysis show that regression model is statistically significant (F: 123,611; p=0,000<0,05) and as it is predicted, perceived consumer effectiveness significantly and positively effects attitude toward litter (β=0,529; p=0,000<0,05). It means that increase in perceived consumer effectiveness also increases attitude toward litter. It is also found that perceived consumer effectiveness explains the 0,278 of change in attitude toward litter (Adjusted R^2= 0,278). According to these results, H_{1b} predicting perceived consumer effectiveness has significant and positive effect on attitude toward litter is supported. The results of analysis are presented in Table 5-7.

Table 5-7
Relationship between PCE and Attitude toward Litter

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,529[a]	,280	,278	,76518
a. Predictors: (Constant), PCE				
b. Dependent Variable: AttitudeToward Litter				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,795	,216		12,940	,000
	PCE	,481	,043	,529	11,118	,000
a. Dependent Variable: AttitudetowardLitter						

5.2.2.2 The Relationship between Perceived Consumer Effectiveness and Perception of Pollution

Second regression analysis examining the separate effect of perceived consumer effectiveness on perception of pollution demonstrates that regression model is statistically significant (F: 60,757; p=0,000<0,05) and as it is predicted, perceived consumer effectiveness significantly and positively effects perception of pollution (β=0,401; p=0,000<0,05). It means if perceived consumer effectiveness increases, perception of pollution also increases. It is also found that perceived consumer effectiveness explains the 0,158 of change in perception of pollution (Adjusted R^2= 0,158). According to these results, hypothesis H_{1c} predicting perceived consumer effectiveness has significant and positive effect on perception of pollution is supported.

The results of analysis are presented in Table 5-8.

Table 5-8
Relationship between PCE and Perception of Pollution

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,401[a]	,160	,158	,94950
a. Predictors: (Constant), PCE				
b. Dependent Variable: PercepofPollution				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,174	,268		8,111	,000
	PCE	,418	,054	,401	7,795	,000
a. Dependent Variable: Perception of Pollution						

5.2.2.3 The Relationship between Perceived Consumer Effectiveness and Attitude toward Environmentally Conscious Living

In third regression analysis, the relationship between perceived consumer effectiveness and attitude toward environmentally conscious living is analyzed. The results display that regression model is statistically significant (F: 195,454; p=0,000<0,05) and as it is assumed in hypothesis H_{1d}, perceived consumer effectiveness significantly and positively effects attitude toward environmentally conscious living (β=0,617; p=0,000<0,05). If perceived consumer effectiveness of students is high, attitude toward environmentally conscious living of them will also be high. According to these results, perceived consumer effectiveness explains the 0,379 of change in attitude toward environmentally conscious living (Adjusted R^2= 0,379) and H_{1d} predicting perceived consumer effectiveness has significant and positive effect on attitude toward environmentally conscious living is also supported.

The results of analysis are presented in Table 5-9.

Table 5-9
Relationship between PCE and Attitude toward Environmentally Conscious Living

Model Summary^b					

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	,617^a	,381	,379	,79360	
a. Predictors: (Constant), PCE					
b. Dependent Variable: AttitudeEnvConsc					

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,929	,224		4,145	,000
	PCE	,627	,045	,617	13,981	,000
a. Dependent Variable: AttitudeEnvConsc						

5.2.2.4 The Relationship between Perceived Consumer Effectiveness and Inconvenience of Being Environmentally Friendly

Fourth regression analysis investigating the separate effect of perceived consumer effectiveness on inconvenience of being environmentally friendly demonstrates that regression model is statistically significant (F: 100,944; p=0,000<0,05), and as it is predicted, perceived consumer effectiveness significantly and positively effects inconvenience of being environmentally friendly (β=0,491; p=0,000<0,05). It means if perceived consumer effectiveness increases, inconvenience of being environmentally friendly also increases. It is also found that perceived consumer effectiveness explains the 0,239 of change in inconvenience of being environmentally friendly (Adjusted R^2= 0,239). According to these results, H_{1e} predicting perceived consumer effectiveness has significant and positive effect on inconvenience of being environmentally friendly is supported.

The results of analysis are presented in Table 5-10.

Table 5-10
Relationship between PCE and Inconvenience

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	,491[a]	,241	,239	,90004	
a. Predictors: (Constant), PCE					
b. Dependent Variable: Inconvenience of being environmentally friendly					

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,200	,254		8,659	,000
	PCE	,511	,051	,491	10,047	,000
a. Dependent Variable: Inconvenience of being environmentally friendly						

5.2.2.5 The Relationship between ACL and Attitude toward Litter

In the fifth regression analysis, the separate effect of ACL on attitude toward litter is examined. The results of analysis show that regression model is statistically significant (F: 83,993; p=0,000<0,05) and as it is predicted, ACL significantly and positively effects attitude toward litter (β=0,457; p=0,000<0,05). It means that increase in ACL, also increases attitude toward litter. It is also found that ACL explains the 0,206 of change in attitude toward litter (Adjusted $R^{2=}$ 0,206). According to these results, H_{1g} predicting ACL has significant and positive effect on attitude toward litter is supported.

The results of analysis are presented in Table 5-11.

Table 5-11

Relationship between ACL and Attitude toward Litter

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	,457[a]	,209	,206	,80200	
a. Predictors: (Constant), ACL					
b. Dependent Variable: AttitudeToward Litter					
Coefficients					
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,048	,234		13,045	,000
	ACL	,467	,051	,457	9,165	,000
a. Dependent Variable: Attitude Toward Litter						

5.2.2.6 The Relationship between ACL and Perception of Pollution

Sixth regression analysis examining the separate effect of ACL on perception of pollution demonstrates that regression model is statistically significant (F: 59,990; p=0,000<0,05) and as it is predicted, ACL significantly and positively effects perception of pollution (β=0,398; p=0,000<0,05). It means if ACL of students is high, perception of

pollution also increases. It is also found that ACL explains the 0,156 of change in perception of pollution (Adjusted R^2= 0,156). According to these results, H_{1h} predicting that ACL has significant and positive effect on perception of pollution is supported.

The results of analysis are presented in Table 5-12

Table 5-12

Relationship between ACL and Perception of Pollution

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,398[a]	,159	,156	,95046
a. Predictors: (Constant), ACL				
b. Dependent Variable: Perception of Pollution				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,117	,277		7,647	,000
	ACL	,467	,060	,398	7,745	,000
a. Dependent Variable: PercepofPollution						

5.2.2.7 The Relationship between ACL and Attitude toward Environmentally Conscious Living

In seventh regression analysis, the relationship between ACL and attitude toward environmentally conscious living is analyzed. The results displays that regression model is statistically significant (F: 143,223; p=0,000<0,05) and as it is assumed in H_{1i}, ACL significantly and positively effects attitude toward environmentally conscious living (β=0,557; p=0,000<0,05). If ACL of students is high, attitude toward environmentally conscious living of them will also be high. According to results, ACL explains the 0,308 of change in attitude toward environmentally conscious living (Adjusted R^2= 0,308), and

H_{1i} predicting ACL has significant and positive effect on attitude toward environmentally conscious living is also supported.

The results of analysis are presented in Table 5-13.

Table 5- 13
Relationship between ACL and Attitude towards Environmentally Conscious Living

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,557[a]	,311	,308	,83733
a. Predictors: (Constant), ACL				
b. Dependent Variable: attitude toward environmentally conscious living				

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,134	,244		4,647	,000
	ACL	,636	,053	,557	11,968	,000
a. Dependent Variable: attitude toward environmentally conscious living						

5.2.2.8 The Relationship between ACL and Inconvenience of Being Environmentally Friendly

Eight regression analysis investigating the separate effect of ACL on inconvenience of being environmentally friendly demonstrates that regression model is statistically significant (F: 58,153; p=0,000<0,05), and as it is predicted before, ACL significantly and positively effects inconvenience of being environmentally friendly (β=0,491; p=0,000<0,05). It means if ACL is high, inconvenience of being environmentally friendly will also increases. It is also found that ACL explains the 0,239 of change in inconvenience of being environmentally friendly (Adjusted R^2= 0,239). According to these results, hypothesis 1_j predicting ACL has significant and positive effect on inconvenience of being environmentally friendly is supported.

The results of analysis are presented in Table 5-14.

Table 5-14

Relationship between ACL and Inconvenience

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,393[a]	,155	,152	,94986
a. Predictors: (Constant), ACL				
b. Dependent Variable: Inconvenience of being environmentally friendly				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,631	,277		9,510	,000
	ACL	,460	,060	,393	7,626	,000
a. Dependent Variable: Inconvenience of being environmentally friendly						

5.2.3. Understanding the Effect of Environmental Attitudes on Environmental Intention

In this part of the study, the effect of environmental attitude on intention to act in an environmentally friendly way is examined in the light of hypotheses developed in section 4. In order to achieve that, a serious of regression analyses is implemented and the separate effects of each sub-dimensions (attitude toward litter, perception of pollution, attitude toward environmentally conscious living, inconvenience of being environmentally friendly) of environmental attitudes on intention to act in an environmentally friendly way are examined.

5.2.3.1 The Relationship between Attitude toward Litter and Intention to Act in an Environmentally Friendly Way

In the first regression analysis, the separate effect of attitude toward litter on intention to act in an environmentally friendly way is analyzed. The results of analysis show that regression model is statistically significant (F: 44,074; p=0,000<0,05) and as it is predicted, attitude toward litter significantly and positively effects intention to act in an environmentally friendly way (β=0,349; p=0,000<0,05). It means that increase in attitude toward litter also increases intention. It is also found that attitude toward litter explains the 0,119 of change in intention to act in an environmentally friendly way (Adjusted R^2= 0,119). According to these results, H_{2b} predicting attitude toward litter has significant and positive effect on intention is supported.

The results of analysis are presented in Table 5-15.

Table 5-15

Relationship between Attitude toward litter and intention

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,349[a]	,122	,119	,98748
a. Predictors: (Constant), Attitude toward litter				
b. Dependent Variable: Intention				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,200	,321		6,853	,000
	Attitude toward litter	,408	,061	,349	6,639	,000
a. Dependent Variable: Intention						

5.2.3.2 The Relationship between Perception of Pollution and Intention to Act in an Environmentally Friendly Way

Second regression analysis investigating the separate effect of perception of pollution on intention to act in an environmentally friendly way demonstrates that regression model is statistically significant (F: 41,963; p=0,000<0,05), and as it is predicted before, perception of pollution significantly and positively effects intention to act in an environmentally friendly way (β=0,341; p=0,000<0,05). It means that increase in perception of pollution also increases intention to act in an environmentally friendly way. It is also found that perception of pollution explains the 0,114 of change in intention to act in an environmentally friendly way (Adjusted R^2= 0,114). According to these results, H_{2c} predicting perception of pollution has significant and positive effect on intention is supported.

The results of analysis are presented in Table 5-16.

Table 5-16

Relationship between Perception of Pollution and Intention

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,341[a]	,117	,114	,99037
a. Predictors: (Constant), perception of pollution				
b. Dependent Variable: Intention				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,833	,233		12,162	,000
	Perception of Pollution	,347	,054	,341	6,478	,000
a. Dependent Variable: Intention						

5.2.3.3 The Relationship between Attitude toward Environmentally Conscious Living and Intention to Act in an Environmentally Friendly Way

In third regression analysis, the relationship between attitude toward environmentally conscious living and intention to act in an environmentally friendly way is analyzed. The results display that regression model is statistically significant (F: 113,240; p=0,000<0,05) and as it is assumed in hypothesis 2_d, attitude toward environmentally conscious living significantly and positively effects intention to act in an environmentally friendly way (β=0,512; p=0,000<0,05). If attitude toward environmentally conscious living is high, intentions of students to act in an environmentally friendly way will also be high. According to results, attitude toward environmentally conscious living explains the 0,260 of change in intention to act in an environmentally friendly way (Adjusted R^2= 0,260), and H_{2d} predicting attitude toward environmentally conscious living has significant and positive effect on intention is also supported.

The results of analysis are presented in Table 5-17.

Table 5-17

Relationship between AttitudeEnvConscLiving and Intention

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,512[a]	,263	,260	,90483
a. Predictors: (Constant), Attitude toward environmentally conscious living				
b. Dependent Variable: Intention				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,158	,207		10,403	,000
	Attitude toward environmentally conscious living	,535	,050	,512	10,641	,000
a. Dependent Variable: Intention						

5.2.3.4 The Relationship between Inconvenience of Being Environmentally Friendly and Intention to Act in an Environmentally Friendly Way

In the forth regression analysis, the separate effect of inconvenience of being environmentally friendly on intention to act in an environmentally friendly way is analyzed. The results of analysis show that regression model is statistically significant (F: 27,676; p=0,000<0,05) and inconvenience of being environmentally friendly significantly and positively effects intention to act in an environmentally friendly way (β=0,283; p=0,000<0,05). It means an increase in inconvenience of being environmentally friendly also increases intention. It is also found that inconvenience of being environmentally friendly explains the 0,077 of change in intention to act in an environmentally friendly way (Adjusted R^2= 0,077). According to these results, H_{2e} predicting inconvenience of being environmentally friendly has significant and positive effect on intention is supported.

The results of analysis are presented in Table 5-18.

Table 5-18

Relationship between Inconvenience and Intention

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,283[a]	,080	,077	1,01063	2,048
a. Predictors: (Constant), Inconvenience of being environmentally friendly					
b. Dependent Variable: Intention					

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,942	,264		11,141	,000
	Inconvenience	,289	,055	,283	5,261	,000
a. Dependent Variable: Intention						

5.2.4. Examining the Effect of Environmental Intentions on Environmentally Conscious Behavior

In this part of the study, the relationship between intention to act in an environmentally friendly way and environmentally conscious behavior is analyzed. The results of the regression analysis demonstrate that regression model is statistically significant (F: 23,946; p=0,000<0,05) and as it is assumed in hypothesis 3, intention to act in an environmentally friendly significantly and positively effects environmentally conscious behavior (β=0,265; p=0,000<0,05). If intention to act in an environmentally friendly way is high, environmentally conscious behavior way will also be high. According to results, intention to act in an environmentally friendly way explains the 0,067 of change in environmentally conscious behavior (Adjusted R^2= 0,067), and H_3 predicting intention to act in an environmentally friendly way has significant and positive effect on environmentally conscious behavior is also supported.

The results of analysis are presented in Table 5-19.

Table 5-19

Relationship between Intention and Environmentally Conscious Behavior

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,265[a]	,070	,067	,97632
a. Predictors: (Constant), Intention				
b. Dependent Variable: environmentally conscious behavior				

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,189	,230		13,870	,000
	Intention	,254	,052	,265	4,893	,000
a. Dependent Variable: environmentally conscious behavior						

5.2.5. Understanding the Effect of Demographics on Environmentally Conscious Behavior

One of the objectives of the study is to understand the effect of demographics on the environmentally conscious behavior. The demographic variables were grouped under age, income, education, gender, place of residency in childhood. Analysis conducted to understand the difference between demographic groups at this stage of the study.

5.2.5.1 Understanding the Difference among Age Groups

ANOVA test is used as a tool to understand the difference between age groups. Results is presented in Table 5-20.

Table 5-20

Difference among Age Groups

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Personality	Between Groups	8,261	2	4,131	5,882	,003
	Within Groups	222,597	317	,702		
	Total	230,859	319			
Environmental Attitude	Between Groups	1,915	2	,958	2,004	,137
	Within Groups	151,483	317	,478		
	Total	153,399	319			
Intention	Between Groups	1,867	2	,933	,843	,432
	Within Groups	351,200	317	1,108		
	Total	353,066	319			
Environmentally Conscious Behavior	Between Groups	2,892	2	1,446	1,268	,283
	Within Groups	361,529	317	1,140		
	Total	364,422	319			

In Table 5-20 only personality factors have significance value 0,003 < 0.05. Hence there is a significant relationship between personality factors and age and H_4 is accepted.

Environmental attitude has significance value $0.137 > 0.05$. Hence there is no significant relationship between environmental attitude and age and H_5 is rejected.

Environmental intention has significance value $0.432 > 0.05$. Hence there is no significant relationship between environmental intention and age and H_6 is rejected.

Environmentally conscious behavior has significance value $0.283 > 0.05$. Hence there is no significant relationship between environmentally conscious behavior and age and H_7 is rejected.

Table 5-21

Comparisons of the Age Groups

Multiple Comparisons							
Tukey HSD							
Dependent Variable	(I) agegroup	(J) agegroup	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Personality	1	2	-,01469	,12168	,992	-,3012	,2718
		3	-,33943[*]	,10722	,005	-,5919	-,0869
	2	1	,01469	,12168	,992	-,2718	,3012
		3	-,32474[*]	,12416	,025	-,6171	-,0324
	3	1	,33943[*]	,10722	,005	,0869	,5919
		2	,32474[*]	,12416	,025	,0324	,6171
Environmental Attitude	1	2	-,08085	,10038	,700	-,3172	,1555
		3	-,17706	,08845	,113	-,3853	,0312
	2	1	,08085	,10038	,700	-,1555	,3172
		3	-,09621	,10243	,616	-,3374	,1450
	3	1	,17706	,08845	,113	-,0312	,3853
		2	,09621	,10243	,616	-,1450	,3374
Intention	1	2	-,02522	,15284	,985	-,3851	,3347
		3	-,16687	,13468	,431	-,4840	,1503
	2	1	,02522	,15284	,985	-,3347	,3851
		3	-,14165	,15596	,635	-,5089	,2256
	3	1	,16687	,13468	,431	-,1503	,4840
		2	,14165	,15596	,635	-,2256	,5089
Environmentally Conscious Behavior	1	2	-,20907	,15507	,370	-,5742	,1561
		3	,02840	,13665	,976	-,2934	,3502
	2	1	,20907	,15507	,370	-,1561	,5742
		3	,23747	,15823	,292	-,1351	,6101
	3	1	-,02840	,13665	,976	-,3502	,2934
		2	-,23747	,15823	,292	-,6101	,1351
*. The mean difference is significant at the 0.05 level.							

In the Table 5-21; 1 refers to ages 21 and below, 2 refers to 22 and 23, 3 refers to 24 and above.

The multiple comparisons table explain that there is a significant difference between age groups in terms of personality factors. Older people tend to have more

collectivist, long term oriented, altruistic tendency and higher perceived effectiveness level than younger people.

5.2.5.2 Understanding the Difference among Income Groups

ANOVA test is used as a tool to understand the difference between income groups. Results are presented in Table 5-22.

Table 5-22

Difference among Income Groups

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
Personality	Between Groups	,140	2	,070	,096	,908
	Within Groups	230,719	317	,728		
	Total	230,859	319			
Environmental Attitude	Between Groups	2,899	2	1,450	3,054	,049
	Within Groups	150,499	317	,475		
	Total	153,399	319			
Intention	Between Groups	,026	2	,013	,011	,989
	Within Groups	353,041	317	1,114		
	Total	353,066	319			
Environmental Conscious Behavior	Between Groups	15,412	2	7,706	6,999	,001
	Within Groups	349,010	317	1,101		
	Total	364,422	319			

In Table 5-22 personality factors have significance value 0,908 > 0.05. Hence, there is no significant relationship between personality factors and income, and H_8 is rejected.

Environmental attitude has significance value 0.049 < 0.05. Hence, there is significant relationship between environmental attitude and income, and H_9 is accepted.

Environmental intention has significance value 0.989 > 0.05. Hence, there is no significant relationship between environmental intention and income and H_{10} is rejected.

Environmentally conscious behavior has significance value 0.001 < 0.05. Hence, there is significant relationship between environmentally conscious behavior and income and H_{11} is accepted

Table 5-23

Multiple Comparisons of income groups

Multiple Comparisons							
Tukey HSD							
Dependent Variable	(I) income group	(J) income group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Personality	1	2	,03379	,10125	,940	-,2046	,2722
		3	,05970	,15908	,925	-,3149	,4343
	2	1	-,03379	,10125	,940	-,2722	,2046
		3	,02591	,15931	,986	-,3492	,4010
	3	1	-,05970	,15908	,925	-,4343	,3149
		2	-,02591	,15931	,986	-,4010	,3492
Environmental Attitude	1	2	,19736*	,08177	,043	,0048	,3899
		3	,03318	,12848	,964	-,2694	,3357
	2	1	-,19736*	,08177	,043	-,3899	-,0048
		3	-,16417	,12867	,410	-,4672	,1388
	3	1	-,03318	,12848	,964	-,3357	,2694
		2	,16417	,12867	,410	-,1388	,4672
Intention	1	2	,00053	,12525	1,000	-,2944	,2955
		3	-,02804	,19678	,989	-,4914	,4353
	2	1	-,00053	,12525	1,000	-,2955	,2944
		3	-,02857	,19706	,988	-,4926	,4355
	3	1	,02804	,19678	,989	-,4353	,4914
		2	,02857	,19706	,988	-,4355	,4926
Environmentally Conscious Behavior	1	2	-,08162	,12453	,789	-,3749	,2116
		3	,64326*	,19566	,003	,1825	1,1040
	2	1	,08162	,12453	,789	-,2116	,3749
		3	,72488*	,19594	,001	,2635	1,1863
	3	1	-,64326*	,19566	,003	-1,1040	-,1825
		2	-,72488*	,19594	,001	-1,1863	-,2635
*. The mean difference is significant at the 0.05 level.							

In table 5-23 , 1 refers to 1000 TL or below; 2 refers to 1001-2000 TL and 3 refers to 2001 TL and above income. The multiple comparisons Table 5-23 explain that there is a significant difference between income groups in terms of environmental attitudes and environmentally conscious behavior. People with lower income have more positive environment than people who have higher income. In terms of environmentally conscious behavior lower income group members represent more environmentally conscious behavior than high income group members.

5.2.5.3. Understanding the Difference among Education Groups

Independent sample test is used as a tool to understand the difference between education groups. Results are presented in Table 5-24.

In Table 5-24 personality factors have significance value 0,000 < 0.05. Hence there is a significant relationship between personality factors and education and H_{12} is accepted.

Environmental attitude has significance value 0.087 > 0.05. Hence there is no significant relationship between environmental attitude and education and H_{13} is rejected.

Environmental intention has significance value 0.164 > 0.05. Hence there is no significant relationship between environmental intention and education and H_{14} is rejected.

Environmentally conscious behavior has significance value 0.257 > 0.05. Hence there is no significant relationship between environmentally conscious behavior and education and H_{15} is rejected. It means PhD and master students are more altruistic, collectivist, long term oriented and have higher perceived consumer effectiveness than undergraduate students.

<table>
<tr><td colspan="10" align="center">Table 5-24 Differences among Education Groups</td></tr>
<tr><td colspan="10" align="center">Independent Samples Test</td></tr>
<tr><td></td><td></td><td colspan="2">Levene's Test for Equality of Variances</td><td colspan="6">t-test for Equality of Means</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="2">95% Confidence Interval of the Difference</td></tr>
<tr><td></td><td></td><td>F</td><td>Sig.</td><td>T</td><td>df</td><td>Sig. (2-tailed)</td><td>Mean Difference</td><td>Std. Error Difference</td><td>Lower</td><td>Upper</td></tr>
<tr><td>Personality</td><td>Equal variances assumed</td><td>4,384</td><td>,037</td><td>-3,995</td><td>318</td><td>,000</td><td>-,45891</td><td>,11487</td><td>-,68492</td><td>-,23291</td></tr>
<tr><td></td><td>Equal variances not assumed</td><td></td><td></td><td>-4,350</td><td>114,468</td><td>,000</td><td>-,45891</td><td>,10549</td><td>-,66788</td><td>-,24995</td></tr>
<tr><td>Environmental Attitude</td><td>Equal variances assumed</td><td>4,871</td><td>,028</td><td>-1,715</td><td>318</td><td>,087</td><td>-,16382</td><td>,09552</td><td>-,35174</td><td>,02411</td></tr>
<tr><td></td><td>Equal variances not assumed</td><td></td><td></td><td>-1,991</td><td>127,588</td><td>,049</td><td>-,16382</td><td>,08227</td><td>-,32660</td><td>-,00103</td></tr>
<tr><td>Intention</td><td>Equal variances assumed</td><td>,024</td><td>,876</td><td>-1,394</td><td>318</td><td>,164</td><td>-,20238</td><td>,14514</td><td>-,48793</td><td>,08317</td></tr>
<tr><td></td><td>Equal variances not assumed</td><td></td><td></td><td>-1,337</td><td>96,355</td><td>,184</td><td>-,20238</td><td>,15133</td><td>-,50275</td><td>,09800</td></tr>
<tr><td>EnvConsBeh</td><td>Equal variances assumed</td><td>,232</td><td>,630</td><td>1,135</td><td>318</td><td>,257</td><td>,15839</td><td>,13959</td><td>-,11625</td><td>,43304</td></tr>
<tr><td></td><td>Equal variances not assumed</td><td></td><td></td><td>1,183</td><td>107,303</td><td>,239</td><td>,15839</td><td>,13387</td><td>-,10698</td><td>,42377</td></tr>
</table>

5.2.5.4. Understanding the Difference between Gender Groups

Independent sample test is used as a tool to understand the difference between gender groups. Results are presented in Table 5-25.

In Table 5-25 personality factors have significance value 0,000 < 0.05. Hence there is a significant relationship between personality factors and gender H_{16} is accepted.

Environmental attitude has significance value 0,000 < 0.05. Hence there is significant relationship between environmental attitude and gender and H_{17} is accepted.

Environmental intention has significance value 0.088 > 0.05. Hence there is no significant relationship between environmental intention and gender, and H_{18} is rejected.

Environmentally conscious behavior has significance value 0.050 > 0.05. Hence there is a significant relationship between environmentally conscious behavior and gender and H_{19} is rejected.

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Personality	Equal variances assumed	6,759	,010	4,595	318	,000	,45143	,09823	,25816	,64470
	Equal variances not assumed			4,350	179,761	,000	,45143	,10379	,24664	,65622
Environm. Attitudes	Equal variances assumed	,969	,326	3,641	318	,000	,29498	,08102	,13558	,45438
	Equal variances not assumed			3,581	197,818	,000	,29498	,08237	,13254	,45742
Intention	Equal variances assumed	,005	,945	1,709	318	,088	,21344	,12488	-,03226	,45913
	Equal variances not assumed			1,725	211,614	,086	,21344	,12370	-,03041	,45729
Env. Conscious Behavior	Equal variances assumed	,006	,937	1,969	318	,050	,23588	,11981	,00016	,47160
	Equal variances not assumed			1,967	206,067	,050	,23588	,11990	-,00050	,47226

Table 5-25 Differences between gender groups

Independent Samples Test

5.2.5.5. Understanding the Difference among Place of Residency in Childhood Groups

ANOVA test is used as a tool to understand the difference among place of residency in childhood groups. Results are presented in Table 5-26.

Differences among Place of Residency in Childhood Groups

ANOVA					
		Sum of Squares	Df	Mean Square	F	Sig.
Personality	Between Groups	2,716	2	1,358	1,887	,153
	Within Groups	228,143	317	,720		
	Total	230,859	319			
Environmental Attitude	Between Groups	,775	2	,388	,805	,448
	Within Groups	152,624	317	,481		
	Total	153,399	319			
Intention	Between Groups	1,700	2	,850	,767	,465
	Within Groups	351,366	317	1,108		
	Total	353,066	319			
EnvConscious Behavior	Between Groups	3,820	2	1,910	1,679	,188
	Within Groups	360,601	317	1,138		
	Total	364,422	319			

In Table 5-26 personality factors have significance value $0,153 > 0.05$. Hence there is no significant relationship between personality factors and place of residency in childhood and H_{20} is rejected.

Environmental attitude has significance value $0.448 > 0.05$. Hence there is no significant relationship between environmental attitude and place of residency in childhood and H_{21} is rejected.

Environmental intention has significance value $0.465 > 0.05$. Hence there is no significant relationship between environmental intention and place of residency in childhood and H_{22} is rejected.

Environmentally conscious behavior has significance value $0.188 > 0.05$. Hence there is no significant relationship between environmentally conscious behavior and place of residency in childhood and H_{23} is rejected.

To sum up, in terms of demographics only personality factors significantly differs among age groups, and education groups (H4 and H12). Among income groups environmental attitudes and environmentally conscious consumer behavior significantly differ (H9 and H11), and also environmental attitude and personality factors significantly differ between gender groups (H17 and H16). The results indicated that personality factors differ between age, education and income groups, and place of residency in childhood did not produce any significant results.

6. SUMMARY, DISCUSSION and CONCLUSION

In today's world every day we, the 21st century people, are faced with a brand new environmental problem that has an effect on our daily life. These environmental problems negatively affect us, the nature and the balance of the world. This study started with the belief that even small steps can produce big changes, and with the aim to develop an understanding of factors affecting the environmentally conscious behavior.   This aim was brought several questions into mind, the strongest two were; "what are the factors affecting environmentally conscious behavior and how to characterize the environmentally conscious consumers?" To reach the aim of the study five objectives (analyzing the impact of personality traits on environmental attitudes, determining the level of environmental knowledge of students and its effect on attitudes, understanding the effect of environmental attitudes on environmental intention, examining the effect of environmental intentions on environmentally conscious behavior, understanding the effect of demographics on environmentally conscious behavior) were also developed. Literature survey was conducted and variables used by other researchers analyzed. Then a model for the current study was developed and hypothesis generated. After, hypotheses were tested in accordance with the objectives to reach the aims of the research.

In the first part of the analyses the focus point was the impact of personality traits on environmental attitudes. At the beginning of the study personality factors composed of four sub-dimensions (perceived consumer effectiveness, collectivism, long term orientation and altruism). After factor analysis, conducted to assure the reliability of the variables, personality factors divided to two sub-dimensions; PCE (perceived consumer effectiveness) and ACL (altruism, collectivism and long term orientation). Environmental attitudes which were composed of six sub-dimensions; environmental concern, attitude toward litter, perception of pollution, attitude towards environmentally conscious living, inconvenience of being environmentally friendly, attitude toward recycling at the beginning, divided to six subdimensions after factor analysis. Because environmental concern and attitude toward recycling variables did not meet with the reliability criteria. Regression analysis implemented to these variables and results

indicated that personality factors have positive relationship between environmental attitudes. All environmental attitudes shaped with the positive effect from personality factors are listed as attitude toward litter, perception of pollution, attitude towards environmentally conscious living, inconvenience of being environmentally friendly. These results indicate that the more a person believes the effectiveness of his/her behaviors the more he/she generates positive environmental attitudes. Students with altruistic, collectivist and long term oriented focus have more tendencies to represent positive environmental attitudes. In terms of altruism it is possible to say a person who loves helping people, acts in an emphatic way, also wants to help environment and solution of the environmental problems, thus generates positive environmental attitudes. Long term oriented students are expected to generate positive environmental attitudes to sustain the balance of the nature for themselves and the ones they loved. In terms of collectivism, students who care about the benefits of the group and society, also pay attention to the environmental issues such as litter, environmentally conscious living and generates positive attitudes toward them. The results of the analysis about personality factors and environmental attitudes supporting the findings of Leonidou, Leonidou and Kvasova, (2010) and Laroche et al. (2002).

In the second part analyses conducted to understand the effect of environmental attitudes on environmental intention. Results represented that environmental attitudes has significant and positive effect on intention. This means people with positive attitudes towards environment also generate environmental intention which is an important step to act in this way. People who have positive attitudes towards environmentally conscious living, perception of pollution, attitude toward litter and inconvenience of being environmentally friendly also want to act in an environmentally friendly way, want to buy environmentally friendly products, want to recycle. But the core part is about the transformation of this intention to the behavior. The analysis about the relationship between the environmental intention and environmentally conscious behavior indicated that there is a positive relationship between them. Once a student generated a positive environmental attitude it generates positive environmental in intention, and in the end it directs people to behave in an environmentally friendly way.

The results of the analyses are parallel with the findings of Balderjahn (1988) and Shwepker and Cornwell (1995).

In terms understanding the effect of demographics on environmentally conscious behavior; environmental attitude and environmentally conscious behavior significantly differ among income groups. Interestingly, first group whose income is 1000TL or below tend to behave in more environmentally conscious way. Also, income group 1 presents more positive environmental attitude than other income groups. When this Turkish context taken into account, people with low level income can present conflicting behaviors. It is possible to see a student who has less than 1000 TL income, with the latest version of i phone or a shop assistant with the trendy bag form a luxury brand. Thus, the reason behind the environmental behaviors of students from lower income groups could be the willingness to represent themselves as a member of an upper income group. On the other hand, the reason behind this environmental behavior of students from low income group could also be their life experience. Because they live in difficult conditions, they know the value of the sources and the meaning of being in need, thus they wanted to save and protect the environment. Another perspective can be generated about high level income group's low propensity to behave in environmental way. Because they got what they wanted easily in life, they do not know to save or understand the value of the scarce resources.

In terms of personality factors significant difference found between education groups. More educated respondents such as those in their masters or PhD. studies reflect more altruistic, collectivist, long term oriented characteristics and have higher perceived consumer effectiveness. It is possible to infer that education increases the level of environmental consciousness of students.

Personality factors and environmental attitudes indicate significant difference between gender groups. Females tend to have more positive environmental attitudes and higher scores in terms of personality variables. Because females are more sensitive and intuitional it is possible to say they have deeper connections with nature. Also, the potential mother instinct inside the females can support the indication of positive environmental attitudes.

In consequences the results of the study and summary explained, the revised model of the study is presented below under Figure 6-1.
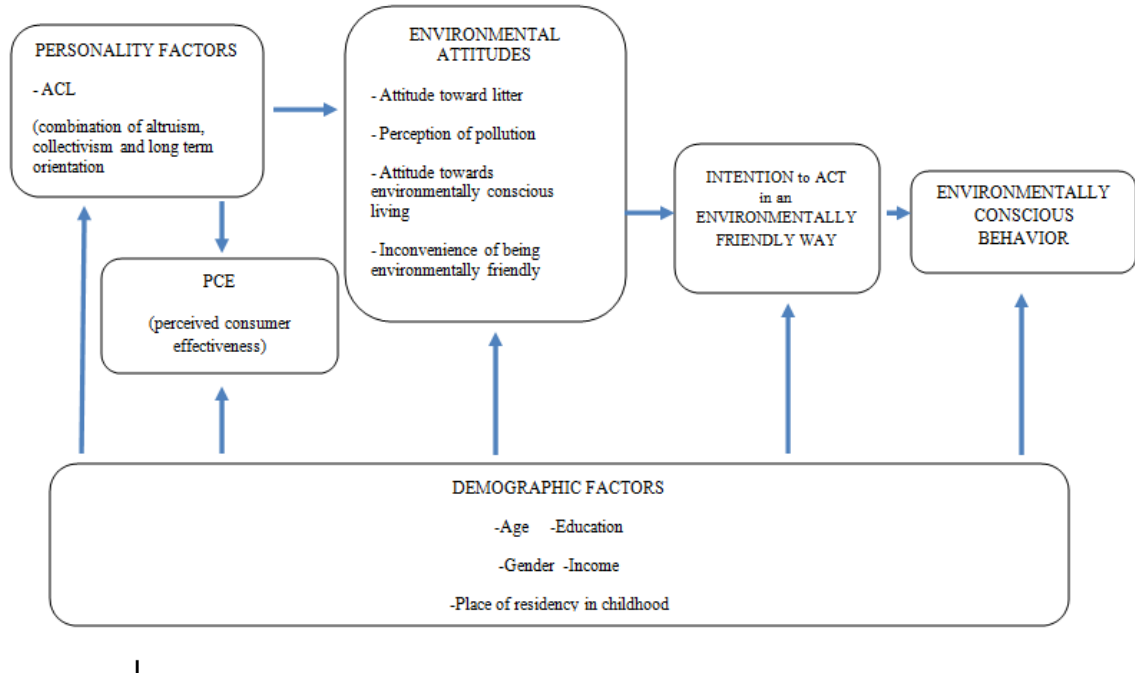
Figure 6-1: Revised Model

Even PCE was considered in the personality factors at the beginning, in the revised model PCE omitted from the personality factors because it generally has different direction and effect on other variables, also there are other studies. Also attitude toward recycling omitted from the model because its factors did not loaded through factor analysis. Another point revised is the disposal of the place of residency from the model. Because as a result of ANOVA test there were no significant effect found about this variable.

7. IMPLICATIONS FOR FURTHER RESEARCH

This study provided a revised model for the identifying the factors affecting environmentally conscious behavior. But further implications need to be done for deeper understanding. Thus, the researcher aimed to divide implications for further research in three distinct areas; for academicians, for government and for sector.

7.1. Implications for Academicians

Even though study provided significant results there are some points that requires further research. When the results of the study reviewed it is seen that personality indicates significant differences between age, education and gender groups. Older, more educated females tend to present have higher PCE and personality factor results. It is not clear if this difference derives from education or age. Because generally people who at higher education group are naturally older than the rest of the respondents. Thus to understand the real reason behind this results another study may be conducted with bigger differences about age and education level.

Furthermore even place of residency is another variable from literature, in this study no effect of this variable could be found. This problem might be about the nature of the sample. Another study with a wider sample could give different results.

Also in terms of difference between gender groups, environmentally conscious behavior has a significance value equal to 0.05, it might present more valuable results in a wider sample.

In addition, environmental knowledge level of students should be measured with different questions from the courses they have already taken rather than the daily life questions.

In the study another result presents that low income group have stronger environmental attitudes. When the sample investigated it is seen that people with low level income are generally young undergraduate students. On the other hand their existence cannot be observed in the environmentally conscious behavior. Thus, a question should be asked; why those people with high environmental attitude are do not

present environmentally conscious behavior. In the first glimpse the reason behind it could be the seen as high prices of environmental products but money is not a necessity for recycling or some other environmentally conscious behaviors.

In conclusion it is discouraging to see that young people are at lower level of personality scores. Thus, organizing educational events about environmental problems and encouraging young people behaving towards the benefits of the society seems necessary.

7.2. Implications for Government

Since environmental problems puts our life in danger and every human being deserves to be live in a healthy environment government needs to make regulations about environmental issues. In Turkey there is no law forbidding citizens to litter the environment. But it is necessary to bring this issue in the table for a E.U candidate country especially on the verge of preparation of a new constitutional law. In Turkey, even though people want to stop someone who litters, they generally hesitate because there is no law that they can rely on. Thus, government needs to generate e new environmental law in accordance with the latest environmental issues.

7.3. Implications for the Sector

Today's world is full of infinite consumer choice. Consumers are surrounded by millions of products. Some of these products are chosen amongst their competitors for a reason. Taking environmental issues into account can be a point of differentiation for companies. Customer value is the core part of today's business and it is possible to generate competitive advantage through this way. Companies can contribute to the solutions of environmental problems in several ways. Companies can organize social responsibility campaigns, can provide sponsorship in environmental events, use recycled or recyclable packaging, Surveys found that solid waste disposal is one of the most serious problems that world is facing with today. Packaging is a major contributor to the increasing solid waste stream, as landfills become exhausted business

comes under pressure to design and use more "environmentally friendly" product packaging. It seems companies that provide products according to consumers' environmental demands will have more loyal customers then those do not.

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APPENDIX 1 – QUESTIONNAIRE OF THE THESIS IN TURKISH

Değerli KATILIMCI,
Bu anket öğrencilerimizden Neşenur Altıniğne'nin yüksek lisans tezinin bir parçası olarak tüketicilerin çevresel bilincini değerlendirmek amacıyla hazırlanmıştır. Sonuçlar tamamen akademik amaçlı olarak kullanılacaktır. İsimler kaydedilmeyecektir. Kişisel bilgilerin gizliliğine saygı önceliğimizdir. Araştırmaya katıldığınız için çok teşekkür ederiz.
Prof. Dr. F. Zeynep Bilgin – İng. İşletme Üretim Yönetimi ve Pazarlama Anabilim Dalı

I. Her bir ifade "**1-Hiçbir zaman**, **2-Nadiren**, **3-Ara sıra**, **4-Sık sık, 5-Çoğu zaman, 6-Her zaman**" şeklinde derecelendirilmiştir. Lütfen size en uygun olanı yuvarlak içine alınız.

1	Bitki ve hayvanların varlığının temel amacının insanların onlardan faydalanması olduğunu düşünürüm.	1	2	3	4	5	6
2	Dünyada yaşayan insan sayısının doğal kaynakların karşılayabileceği sınırı aşmak üzere olduğunu düşünürüm.	1	2	3	4	5	6
3	Doğanın çok hassas bir dengesinin olduğunu ve bunun kolayca bozulabileceğini düşünürüm.	1	2	3	4	5	6
4	İnsanlığın çevreyi suiistimal ettiğini düşünürüm.	1	2	3	4	5	6
5	İnsanların doğal dengeye müdahalelerinin felakete neden olacağını düşünürüm.	1	2	3	4	5	6
6	Yaşadığım şehirdeki çevre kirliliği beni endişelendirir.	1	2	3	4	5	6
7	Sokaklarda ve parklarda gördüğüm çöpler beni rahatsız eder.	1	2	3	4	5	6
8	Birinin çevreyi kirlettiğini görmek beni rahatsız eder.	1	2	3	4	5	6
9	Çok büyük bir ülkede yaşadığımız için sebep olduğumuz herhangi bir kirliliğin kolayca dağıtılacağına inanırım	1	2	3	4	5	6
10	Dünyamızın katı atık problemi ile karşı karşıya olduğunu düşünürüm.	1	2	3	4	5	6
11	Yaşadığım şehirde katı atıkları depolamak için yeterli alanın kalmadığını düşünürüm.	1	2	3	4	5	6
12	Bazı ürünler için kullanılan ambalaj miktarının azaltılabileceğini düşünürüm.	1	2	3	4	5	6
13	Dünyanın kendi içinde bir sistemi olduğunu ve bunun kendiliğinden normale döneceğini bu nedenle de endişelenecek bir konu olmadığını düşünürüm.	1	2	3	4	5	6
14	Bir ürünü satın almadan önce karar verirken o ürünü kullanmamın çevreyi ve diğer insanları nasıl etkileyeceğini düşünürüm.	1	2	3	4	5	6
15	Tüketicilerin çevreye duyarlı ürün ve hizmetleri tercih etmeleri gerektiğini düşünürüm.	1	2	3	4	5	6
16	Ambalaj üzerinde belirtilen, ürün ya da ambalajın çevreye etkisi ile ilgili bilgilerin yeterli olduğunu düşünürüm.	1	2	3	4	5	6
17	Çevreyle ilgili problemlerin günlük yaşantımı doğrudan etkilediğini düşünürüm.	1	2	3	4	5	6

18	Çevreye duyarlı ürün kullanımının bir yaşam biçimi olması gerektiğini düşünürüm.	1	2	3	4	5	6
19	Çevreyi korumanın önemli olduğunu düşünürüm.	1	2	3	4	5	6
20	Geri dönüşüm için çöpleri ayrı kutularda toplamayı yorucu bulurum.	1	2	3	4	5	6
21	Kirliliği önleme çabalarının gereğinden fazla abartıldığını düşünürüm.	1	2	3	4	5	6
22	Geri dönüşüm için şişeleri temizlemem gerekse onları da diğer çöplerin yanına atardım.	1	2	3	4	5	6
23	Geri dönüşüm için ayırdığım çöplerin evden alınması beni teşvik eder.	1	2	3	4	5	6
24	Çevreye zararlı olsa da kağıt bardak kullanmak bana daha pratik gelir.	1	2	3	4	5	6
25	Sokakta çöpten kağıt toplayan insanları görmek beni çöpümü ayırmaya teşvik eder.	1	2	3	4	5	6
26	Organik pamuktan yapılmış kıyafetlerin dayanıksız olduğunu düşünürüm.	1	2	3	4	5	6
27	Geri dönüşümün kirliliği azalttığını düşünürüm.	1	2	3	4	5	6
28	Doğal kaynakların korunması açısından geri dönüşümün önemli olduğunu düşünürüm.	1	2	3	4	5	6
29	Geri dönüşümün atıkları depolamak için kullanılan alanlardan tasarruf sağlayacağını düşünürüm.	1	2	3	4	5	6
30	Ülkemizde çok sayıda orman bulunduğundan kâğıtları geri dönüştürmenin gereksiz olduğunu düşünürüm.	1	2	3	4	5	6

II. Her bir ifade "**1-Hiçbir zaman**, **2-Nadiren**, **3-Ara sıra, 4-Sık sık, 5-Çoğu zaman, 6-Her zaman**" şeklinde derecelendirilmiştir. Lütfen size en uygun olanı yuvarlak içine alınız.

31	Her bireyin çevre adına atacağı küçük bir adımının bile toplum üzerinde olumlu etkiler yaratacağına inanırım.	1	2	3	4	5	6
32	Su ve enerji tasarrufu yaparak doğal kaynaklara ilişkin problemlerin çözümüne yardımcı olabileceğimi düşünürüm.	1	2	3	4	5	6
33	Çevre dostu ürünleri tercih etmenin çevreyle ilgili sorunların çözümüne yardımcı olacağını düşünürüm.	1	2	3	4	5	6
34	Çevre için yapabileceğim çok şey olduğunu düşünürüm.	1	2	3	4	5	6
35	Çevreyle kirleten birini gördüğümde onu uyararak çevreyi korumaya yardımcı olacağımı düşünürüm.	1	2	3	4	5	6
36	Kişisel bir çıkarım olmasa da sosyal amaçları olan etkinliklerde yardımcı olurum.	1	2	3	4	5	6
37	Ortak değerler adına çaba sarf etmek beni mutlu eder.	1	2	3	4	5	6
38	Sosyal amaçlar için çalışan sivil toplum kuruluşlarında görev alırım.	1	2	3	4	5	6
39	Benim daha az kazanmama neden olacak olsa da toplumun çıkarlarını gözetirim.	1	2	3	4	5	6

40	Uzun vadeli planlar yaparım.	1	2	3	4	5	6
41	Geleneklere saygı duyarım.	1	2	3	4	5	6
42	İğneyi kendine çuvaldızı başkasına batır felsefesini anlamlı bulurum.	1	2	3	4	5	6
43	İnsanların yardıma ihtiyaç duydukları anlarda onlara yardımcı olmanın benim görevim olduğunu düşünürüm.	1	2	3	4	5	6
44	Sivil toplum kuruluşlarına yapılacak katkıların topluma faydası olduğunu düşünürüm.	1	2	3	4	5	6
45	Günümüzde toplumların yaşadığı pek çok problemin kaynağının bencillik olduğunu düşünürüm.	1	2	3	4	5	6
46	Davranışlarımın sonuçlarının tanımadığım insanların da hayatını etkileyeceğine inanırım.	1	2	3	4	5	6

III. Her bir ifade "**1-Hiçbir zaman**, **2-Nadiren**, **3-Ara sıra, 4-Sık sık, 5-Çoğu zaman, 6-Her zaman**" şeklinde derecelendirilmiştir. Lütfen size en uygun olanı yuvarlak içine alınız.

47	Çevreye duyarlı olarak üretilmiş, ambalajlanmış ürünler için %10 fazla ödemeyi makul bulurum.	1	2	3	4	5	6
48	Doğada çözünebilir malzemelerden yapılmış bir ambalajdaki ürünü satın almayı doğada çözünmeyen maddelerden yapılmış ambalajdaki ürüne tercih ederim.	1	2	3	4	5	6
49	Geri dönüştürülebilir malzemeden yapılmış bir ambalajdaki ürünü satın almayı geri dönüştürülemeyen maddelerden yapılmış ambalajdaki ürüne tercih ederim.	1	2	3	4	5	6
50	Gereksiz plastik ve kâğıt kullanılmış olsa da çekici bir ambalajda sunulmuş ürünü tercih ederim.	1	2	3	4	5	6
51	Daha az ambalaj atığı oluşturmak adına bazı ürünleri çoklu paketlerde almayı tercih ederim (küçük paketlerle daha sık almaktansa).	1	2	3	4	5	6
52	Katı atık miktarını azaltmak amacıyla alışılmamış şekillerdeki ambalajlardaki ürünleri satın alırım (mesela genelde yuvarlak ambalajda satılan bir ürünü kare ambalajda).	1	2	3	4	5	6

IV. Her bir ifade "**1-Hiçbir zaman**, **2-Nadiren**, **3-Ara sıra, 4-Sık sık, 5-Çoğu zaman, 6-Her zaman**" şeklinde derecelendirilmiştir. Lütfen size en uygun olanı yuvarlak içine alınız.

53	Geri dönüşümlü malzemen yapılmış ambalajdaki ürünleri satın alırım.	1	2	3	4	5	6
54	Çevreyi kirleten ürünler üreten firmaların ürünlerini satın alırım.	1	2	3	4	5	6
55	Çevreye zararlı olduğunu bilsem de plastik kaşık, çatal, bıçak satın alırım.	1	2	3	4	5	6
56	Köpük ve kağıt bardak kullanırım.	1	2	3	4	5	6
57	Enerji tasarruflu ürünler satın alırım.	1	2	3	4	5	6
58	Çok fazla katı atığa neden olan ambalajlardaki ürünleri satın alırım.	1	2	3	4	5	6

59	Çevreye olumsuz etkisi olduğunu fark edersem kullandığım bir ürünü değiştiririm.	1	2	3	4	5	6
60	Bazı ürünlerin çevreye vereceği zararın farkındayım ama yine de bunları satın alırım.	1	2	3	4	5	6
61	Geri dönüşüm için çöplerimi ayırırım.	1	2	3	4	5	6
62	Diğerlerinden pahalı da olsa çevre dostu olan ürünü satın alırım.	1	2	3	4	5	6
63	Çöplerimi geri dönüşüm kutularına atarım.	1	2	3	4	5	6

	V. Lütfen doğru olduğunu düşündüğünüz seçeneği yuvarlak içine alınız.
64	Suyu en çok zehirleyen maddeler hangi seçenekte doğru olarak verilmiştir. a- arsenik, gümüş nitrat b-hidrokarbonlar c- karbon monoksit d- sülfür, kalsiyum e- nitrat, fosfat
65	Hangisinin doğada çözünmesi en uzun sürer? a- plastik şişe b- demir c- bakır d- alüminyum kutu e- çelik
66	Balıkları ve kuşları zehirleyen madde hangisidir? a- demir b- cıva c- gümüş d- kurşun e- magnezyum
67	Ayakkabı imalatında kullanılan hangi madde kanserojen özellik taşımaktadır? a- asbest b- demir c- benzol d- plastik e-kağıt
68	İnsan sağlığına zararlı olması nedeniyle çatılarda kullanımı yasaklanan madde hangisidir? a- demir b- kağıt c- benzol d- asbest e-plastik
69	"Herkes, sağlıklı ve dengeli bir çevrede yaşama hakkına sahiptir", ibaresi anayasanın kaçıncı maddesinde yer almaktadır? a- 56 b- 65 c- 63 d- 42 e-39

1. Yaşınız: ……………   2. Cinsiyetiniz: a) Kadın   b) Erkek

3. Eğitim Düzeyiniz: a) Doktora   b) Yüksek Lisans   c) Lisans

4. Bölümünüz   ………..

5. Bireysel aylık net geliriniz:

a) 1000 YTL ve altında   b) 1000 - 1500 YTL arası   c) 1501 - 2000 YTL arası

d) 2001-2500 YTL arası   e) 2501 - 3000 YTL arası   f) 3000 YTL ve yukarısı

6. Çocukluğunuzun geçtiği yer :   a) şehir   b) kasaba   c) köy