DETERMINANTS OF GREEN PRODUCT USAGE IN TWO INDUSTRIES:

PERSONAL CARE AND INFORMATION TECHNOLOGY

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Determinants of Green Product Usage in Two Industries:

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- this thesis contains no material that has been submitted or accepted for a degree or diploma in my other educational institution;

- this is a true copy of thesis approved by my advisor and thesis committee at Boğaziçi University, including final revisions required by them.

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ABSTRACT

'Determinants of Green Product Usage in Two Industries: Personal Care and

Information Technology'

Green products are defined as products that do not produce any harm on the environment throughout their production, use or disposal. Green technological product production is aimed to use of recyclable and sustainable goods for saving the natural resources. Technologic and strategic details of achieving sustainability, innovation and high satisfaction of consumer in personal care products and technological products have been researched in this work with the analysis conducted by the data comprised from experienced end-users. In this work, the attitude – behavior inconsistencies in terms of hygienic green/sustainable paper product purchasing and technological green products was evaluated. It was concluded that innovation and insight of end-user has gained more significance due to changes in perception and tendency towards sustainable and environmental approaches particularly in production process. The main goal of this work to analyze how these ecological, green and sustainability innovations can be reflected in purchase behavior of customers towards green products. To do so, several parameters, e.g. predominant motives, facilitators and obstacles having an influence on purchase decision towards green products, were identified. Furthermore, the probable reasons for the reported inconsistencies in green purchase behavior were identified. This work also discusses the main predictions in consumer's green purchase behavior. This will help policy makers and managers to encourage people for purchasing green products.

ÖZET

'Çevreci Ürün Alımını Etkileyen Faktörler Üzerine İki Farklı Sektörün Araştırması: Teknolojik Ürünler ve Kişisel Bakim Ürünleri'

Üretim, tüketim ve kullanım sonrasında doğaya zarar vermeyen ürünler genel literatürde çevreci ürünler ya da yeşil ürünler olarak adlandırılıyorAyrıca sürdürülebilir yöntemlerle üretilen ya da geri dönüşüme uygun olan cep telefonu, hard disk, bilgisayar, tablet, televizyon, ekran gibi elektronik ürünlere de çevreci teknolojik ürünler adı verilir. Bu ürünlerin üretim ve kullanım ömrü sonrasındaki geri dönüştürülebilme özellikleri ele alındığında, çevreci teknolojik ürünlerdeki amaç doğaya sıfır ya da asgari zarar vermektir. Bu akademik çalışmada tüketicilerin günlük hayatta en çok kullandığı ürünler olan kişisel hijyenik kâğıt ürünleri ve teknolojik ürünlerin çevreci olup olmamalarına gösterdikleri özen ve seçim kriterleri incelendi. Tüketici iç görüsü ve yenilikçiliğin artması ile görünen o ki tüketicilerin çevreci ürün alımına olan eğilimleri de değişmektedir. Bu çalışmanın ana amacı ise çevreci teknolojik ürün ve çevreci kişisel bakım ürün üretiminin tüketicilerin satın alma alışkanlıklarını nasıl etkilediğini ölçmektir. Yaptığımız çeşitli araştırmalar sonucunda satın alma kriterini etkileyen farklı değişkenlerin olduğu saptanmıştır. Bu satın alma kriterlerinin belirlenmesiyle günümüz çağında teknolojik ürün üretimi yapan şirketlere ve kişisel bakım ürünü üreten şirketlere fikir verilmesi hedeflenmiştir.

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CHAPTER 1

INTRODUCTION

Over the last decades, the interest of consumers on purchasing environmentally friendly products have been increasing due to mainly the increasing concerns about global warming. The environment related issues have gained more attention since the number of consumers that have high awareness on environmental issues has also increased (D'Souza et al., 2006).

To raise the awareness of consumers on green products further, green marketing holds a very important role. It is indicated that green marketing can help companies to position their products and brands more environmentally friendly. (Peattie & Charter, 1997) Furthermore, this positioning of companies towards environmentally friendly products can also lead to increase in the consciousness of consumers towards purchasing green consumer products.

The existing literature shows that there are reasonable number of researches have studied the relationship between green marketing activities and the factor affecting the purchase decision of consumers. (Gurau & Ranchhod, 2005; Schlegelmilch et al., 1996; D'Souza et al., 2006; Lee, 2009; Park et al., 2010; Fraj et al., 2002). However, the understanding on the factors affecting green product usage and preferences needs to be improved.

The rapid advancements in technological products have been leading to rapid changes in the interest of consumers towards technological products. Once a more advanced version of products is released to market, the consumers often purchases those new products due to solely new technological advancements. This, unfortunately, leads to a massive consumption of technological products and

eventually leading to very high amount of technological waste. This situation pushes manufacturers to use more sustainable materials during the production. These technological products are defined as sustainable green technological products.

In addition to technological product consumption, the personal care product consumption also takes a very significant role in the total amount of waste since those products finds a significant role in daily life and usage of them increases in parallel to increase in population. Especially, if the hygienic paper product consumption used by vast majority of population is considered, it can be seen that the consumption of them reaches to very high amounts. To manage the waste of these products, the rules of sustainable waste management is suggested. In this sustainable waste management rules, a new tree is planted for every tree cut for hygienic paper product.

Considering the high amount waste produced from technological and personal care products and their detrimental consequences on environment, the consumers' tendency to purchasing those green products holds a crucial part on environmental issues. In this work, the focus has given to understand the determinants of green product usage and preferences with the emphases on personal care and technology industries.

1.1 Problem statement and definition

The awareness of consumers that reside in big cities on green product purchases has been increasing; however, the green product purchases are still limited to only those residing in big cities and needs to be extended to larger communities immediately (Shrikanth & Raju, 2012).

The increase in population, technology and consumption has led to a rapid increase in environmental problems that eventually causes global warming. One of the ways of diminishing the effect of those environmental problems is increasing the usage of sustainable products. Personal care products and technological products hold a very important role in sustainable product usage since those products are parts of daily life and have a very significant amount of consumption. Hence, it is crucial to investigate the consumers pay attention to whether the products are green or not during their purchases. Furthermore, the understanding on the effect of green production, green marketing and sustainability on the consumers' behavior for purchasing green products is still limited. In this work, it is aimed to deepen our understanding on the factors affecting those currently purchases green products.

1.2 Aim of the study

With the advances in technology, technological products have been taking an essential role in daily life. However, due to rapid advances in technology leading to increase in consumption and the fact that the technological products get old in time, the technological product waste has also increased rapidly.

In addition to waste of technological products, personal care product waste is a very important issue since these products find a very important role in daily life, leading to a very high amount consumption of those products.

Since there were previously already a massive amount waste from paper, plastic, glass, chemicals etc., it is very important to recycle these technological and personal care products. However, recycling these products can be quite difficult and time consuming. Hence, the manufacturers have been producing products that were made of sustainable materials. In this work, the determinants of green product usage

and preference on the consumers' behavior of the purchases of those sustainable materials are investigated. The main emphasis is given to personal care and technological products.

1.3 Main questions of research

The main research questions in this are work as following;

1- What are the determinants of green product usage and preferences on technological products?

2- What are the determinants of green product usage and preferences on personal care products?

1.4 Methodology of the study

In the research, two main research methods were employed. Semi structured in-depth interview is the first method. A pilot face to face study completed with 5 different occupation people. Their occupation is instructor, marketing manager, chief of restaurant, engineer and housewife. After that in face to face in-depth interview 11 more interview completed. The second one is a survey study. Another 11 people were interviewed, and questionnaires were conducted with 127 people.

1.5 Structure of the study

This study consists total of six chapters. The purpose of this work to investigate the determinants on green product usage and preferences in personal care and technological products.

Introduction (Chapter 1) summarizes the terms, problems, aim of study, research questions, methodology. A literature review from previous studies related to

factors affecting green product purchases is given in Chapter 2. In Chapter 3.

Framework of this work is given. The processes and methodology of research of this

work is given in Chapter 4. In Chapter 5, the results from the work is given, and

meaning of these results are discussed. Conclusion are given and summarized in

Chapter 6.

CHAPTER 2

LITERATURE REVIEW

2.1 Technological products

Over the last decades, the usage of technological products that have a very frequent usage in daily life of consumers have been dramatically increasing (Sull and Eisenhardt, 2016). These products are namely mobile phones, cameras, personal computers, printers, televisions, etc. However, these products usually end up having short life cycle due to technological advances. As shown in Figure 1, computers, as an example, have had a transition from main frame computers towards integrated computers.

Figure 1 Development of Computers within a few Decades - Barnhardt et al, 2016

2.2 Sustainability of technological products

With the advances in technology, the lifecycle of technological products (Figure 2) becomes shorter and reach decline period much faster (Klepper, 1996). This leads to increase in technological waste.
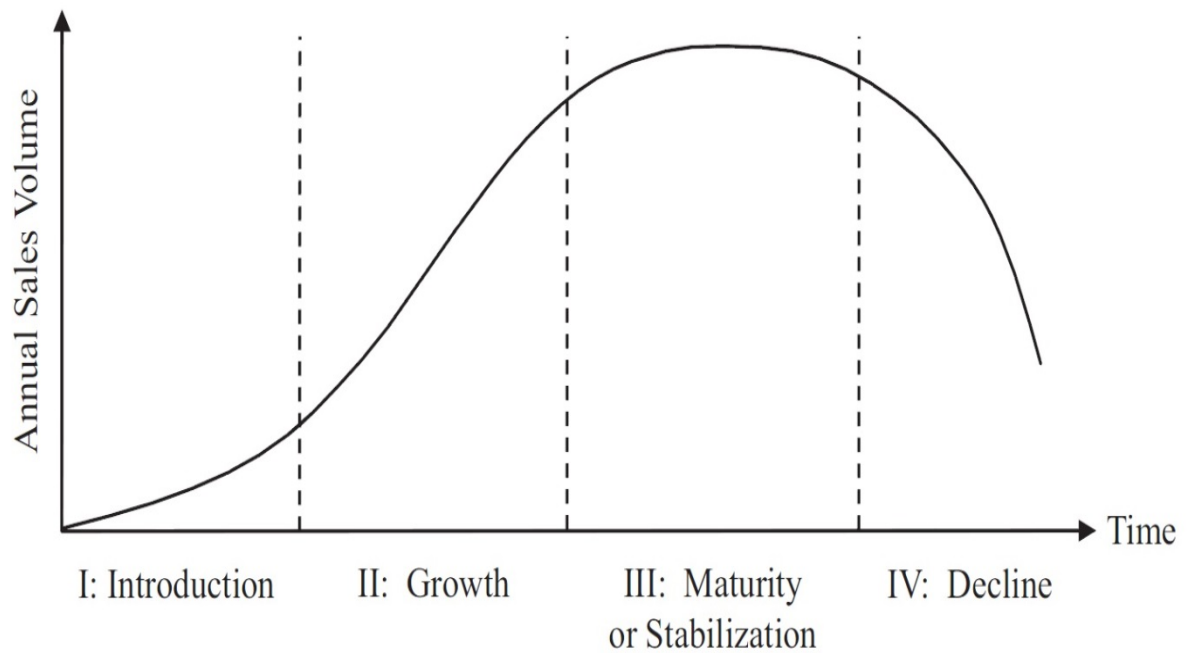
Figure 2 Technological Product Life Cycle - Klepper,1996

With the decrease in product life cycle and the increase in usage of technological products, the importance of sustainability in such products also increases since the waste of technological products might threaten environment seriously. Hence, it is very crucial to recycle such products.

However, recycling those products is often difficult since it might be time-consuming and costly process. Hence, it is important that those products are produced out of sustainable raw materials. It's shown that the recycling process for technological products in Figure 3.

Figure 3 Recycling Process of Technological Products

2.3 Sustainability of personal care products

Due to very common usage of personal care products, the concerns about sustainability of personal care products takes more attention. The growing attention on environmental sustainability and the necessity for resource efficiency has encouraged the manufacturers of personal care product to look more closely at and address the effect of their products on environmental and social impact.

The main focus on sustainability of personal care products is on raw material sourcing and green formulations, sort of more eco-friendly packaging for helping to reduce environmental impact (Sustainable packaging, 2009).

On the side of hygienic paper products, sustainable forestry management holds a very important role. With the rules of sustainable forestry management in which one tree is planted for every tree used for paper production, it is possible to achieve sustainability.

However, in both technological and personal care products, it is crucial to understand determinants of green product usage and preference of consumers.

2.4 Factors affecting consumer's choice on green product

Over the past two decades, the usage of green products has been increasing due to mainly concerns over environmental factors. However, it is still yet to be understood the criteria of consumers on green product purchases. Literature has shown that there are several factors, affecting consumers' choice on green product purchases. It was shown that environmentalism has an effect of consumers' choice for sustainable product choices (Kalafatis et al., 1999). Furthermore, the researches by; Laroche et al., 2001 showed that the purchase of environment friendly products is directly related to the awareness of consumers on environmental problems. The consumers with higher awareness of environmental products seek to purchase environment friendly products for the benefit of future generations. With the increasing level of consumer awareness, it is estimated that the consumers' will be more inclined to purchase green products in long run (De Moura et al., 2012).

The researches on the role of personal needs on the consumers' choice on green product purchases have shown that fulfilling the personal needs still stays as the dominant factor to the choice of consumers, while protecting the environment has been developed as an another crucial problem (De Moura et al., 2012; Verbeke et al., 2007). It is also revealed that there are other factors, e.g. balance of ecosystem

(ecological), obtaining profit (economical) and people (social), are also very crucial concerns on the choice of consumers (Vermeir and Verbeke, 2008).

Besides, consuming sustainable products has become a crucial factor to corporate decision-makers because of not only the increased strictness on laws and regulations but also the increased pressure from stakeholders that have higher awareness on protecting the importance of green products (Hult, 2011; Banerjee et al., 2003; Karna et al., 2003).

To increase the green product sales, green marketing can play a very crucial role. On green hygienic product sales, green marketing activities can especially become important since the costumers have, in general, the perception that green hygienic sustainable wares are whether poor in value or do not satisfy their environmental promises (Ottman, 1998). Marketing experts and sellers need to pay attention to these concerns from consumers during marketing activities. However, they also need to keep in mind that consumers are usually not inclined to compromise on traditional product attributes, e.g. value, quality, price, and performance (McDaniel and Rylander, 1993). Hence, it is very crucial that green hygienic paper products need to be compatible on such attributes with non-green products to be able to attract consumers since greenness of products cannot solely assure achieving an outstanding sale performance even in very green areas (Driessen et al., 2013).

Hence, the manufacturers need to develop goods that not only deliver sustainable products but also high-value attributes to improve the intention of consumers for green product purchases. Furthermore, marketers should also keep in mind that credibility takes a vital role in green marketing strategy. By decreasing the

perceived risk of customers about greenness of products, not only customer's skepticism can be decreased but also their trust can be gained.

Moreover, the knowledge level of consumers on green products is another important factor since not having enough knowledge on products may often lead to an attitude-behavior gap between their environmental concern and their actual purchases. Therefore, the market share of green products can be hindered (Ohtomo and Hirose, 2007). Literature on consumers' perception about green products showed that promotional marketing activities can be highly affected by consumer's perception on their inclination on seeking knowledge (epistemic value), image concern, peer opinion (social value), wish to demonstrate a role for protecting environment (Environmental value) and the green products' price and quality (Laroche et al., 2001; Sheats, 2012).

There are more than 45 constructs searched in literature review.

2.4.1 Attitude and intention

Attitudes are belief systems concerning an object or an act which carries the potential of transforming into the intention of actualizing the act (Schwartz, 1992). The level of positive or negative assessment or evaluation of the behavior in question forms the attitude towards the proposed behavior (Aizen, 1994). The individual will be positively inclined towards performing a specific behavior when the attitude is favorable. The individual has a tendency to boast a favorable attitude when the results are assessed to be positive and because of this it is highly probable that s/he will engage in that specific behavior (Ajzen, 1994, Han et al., 2010). On the other hand, intention is the resolution to act with a specific goal in mind. For instance, the intention to acquire a particular item has been realized to be an effective predictor of

the actual situation of buying the item. The level of effort needed to undertake the behavior in an attitude-behavior relationship such as given above influences this intention (Bagozzi et al. 1990).

The effort level in combination with cost, time, space and ease are united in an attitudinal measure of independent results in various analysis (Sidique et al., 2010). The green attitudinal measure is put into use by integrating items dealing with several environmental issues in the literature review of Follows and Jobber's, 2000, regarding environmentally responsible purchase behavior. It was also mentioned that moderate correlations among general attitudinal measure and multiple-act behaviors are further observed while on the other hand the magnitude is seen to be increasing for general measures and single-act behaviors where the surveyed were enquired to give their impressions of a particular product. It is demonstrated that instead of a general attitude towards the environment the attitude-behavior relationship showed more correlation when attitude was undertaken as a particular environmental behavior (Hines et al., 1987).

2.4.2 Usefulness

From consumers' point of view, usefulness of a particular technology is the range of empowerment which enable the user to perform a task (Davis, 1989). The consumption of environmental/sustainable products is perceived to be more meritorious and believed to provide more than the conventional competitors (Sriram and Forman, 1993). In the same vein, many consumers are convinced that green energy wards off global warming and climate change, improves air quality, reduces energy reliance (Roe et al., 2001).

It is reported by Kotchen, Moore and Clark (2003) that green energy brand supporters recognize green electricity as a route for a more environmental energy acquisition that will lower solar energy costs and reduce dependence on foreign fossil fuels. Varho and Salmela (2006) proposed that to enhance the perceived vision of green electricity, consumers are required to be informed about the environmental impact of competing electricity products. It is confirmed by various studies that relevant functional product properties affect the purchase intentions of the consumers (Roberts, 1996, Scholder-Ellen, 1994).

2.4.3 Social value

Social value is the value created with the association of a particular social community or group (Sheth et al., 1991). The social pressure to adapt to a certain behavior or lifestyle subjects the individual into certain norms (Ajzen, 1991). Apart from external social pressure caused by the subjectivisms of these norms, personal norms form the moral rules and stances that constitute self-reward or punishment (Arvola et al., 2008). It is proposed that marketing efforts with an environmental focus must be connected directly with productive results; the environmental impact of customers who choose the green path must be explicitly shown. The results must contain not only items beneficial to the companies but also must include how individuals are affected in result of these environmental strategies (Straughan and Roberts, 1999). Faced with social risk, negative result averse consumers are motivated to seek more information, and in those cases, expert opinion is an effective approach of decreasing consumer perception of this risk (Aqueveque, 2006).

2.4.4 Social environmental values

Social environmental values consist of security and conformity. Security is a relation of stability and safety and is liable to avoid change. Therefore, environmental issues are unlikely to be the concern of conservative respondents if they do not cause the product to affect them in person. It is found that there is a negative correlation with conservation value and concerns on environmental problems (Thogersen and Grunert-Beckmann, 1997).

2.4.5 Price

Price is one of the 4 main elements of traditional marketing strategies together with product, place and promotion. The existing literature showed that price takes an important role on green product marketing strategies since it has a crucial role on consumers' choice on green product purchases. It is commonly believed that green products are expensive in efforts of reducing the products' detrimental effects on environment (Walley, 1994).

In traditional marketing, promotion is defined as type of activities to inform or convince consumers on the advantages of a product or service. It is aimed to be achieved by increasing awareness, interest and creating brand loyalty (McCarthy, 2006).

2.4.6 Eco-labelling

Eco-labelling is a labeling system that informs consumers about how sustainable the products they intend to purchase. A reasonable number of eco-labels aim to quantify pollution or energy consumption by means of scoring the products. Furthermore, some other eco-labels measure whether the producers/products comply with minimum requirements for sustainability or minimizing detrimental effects on environment, or not. This is mainly obtained with a certification process that shows the products/producers satisfy minimum requirements for sustainability and have the right to sell their products as certified.

Literature shows that eco-labelling should be based on three grounds, namely comprehensibility, universality and prioritization (Prakash, 2001). Comprehensibility allows consumers to understand the price information readily. Universality allows consumers to compare the products with a wide range of different products that can substitute the products intended to be purchased. Finally, prioritization allows consumers to give the importance to environmental attributes other than other attributes that products have. In addition to these 3 grounds, literature showed that eco-labelling can be used as a tool for promotion of green products in contrast to conventional marketing strategies that consider labelling only a way to provide technical information about the product (Rex and Baumann, 2007). Eco-labels are also proposed as tools that enable users to understand how products are made and facilitate greener product choice (Rex and Baumann, 2007).

Various studies are researching methods to make eco-labels effective consumer purchase behavior predictors for environmental products (D'Souzaet al., 2006; Sammer and Wustenhagen, 2006), yet the influence of eco-labels on decision making processes of the consumers and the impact they have on the environment are not clear. Nik Abdul Rashid's (2012) study shows being aware of an eco-label increases the positive effect between knowledge of the green product and consumers' purchasing intention. In contrast, Leire and Thidell (2005) report even if the labels have recognition this does not necessarily carry over into green purchasing decisions. The connection between environmental labelling and consumers' behavior and intention to purchase environmental products are examined by several studies (NikAbdul Rashid, 2009; Whitson and Henry, 1996) but ultimately the relationship between the label information and consumer's purchase intentions to buy environmentally friendly products is unclear (D'Souza, 2004).

A study by the Parliamentary Office of Science and Technology (2004) shows that eco-labelling is ineffective as a green marketing tool if the environmental awareness of the consumers is inadequate. The lack of consumers' trust in eco-label programmer makes eco-labels ineffective and evidentially causes consumers to be ignorant not only about eco-labels but the system of regulations of labels which allow companies to identify their products completely (Lyer, 1999). Bleda and Shackley (2008) show that eco-label programmers occasionally even cause adverse effects. Additionally, there is not enough research to conclude the role of the cognitive process of reading label information in the decision-making process for green purchases.

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Nik Abdul Rashid (2009) argues that eco-labels are helpful tools to enlighten consumers about the environmental impact of their consumption choices. Eco-labels make identifying environmentally friendly products easier than other similar ones and promote environmental consumption.

Eco-labeling systems are in development for quite some time, such as Blue Angel eco-label in Germany that dates 1977. Right now, there are about 30 distinct eco-label systems around the world. Western as well as Asian countries such as Singapore, India, Thailand, Korea, China, Japan, Malaysia have their own eco-label systems. Malaysian businesses in particular have challenges resulting from the demand caused by the consumers who desire environmentally friendly products. The green label systems initialized by the Standards and Industrial Research Institute of Malaysia (SIRIM) in 1996 consisted of various sections associated with energy conversation, degradable and non-toxic packaging material, recycled paper, agricultural products, hazardous metal-free electronic equipment and biodegradable cleaning agents.

2.4.7 Trust

Trust formed by three key values of ability, benevolence, integrity; it is the expectation of a party that a statement and word of another party can be relied on (Schurr and Ozanne, 1985; Rotter, 1971). It is the scale of the belief that another group would behave as expected (Hart and Saunders, 1997). Long term consumer behavior is deeply affected by the trust of customer (Lee et al., 2011). Therefore, consumer trust and consumer purchase intentions are directly connected (Harris and Goode, 2010).

It is postulated that trust of customer is a determining factor of consumer purchase intentions (Schlosser et al., 2006). If the seller demonstrates trustworthy qualities, the consumers possess increased purchase intentions. For this reason, trust of consumer is precursor of purchase intentions by consumer (van der Heijden et al., 2003). It is seen that customer trust is positively correlated with customer purchase intentions (Schlosser et al., 2006) and recent exaggerations of some companies about the environmental properties of their products have damaged customer trust (Kalafatis and Pollard, 1999). Therefore, it is argued by Chen (2010) that in the upcoming environmental era consumers' consumption behavior would be affected by the green trust. The novel notion of "green purchase intentions" proposed in this study is defined as "the likelihood that a consumer would buy a particular product resulting from his or her environmental needs" by Netemeyer et al. (2005) and Morrison (1979). Lu et al. (2010) highlight that customer purchase intentions are positively affected by customer trust and this trend is also applicable for green trust; it is proposed that the green trust of customers is positively connected with green purchase intentions.

2.4.8 Ease of use

Ease of use and functionality are important attributes of the product that limit the consumers' decisions, when these are not satisfied their values do not transform into behaviors (Rogers, 2011). Hence, ease of use together with the influence of peer are some very important criteria for the consumers' choices on green products.

CHAPTER 3

FRAMEWORK

3.1 Green product

To achieve sustainability and have less detrimental effect on environment, the materials used for the green product are chosen from sustainable materials in order (Gittell, 2013). It is important that usage of natural materials that comes from fair trade suppliers and reducing the carbon footprint to its minimum are integrated in the green marketing mix strategy.

3.2 Green product purchase intention and taxonomy

Before proposing the hypothesis and the models, green product purchase intention taxonomy was shaped. To do so, different variables were obtained from literature survey, qualitative studies and in-dept surveys. In this study, the effect of several constructs on consumers' green product purchase behavior were investigated. These constructs were decided after reviewing the existing literature and in-depth interviews. The constructs that were investigated after literature review are attitude, quality, promotion, trust, eco-labeling, social value, environmental value, image, intention, use, ease of use and usefulness.

In addition to these constructs, the constructs decided to be investigated after in depth-interview are price per value ratio, paper color, paper softness, paper absorption, white color, compatibility, conservative, peer influence and external influence. Taxonomy of green product purchase intention is shown in Table 1.

Table 1 Taxonomy of Green Product Purchase Intention

Individual (Characteristics of users)	Demographic (Characteristics of users)	General (Characteristics of product)	Intermediary	Social-Organizational
use intensity trust lack conservative image compatibility	age gender occupation	price paper color paper-absorption brand quality white color eco-labeling	ease of use usefulness attitude intention use	social value environmental value environmental-social value external-influence peer influence

3.2.1 Brand value

The American Marketing Association defines a brand as ''a name, term, sign, symbol, or design, or the combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of a competitor''. This description can be further extended into eco-brand by imposing the restriction that the identified goods or services have to be harmless to the environment. Eco-brand characteristics can ameliorate a brand and discern them from non-green products, it is determined that when given the choice the users purchase products with lower levels of environmental impact (Chatterjee, 2009).

A study done by Rahbar and Wahid (2011) shows that consumers from Malesia regard aerosols, pesticides, plastics, household cleaning items as non-green products with serious environmental impact. It can be speculated that consumers with the same mindset would be more inclined towards eco-brand products. Prior research done in western countries of USA and Germany also support this idea that eco-brands such as Body Shop are supported by the consumers (Ladenburg, J., 2008) and brands environmental performance are influenced by environmental labels

positively (Gwartney, J. D., Lawson, R., Park, W., & Skipton, C., 2001). Understanding the impact of brands on purchasing decisions of the consumers is crucial for marketing researchers.

This impact is known as brand equity. According to Aaker (1992), brand equity can be defined as the differential impact of the brand knowledge on the marketing of the brand. Green sustainable brands should be utilized to underline that sustainable products perform the same as non-sustainable ones but at the same time differentiate them from the competitor non-green products due to the green brands' inherent environmentally friendly state. Emotional factors are significant in the purchasing behavior change of the consumers and should be included inherently in the green brand benefits as well, Hartmannet et al. (2005) lists different emotional brand benefits as: a feeling of well-being, nature-related benefits and auto-expression benefits through the socially visible consumption. Therefore, green brands will cause a switch in purchasing behavior towards buying environmentally friendly products and environmentally aware consumers will prefer green products to fulfill their emotional response.

Green brand knowledge is the associations in the consumers' memory related to the brand that is linked to environmental concerns and values (Keller, 1993). Sustainable brand knowledge contains information about the effect of goods on the environment and its environmental brand properties. The awareness of brand and brand image are two important parts of brand knowledge (Keller, 1993). Brand awareness is the visibility of the brand in the consumers' memory while brand image is the favorability and uniqueness of that brand association (Keller, 1993).

Green product purchases are facilitated by supplying reliable environmental information to consumers and improving overall green brand knowledge (Suki, 2015; Geyer-Allely and Zacarias-Farah, 2003). It is widely reported that consumers' intentions and thus the actualized purchase of green products are positively correlated by improved environmental knowledge (e.g. Pagiaslis and Krontalis, 2014; Chenand Chang, 2012; Yadav and Pathak, 2016; Eze and Ndubisi, 2013; Norazah, 2013; Peattie, 2010). The research of Yadav and Pathak (2016), is further supported by these works. Consumers' purchase intentions are reported to be affected by positive attitude towards green products (Laroche al., 2001). Furthermore, Smith and Paladino (2010) showed that increased knowledge on organic foods also resulted in increased pro-organic attitudes meanwhile Padel and Foster (2005) demonstrated that absence of information depreciated green product purchase behavior. In contrast, in the study of Wolsink (2007) no correlation is found between green purchase intention and environmental knowledge while Lime et al. (2016) showed that improved knowledge of food safety was insignificant in behavior of improved food safety. Earlier studies of environmental knowledge by Fraj-Andrés and Martínez-Salinas (2007) revealed that consumers' environmental value level moderated environmental attitude and Huanget al. (2014) and Rokicka (2002) showed an increased environmental knowledge is a strong indicator of pro-environmental attitude and amplified green-purchase intention. In conclusion, it is recognized that green brand knowledge has a significant effect that cannot be overlooked on green product purchase intention.

3.2.2 Product quality

Product quality is the agglomeration of degree of customization, freedom from defects and reliability to the customer requirements that sums up to final

performance of the product (Johnson and Ettlie, 2001). Product quality is formed

from different sections such as product packaging, design, features, warranties etc.

(Abdul-Muhmin, 2002) and is closely linked to customer satisfaction, loyalty, and

intentions of repurchase of the product (Mittal, 1998; Eskildsen et al., 2007). Product

satisfaction of customers and retailers is fundamentally affected by the product

quality (Schellhase et al., 1999). Furthermore, it is empirically supported that high

product quality is a precursory condition for overall customer satisfaction, customer

loyalty and increased customer mass for green products (Chumpitaz and

Paparoidamis, 2004).

Word-of-mouth has a significant impact on food and household items, it is

four times more effective than the coercion of sales assistants in facilitating brand

switching (Loudon and Bitta, 1988). The inadequate performance of earlier green

products may have caused negative word-of-mouth and incited the notion of green

products being inferior (Ottman, 1998), and not fixed by later encounters.

3.2.3 Environmental concern

Environmental concern is the inclination of individuals towards environmental issues

and their level of concern (Pagiaslis and Krontalis, 2014). Attitude is a good

predictor of intentions for environmental concern (Minton and Rose, 1997). There is

a prevailing positive correlation between environmentally friendly behavior and

environmental concern (Straughan and Roberts, 1999).

Customers with environmentally friendly attitude are less likely to purchase

from polluting companies and tend to be environmentally friendly by choosing

environmentally positive alternatives in spite of possible personal sacrifices (Minton

and Rose, 1997). Environmental activism was decidedly connected with values that

people appraised to be of great importance in their lives (Gilg et al., 2005). Minton and Rose (1997) listed the qualities of environmentally friendly people: being aware of environmental problems, having a solution-focused attitude, having conviction that individual acts have power towards the solution of the problem, and having a strong will to act to make individual lifestyle more environmentally aligned.

CHAPTER 4

METHODOLOGY

This study started with the ideas to deepen our understanding in the determinant of green product usage and preferences of customers. After reviewing the literature, the main focus is given to personal care and technology products. Throughout the research, several different research methods both quantitative and qualitative were employed. In Table 2, these research methods are given and explained briefly.

Table 2 Summary of Research Activities

Method	Duration	Description
Literature Review	6 months	A thorough literature review was conducted to deepen the understanding of previous researches.
Pilot in-depth interview	1 week	A pilot interview study was applied to 5 different participants with different occupations e.g. instructors, marketing manager, housewife, cook, engineer.
In-depth interview	2 weeks	An in-depth interview was employed to 11 consumers with different backgrounds ranging between students, instructors to professionals.
Pilot survey study	1 week	A pilot survey study with 9 participants was employed to decide about the questions asked in survey study.
Survey study	2 weeks	A final version of questionnaire was prepared for the survey study. The effect of 30 different constructs were investigated in this survey study. The survey study was conducted to a total of 127 participants.

The study was initiated with research questions and ideas. Following that, a literature review was conducted to understand the state of previous works. A questionnaire was prepared for pilot in-depth interview, and those questions were tried out on participants to finalize the questionnaire for the in-depth interview. After finalizing the questionnaire, the in-depth interview was conducted to 11 participants with different backgrounds. Following the in-depth interviews, it was decided to conduct a survey study. However, a pilot survey study was conducted before the survey study to decide and finalize questions in questionnaire. The pilot survey study was conducted to 11 participants. Following the pilot survey study, the questionnaire was finalized and employed to 127 participants as a survey study.

4.1 Literature review

A detailed literature review was conducted to understand the state and findings from previous researches. The focus was given to the previous works that investigated the factors affecting consumers behavior on green product purchase and usage. The extra attention was given to personal care and technological products since the purpose of the work is to investigate the determinants of green product usage and preference in personal care and technological products.

4.2 Pilot in-depth interview

First of all, a pilot in-depth interview study was conducted to 5 participants to evaluate and finalize questions in questionnaire. Taking the findings from the literature review into consideration, a draft copy of questionnaire was prepared. After that, the interview questions were sorted out with respect to their items, scope and constructs. Finally, several demographic questions added to complete questionnaires.

Table 3 gives some of the questions that were asked during the pilot in-depth interview.

Table 3 Sample of Questionnaire for Pilot In-Depth Interview

- Do you need to have a deeper knowledge in the inputs, procedures and effects of green products before purchasing?
- Do you think that the life on earth got endangered due to the existence of lack of resources and environmental pollution?
- Is the balance of nature very gentle and can be easily upset?
- Do you prefer to use more eco-friendly products? If not, why?
- Do you think that technological products such as PC, mobile phone, tablet, printer, hard disk, screen etc. gives harm to environment during production or after expiry?
- Do you recycle your technological products after expiry?
- Do you prefer to use tissue paper made by recycled paper?
- Do you know that some of technological products are defined as green technological products?
- Are we getting close to the limit that the earth can maintain?
- If things continue is in the same trend as it currently is, do you think that the environment and next generations will be greatly endangered?
- Would you buy green products instead of unsustainable substitutes if some marketing activities are offered?
- Would you buy green products instead of unsustainable substitutes if they are offered at lower prices?
- Would you buy green products if they are readily accessible to you?
- Would you still buy green products instead of conventional substitutes if unsustainability in environmental conditions occur?
- What is the role of environmental conditions on your green product purchases?
- What is the role of people around you in the purchase of green products?

In pilot in-depth interview, the main purpose was to evaluate the effects of price, social value, social learning and environmental on consumers purchase intention in green products, especially in technological and personal care products. Furthermore, both closed and open-ended questions were addressed to participants in order to determine main interview questions. After completing our pilot in-dept interview, the main face to face in-depth interview was conducted with 11 participants.

These face to face in-depth interview studies were employed in order to narrow down to the subject and put significant related constructs together to get the main structure of the research study. After completing the in-depth interview, a pilot in-depth study was initiated. In first pilot survey study, 53 closed ended questions were asked to 11 participants. The participants were kindly requested to give answers to questions in the ranking between 1 to 5.

4.3 Survey study

In this work, the main goal of experimental study was to explore the factors that affect consumers' green technological and personal care product purchase intention. Both web-based and offline one-to-one survey methods were employed for data collection from 127 participants with different backgrounds. In the questionnaire 62 questions were addressed to participants. 60 of questions 5-point Likert-scale, 2 of them open, 1 of them Kansei words of multiple choice from 10 concepts. After that, descriptive analyses, correlation analysis, T-Test and ANOVA were conducted.

Questionnaire form of the work was planned to try out to find the consumers' green technological and personal care product purchase intention. It includes 3 questions to collect demographic background information from the participants. These questions are regarding their gender, age and profession. 60 Five-point Likert-scale questions and 2 open questions were addressed to participants to evaluate the determinants towards the purchase of green products with the emphasis on technological and personal care products. First 3 questions are demographic questions, they are shown in Table 4.

Table 4 Demographic Variables

Variable	Question Item	Answer Options
Age	How old are you?	18-24, 25-34, 35-44, 45-54, 55+
Gender	What is your gender?	Female, Male
Profession	What is your occupation?	Student, Employed, Unemployed, Retired

Descriptive analysis items were included in second part of the questionnaire. Descriptive constructs and questionnaire are given in Table A1 (Appendix A) and Table B1 (Appendix B). Five points Likert-scale were employed in 60 questions. In the question form, the answers were scaled from 1 to 5 in which 1 corresponds to strongly disagree, 2 corresponds to disagree, 3 means neither agrees nor disagrees, 4 means agree, and 5 equals strongly agree. Respondents stated their decision for the question items by choosing corresponding item level. Meaning of the constructs are given in Table C1 (Appendix C).

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Findings on in-depth face to face interview

11 individual people were participated in in-depth interview study. Number of the

female and male participants were 6 and rest 5, respectively. Demographic profile of

the interviewees is shown in Table 5.

Table 5 Demographic Profile of In-Dept Interviewees

Gender	Number of Part.	Average age	Occupation
Women	6	34.83	Marketing manager, Cook, Housewife, Instructor, Student, Doctor
Men	5	36.80	Manager, Engineer, Student, Instructor, Merchant

In the interview study for getting diversified results participants tried to be

selected from different occupations. Although the participants are from different

professions, they all consume regularly for their daily needs. While some of the

participants do shopping only for themselves, others shop for both themselves and

their families. Throughout this process, the main focus was on the purchase intention

of green product and general discussion of green products. I was realized that a

reasonable number of them were accustomed to green product concept, showing that

green is a hot topic.

The focus in terms of green products was given to personal care products

(especially hygienic care products) and technological products. These two products

hold a very important place in daily life. The answers general questions about green

product usage and environmental concerns showed that the awareness of participants

to environmental issues were high. Furthermore, they were aware of the positive effects of green products on environment.

In terms of technological and personal care products, the common point was that they both hold very common usage in daily life of participants. The participants who were concerned about the greenness of personal care products were also concerned about the greenness of technological products. This shows that personal care products and technological products can be evaluated together in terms of sustainability and environmental concerns although they initially look like very different products. In addition to this, it's been detected that constructs as price, paper color, use intensity, attitude, intention and paper absorption after in depth face to face interviews. Constructs found from face to face interviews are shown in Table 6.

Table 6 Constructs Found from Face to Face Interviews

Construct
Price per value ratio
Paper color
Paper absorption
White color

5.2 Findings from survey study

SPSS analysis was conducted to investigate the significantly relationships and effects determined throughout the study. SPSS (v.20.0) was employed. Correlation analysis, descriptive analysis, T-Test analysis, reliability analysis and analysis of variance (ANOVA) was conducted.

Before analyzing the results towards the goal of this research, descriptive statistics of participants and the survey are given below in section 5.2.1.

5.2.1 Profile of participants of survey and descriptive statistics

Demographic information of the participants is shown in Table 7. It shows that 40.16% (n = 51) of participants are female, while 59.84% (n = 76) are male. The participants hold 18.11% (n = 23) between ages 18 and 24, 23.62% (n = 30) between ages 25 and 34, 28.35% (n = 36) between ages 35 and 44, 13.39% (n = 17) between ages 45 and 54, the rest 16.54% (n = 21) above age 55. Furthermore, the participants occupations are 23.62% (n = 30) students, 53.54% (n = 68) employed, 11.02% (n = 14) unemployed and 11.81% (n = 15) in pension.

Table 7 Demographic Profile of Interviewees

Variable	Frequency (n)	Percentage (%)
Gender		
Female	51	40.16
Male	76	59.84
Age		
18-24	23	18.11
25-34	30	23.62
35-44	36	28.35
45-54	17	13.39
55+	21	16.54
Profession		
Student	30	23.62
Employed	68	53.54
Unemployed	14	11.02
In pension	15	11.81

5.2.2 Results of reliability analysis

To test the reliability of the measurement, indicators reliability analysis is used. Ease of use, usefulness, attitude, intention and constructs which contain more than one question items. It is tested with Cronbach's Alpha coefficient for the internal consistency of these constructs. Value of 0.6 was selected for threshold value for the reliability of statistics. Reliability analysis results are summarized in Table 8. The results show that threshold value is below in all of the alpha values. Constructs - conservative value and environmental social value- were not investigated and included in Table 8 due to their Cronbach alpha value, lower than threshold value. Furthermore, the number of items in usefulness and use was reduced in order to increase Cronbach alpha value, leading to more reliable results. Results of reliability analysis is shown in Table 8.

Table 8 Results of Reliability Analysis

Construct	No of items	New No of items	Deleted item	Cronbach's Alpha
Social Value	2	2	-	0.960
Environmental Value	2	2	-	0.835
Influence Peer	2	2	-	0.965
Ease of Use	4	4	-	0.793
Usefulness	6	5	Usefulness 6	0.737
Attitude	4	4	-	0.649
Intention	3	3	-	0.791
Use	3	2	Use 3	0.955

The reliability of a measure gives the consistency of a measurement as a function of time and the numerous items of the instrument (Sekaran and Bougie, 2013). Hence, it can be concluded that the measure of error can be predicted from the reliability of a measure. This shows the necessity of reliability test. The reliability

test also not only shows the consistency of questions with one another but also their combability scale.

Once five-point and/or more Likert scale is employed, it is required to Cronbach's alpha. Hence, reliability analysis is conducted thorough Cronbach's alpha.

In our study, Cronbach's alpha of all factors was given in table 10, except attitude construct all of them are all above 0.700 attitude constructs alpha value is 0.649 which is moderately reliable, this shows that this study is in between moderately and highly reliable. Constructs - conservative value and external influences - were also studied. However, they were not included into table 10, since the reliability and Cronbach's values were not adequate.

Table 9 gives the results of descriptive statistics analysis for constructs evaluated in survey study.

Table 9 Descriptive Statistics of Variables from Survey Study

	N	Mean	Median	Std. Deviation	Min	Max	Question
PP_ratio	127	4.82	5	0.50	3	5	The price-quality ratio is an important criterion
UseIntensity	127	4.76	5	0.43	4	5	I buy and use toilet papers on a regular basis
WhiteColor	127	4.72	5	0.68	3	5	The white color represents purity
Brand	127	4.70	5	0.80	1	5	I would like to buy a toilet paper with a brand that I already knew
Usefulness4	127	4.61	5	0.78	3	5	I don't believe that sustainable products have a positive effect on environmental issues.
Price	127	4.57	5	0.72	3	5	The price is an important criterion for me
Quality	127	4.56	5	0.86	1	5	The quality is an important criterion for me
Intention3	127	4.54	5	0.68	3	5	By using less electronics, I am planning to give less harm to environment

It can be concluded that constructs such as price per quality ratio, intensity of use, white color, brand, usefulness have a high impact on consumers' purchase intention. Consumers are paying attention to those constructs. The role of price per quality ratio was evaluated by addressing the question that the price per quality ratio is an important criterion, or not to consumers. The descriptive statistics analysis results show that the mean value is 4.8. This shows that price per quality is an important factor, affecting consumers' purchase behavior. These results showed that consumers want to get satisfaction while or after paying for a good.

Intensity of use is the second most important factor that affects to purchase intention. The question "I buy and use hygienic toilet paper on a regular basis" was addressed to consumers. The mean value of use intensity is also high, which is 4.76. That indicates that majority of consumers buy and use hygienic toilet paper on a regular basis. Hence, it is concluded that intensity of use affects purchase intention.

To evaluate the role of paper color, the question "The white color represents purity" was addressed to consumers in survey. The high mean value, 4.72, shows that paper color has a significant role consumers' purchase behavior. This probably stems from the fact that consumers evaluate white color representing purity and hygiene.

Brand is another important factor that affects purchase intention of consumers. To evaluate the effect of brand, the consumers were asked whether they would like to purchase a product from brand that they are already familiar, or not. The mean value to brand was 4.70, this shows that brand and familiarity to that brand are important factor. If a consumer buys a good from one brand and likes it, consumer wants to buy again same or another product from the same brand. It shows that consumers want to stay in the safe side if they are happy with their brand choice.

Companies should make a good engagement with their consumers to sell more green products.

Usefulness was another construct that were evaluated. Consumers answered a reverse question "I don't believe that sustainable products have a positive effect on environmental issues" with a high mean 4.61, that means they believe that sustainable products have very positive effect on consumers' green product purchase behavior. Because of its being reverse question, the mean is high, in evaluation period reverse question data converted to reverse answers.

All in all, it's been considered that price per value ratio, use intensity, color of the hygienic product, brand awareness and usefulness are the most important and positive factors that affect consumer's purchase intention on both green personal care products and green technological products. On the other hand, there are several less important factors that affect purchase intention. Those factors are ease of use, social value and lack of trust. It's been surveyed to consumer to measure the effect of ease of use as "I find it too difficult to find environmentally friendly products since every product does not have eco-friendly certification" and "I can easily find recycling bin in which I can throw away electronic products". Both questions answered in relatively low mean level as 2.49 and 1.54, respectively. Consumers would like to pay attention to green products, but they cannot find those products because of the lack of eco-labeling. They also complain about not being able to find recycle bins easily. Social value questions have one of the lowest means, which is 2.41 and 2.22, respectively. The questions "Society pays enough attention to environmental concerns" and "The attention of society on environmental concerns have been increasing" were addressed to consumers to evaluate the role of social value. Another construct that were investigated was trust factor. The lowest mean belongs

to lack of trust factor, which is only 1.40, it's been asked as "I don't believe in sustainable products". That shows consumers believe in sustainable products. Therefore, opposite of lack trust factor; trust, also has a relatively high value in parallel with attitude. Furthermore, having an average value of quality also supports the positive effect of ease on customers' purchase intention. This means that the purchase intention of customers' can be increased by increasing trust. This can be achieved by increasing social value since these factors directly affect trust of customers on products. Furthermore, the increase in price per value ratio also affect trust on products. Price per value ratio has a very high value, indicating that it is one of the most important constructs encouraging consumers to purchase green products. Also, it can be seen that quality of product plays an important role on trust of customers affecting purchase intention. Hence, it can be concluded that customers check the quality of products before purchasing them.

On the side of quality, the relatively low value stems from the low values of eco-labeling and brand image, whereas price has an important effect on quality of products. Furthermore, price has a very significant effect on customers' purchase intention since it has a high value.

5.2.3 Results of T-Test Analysis for gender

There is only one significant result based on gender construct for T-test analysis, and it is only one item. It can be seen from the results that men are more conservative than women in terms of using recycled paper. Full of T-test analysis results can be found in Table C2 (Appendix C).

5.2.4 Results of variance ANOVA analysis

ANOVA was applied on demographic values including age and profession. There is no significant relation between constructs and age. All age variable based significant results for ANOVA analysis can be found on Table C3 (Appendix C).

Participants groups are made in 5 different categories with respect to their age: 18-24, 25-34, 35-44, 45-54, 55 and above. Even though it is not significant, consumers, at the age of between 25 and 34, finds environmental products with their lifestyle but consumers who are at the age of between 45 and 54 finds environmental products less compatible with their lifestyle.

There is no big significance difference between groups only attitude, usefulness and intention has significantly related between ages. But very young group who is between 18-24 and old group, who is above 55 years old has more intention compared to other age groups.

According to ANOVA analysis based on occupation advertisement and promotions affects all types of occupations. Significance level is less than 0.01 for external influence construct. Producers should pay more attention on advertisement. In addition to this eco labeling has significant importance, that's why products should have more visible eco-labeling tags on their package. All occupation variable based significant results for ANOVA analysis can be found on Table C4 (Appendix C).

On the other hand, students and employed consumers pay more attention to environmental issues. It can be said that there is a significant difference between

mean value of different occupations. Significantly related results are shown in Table 10. Full table is available in Table C5 (Appendix C).

Table 10 Results of ANOVA Analysis in Occupation

Profession			Student	Employed	Unemployed	Retired	Total
n=			30	68	14	15	127
	F	Sig.	Mean	Mean	Mean	Mean	Mean
eValue	5.66	0.001	3.93	3.99	2.93	3.33	3.78

5.2.5 Results of correlation analysis

In effort to create a relationship between variable, correlation analysis was performed. Kendall's correlation coefficient was employed for evaluating the relationship between linearity parameters (direction and strength) and quantitative variables. Nevertheless, the Kendall's correlation coefficient does not necessarily give information about a causal connection.

In order to show the relationship between constructs, correlation analysis was conducted. The correlation results of variables were summarized in Table 11. The results show that demographic variables have different correlations on attitude and intention constructs. Age has a significant relationship with eco-labeling, supported by previous ANOVA analysis. The consumers at younger age shows more attention to eco-labelling in green products. Eco-labeling has a single question in question set that's why it's not shown in Table 11.

Gender has a significant effect on conservative construct. In addition to this, occupation has less significant effect on several constructs. Eco-labeling, environmental value and peer influence constructs have low level of significance on gender. That's why consumers' gender has important effects on purchase intention

related with those low-level significance constructs. There is another correlation

analysis full result table is available in Table C6 (Appendix C), that shows

correlation coefficients and significance between attitude, intention and all items.

Table 11 Correlation Analysis Results Attitude and Intention

Correlations		Attitude	Intention
sValue	Pearson Correlation	-0.09	-0.12
	Sig. (2-tailed)	0.318	0.197
	N	127	127
eValue	Pearson Correlation	0.54	-0.01
	Sig. (2-tailed)	0.000	0.902
	N	127	127
InfluencePeer	Pearson Correlation	-0.05	-0.01
	Sig. (2-tailed)	0.593	0.921
	N	127	127
EoU	Pearson Correlation	0.02	0.01
	Sig. (2-tailed)	0.800	0.957
	N	127	127
Usefulness	Pearson Correlation	0.63	0.47
	Sig. (2-tailed)	0.000	0.000
	N	127	127
Attitude	Pearson Correlation	1.00	0.35
	Sig. (2-tailed)	0.000	0.000
	N	127	127
Intention	Pearson Correlation	0.35	1.00
	Sig. (2-tailed)	0.000	0.000
	N	127	127

This analysis shows that usefulness has a strong significant relation to

attitude and intention. Consumers thinks about green product purchase and

consumers are not affecting from other people with their thoughts and social values.

But environmental value has a relationship with consumer's attitude because the

significance level for attitude is 0.000, that means environmental value affects

attitude significantly. Correlation analysis between attitude and intention is shown in Table 12.

Table 12 Correlation Analysis Between Attitude and Intention

Correlations		Intention
Attitude	Pearson Correlation	0.35
	2-tailed Sign.	0.000
	N	127

Furthermore, environmental value, image and compatibility significantly affect usefulness and attitude, but it's been analyzed with single item question, that's why they are not shown in table. Significance level is 0.000 that shows there is a significant relationship between attitude and use. Consumers who has attitude wants to use green products. Full results of descriptive statistics are available in Table C7 (Appendix C). Descriptive Correlation analyses between attitude and use is shown in Table 13.

Table 13 Correlation Analyses Attitude and Use

Correlations		Use
Attitude	Correlation Coefficient	0.68
	Sig. (2-tailed)	0.000
	N	127

All in all, usefulness and attitude affect green product purchase intention because of their significance level. That's why, green product manufacturers should make more engagement with consumers to increase their environmental values. All constructs and related publications are shown in Table C8 (Appendix C).

CHAPTER 6

CONCLUSIONS

Due to many reasons discussed throughout this work, the consumer's awareness to environmental issues have been increasing. The results in this work showed that constructs such as environmental concern, price, trust, social value, attitude and price per value ratio have a high impact on consumers' purchase intention. Price per value ratio is one of the important factors that contributes to forming attitude towards green product purchase. Therefore, price per value ratio also has a relatively high potential value in parallel with attitude. Furthermore, having an average value of quality also supports the positive effect of ease on customers' purchase intention. This means that the purchase intention of customers' can be increased by increasing price per value ratio, and quality firms should increase their companies trust engagement between consumers.

In this study, both qualitative and quantitative studies have been applied to deepen the understanding in of intention of consumers' green product purchases. However, trust was a very important construct for consumers. If an engagement leading to trust in product can be formed between product and consumer, trust issue can be solved, leading to turn green product intention to attitude.

Another analysis that were used in this work was T-test analysis. There were no very meaningful results for age in the test but the results from T-test analysis showed that the intention of consumers towards green product purchases does not vary depending on gender. This can be especially obtained from the low significance

values in intention and conservative value constructs. Furthermore, T-test analysis showed that social value has a direct effect on consumers' green product purchase regardless of gender.

ANOVA analysis results showed that the intention of consumers in all age groups towards green product purchases have been increasing in all age groups. Furthermore, ANOVA analysis of eco-labelling construct showed that the importance of eco-labelling decreases with increase in age. In other words, the participants between 18 and 35 pays attention to having eco-labelling in order to conduct green product purchase. However, the participants above 35 does not pay attention to eco-labelling. Furthermore, the importance of eco-labelling was also seen in ANOVA gender analysis. The fact that the significance values were low in all occupation groups shows the importance of eco-labelling. Especially, the high mean values in students and employed young professionals are in parallel with ANOVA Age analysis.

Furthermore, the attention of consumers to conduct green product purchases have been increasing in our era. Consumers with high intention to conduct green product purchases also shows higher intention to purchase green personal care and technological products. However, criteria such as eco-labelling, brand image and environmental value for green technological products should be increased to increase green personal care and technological product purchases.

6.1 Implications

The main target audiences of this study are technological and personal care product producers, their marketing people and high decision takers.

First of all, in depth interviews were conducted to analyze consumers interest and intention in purchasing sustainable green products. The experimental study was done by a web-based survey and one to one paper based offline survey to evaluate consumers' responses on construct-based questions followed as next part. Finally, several different analyses such as descriptive analysis, ANOVA analysis, reliability analysis and correlation analysis were performed.

On the other hand, the attention of society on environmental concerns have been increasing. Consumers are aware that technological products should be recycled. It is complained about not finding recycle bins easily for recycling technological products. Recycling private sector firms and municipalities could increase the number of technological product recycling bin points. After gathering recycling bin points, those private companies and municipalities should pay attention of consumers by making advertisements and relatively announcements.

All in all, most of the consumers believe in green personal care products and green technological products. For translating this believe to purchase intention, green products price per value ratio, brand image and availability should be increased.

According to Turkey Information Technology Agency's 2018 report, approximately 65 percent of electronics usage consists of personal use. Hence, the electronics for personal use forms the majority of waste from electronics. To reduce the amount of detrimental electronic waste, it is aimed to increase the amount of green technological products that will lead to decrease in amount of detrimental waste since green products are made of environmentally friendly materials. Besides Turkish national production report shows that technological production level increased regularly between 2010 and 2018. And the total share of technological

products in all production is increasing annually. That information is supporting that; green technological production should be supported.

6.2 Managerial implications

According to these analyses technology and personal care products producers should go greener on their product lines. Consumers pay attention and wants to buy the brand that they know or tried before. If producer or sellers made an engagement between brand and consumer, it should be a good, sustainable relationship for consumer. If consumer is satisfied and happy with brand, purchase intention and purchasing goes for long time period. In addition to this governments should give some incentive programs to encourage producers. Tax advantages could be one of the good options for them.

According to the research from Nielsen Shopper Trends in 2018, approximately 87 percent of consumers conduct purchases on personal care products. However, less than 50 percent of these consumers conduct purchases on green personal care products. This mostly stems from the fact that green personal care products are about 30 percent more expensive than other personal care products. Considering this fact, it is recommended to lower the price gap in order to increase the amount of green personal care products.

6.3 Limitations

In this study, there were two main limitations – demographic background of pilot group and the location of survey. In terms of demographic shape of pilot group, the pilot study was limited to 11 participants. However, the group had almost same

number female and male participants. It would be valuable to have a pilot study with a larger group of participants.

Furthermore, the study was applied in Turkey. To generalize the results, the study should be studied in different locations. Hence, the differences in culture can affect the study results.

6.4 Further works

From the literature survey although sixty-three constructs were derived, quantitative and qualitative studies. Several of these constructs were investigated in the consumers' green purchase product framework. Since the existing literature has not studied constructs that were investigated in this work in depth, the constructs were mainly decided after face-to-face interviews. Therefore, from the literature new constructs or extracted constructs can be added to the list. Moreover, to investigate the purchase intention of consumers for other sustainable sectors, the study can be applied in different product groups such as green or sustainable foods, chemical cleaners, construction goods.

APPENDIX A

SURVEY QUESTIONNAIRE

Table A1 Survey Questionnaire

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Age	Btw 18-24	Btw 25-34	Btw 35-44	Btw 45-54	Above 55
Gender	Female	Male			
Occupation	Student	Employed	Un-employed	Retired	

<div align="right">
1-Strongly disagree
2-Disagree
3-Neither disagree nor agree
4-Agree
5-Strongly agree
</div>

Please answer the questions below with taking your criteria into consideration while choosing sustainable green products

The price is an important criterion for me	1	2	3	4	5
The price-quality ratio is an important criterion	1	2	3	4	5
I would like to buy a toilet paper with a brand that I already knew	1	2	3	4	5
The quality is an important criterion for me	1	2	3	4	5
The promotions affect my decision.	1	2	3	4	5
I don't believe in sustainable products	1	2	3	4	5
I find it too difficult to find environmentally friendly products since every product does not have eco-friendly certification	1	2	3	4	5
It is not easy for me to change the products that I have been already using	1	2	3	4	5
Social values are important for me	1	2	3	4	5
I don't pay attention to what people think in many topics	1	2	3	4	5
Society pays enough attention to environmental concerns	1	2	3	4	5
The attention of society on environmental concerns have been increasing	1	2	3	4	5
Advertisements and promotions affect me.	1	2	3	4	5
I take into account the thoughts of public	1	2	3	4	5

It is important that the products are environmentally friendly	1	2	3	4	5
I feel responsible for environment while choosing products	1	2	3	4	5
I take my friend's idea into account while buying a product	1	2	3	4	5
The ideas of people around me affect me	1	2	3	4	5
The fact that people around me pays attention to environmental issues affect me	1	2	3	4	5
Using environmentally friendly products affect my image in a positive way	1	2	3	4	5
Environmental products are compatible with my lifestyle	1	2	3	4	5
I can easily find and buy green products	1	2	3	4	5
It is hard to find environmentally friendly products when I want to purchase them	1	2	3	4	5
I find it too difficult to find environmentally friendly products since every product does not have eco-friendly certification	1	2	3	4	5
I think that purchasing green products are good for environment.	1	2	3	4	5
I don't believe that sustainable products have a positive effect on environmental issues.	1	2	3	4	5
I recommend products with eco-packaging to my friends and family.	1	2	3	4	5
I always look for green products and purchase them	1	2	3	4	5
I don't have the habit of purchasing green products	1	2	3	4	5

Please answer the questions below with taking your criteria into consideration while choosing electronics	1-Strongly disagree 2-Disagree 3-Neither disagree nor agree 4-Agree 5-Strongly agree				
I can easily find recycling bin in which I can throw away electronic products	1	2	3	4	5
I find it important to purchase green technological products	1	2	3	4	5
It is important to throw away electronic products into recycling bins	1	2	3	4	5
I would like to use green technological products	1	2	3	4	5
I recommend my family and friends to recycle technological products after they complete their lifecycle.	1	2	3	4	5

I will start using green technological products soon	1	2	3	4	5
By using less electronics, I am planning to give less harm to environment	1	2	3	4	5

Please answer the questions below with taking your criteria into consideration while choosing the hygienic paper products	1-Strongly disagree 2-Disagree 3-Neither disagree nor agree 4-Agree 5-Strongly agree				
It is important that the white colored paper	1	2	3	4	5
It is important that the texture is soft	1	2	3	4	5
It is important that it absorbes liquids efficiently	1	2	3	4	5
I buy and use toilet papers on a regular basis	1	2	3	4	5
The white color represents purity	1	2	3	4	5
I don't buy any products that are produced from recycled paper	1	2	3	4	5
It's good to buy green paper product	1	2	3	4	5
It is good that the products are produced from recycled paper	1	2	3	4	5
I'm positive to sustainable products	1	2	3	4	5
I am planning to start using environmental-friendly products	1	2	3	4	5
I purchase environmentally friendly products	1	2	3	4	5
What would you recommend increasing the usage of green products?					
Would you like to add something?					

APPENDIX B

SURVEY QUESTIONNAIRE (TURKISH)

Interview Questions

Sayın Katılımcı,

Bu çalışma, Boğaziçi Üniversitesi Yönetim Bilişim Sistemleri bölümü yüksek

lisans tezinde veri olarak kullanılmak üzere görüşlerinizi almak için yapılmıştır.

Yaklaşık 8 dakikanızı ayırarak cevap verebilirseniz memnun olurum.

Saygılarımla,

Ali Sertaç YILMAZ

Table B1 Survey Questionnaire (Turkish)

	1	2	3	4	5
Yaşınız	18-24 arası	25-34 arası	35-44 arası	45-54 arası	55 ve üstü
Cinsiyetiniz	Kadın	Erkek			
Mesleğiniz	Öğrenci	Çalışan	Çalış-mayan	Emekli	

Çevreci ürünleri seçer iken dikkate aldığınız hususları dikkate alarak aşağıdaki ifadelere ne kadar katıldığınız cevaplayınız.

1-Tamamen katılmıyorum
2-Katılmıyorum
3-Ne Katılıyor ne katılmıyorum
4-Katılıyorum
5-Tamamen katılıyorum

Fiyatı önemserim	1	2	3	4	5
Fiyatına göre aldığım faydayı önemserim.	1	2	3	4	5
Güvendiğim marka olması kararımı etkiler.	1	2	3	4	5
Ürünün kalitesi kararımı etkiler.	1	2	3	4	5
Promosyonlar kararımı etkiler.	1	2	3	4	5
Çevreci ürünlerin gerçekten çevreci olduğuna inanmıyorum.	1	2	3	4	5

Her ürünün çevreci sertifika etiketi olmadığı için çevreci sertifikalı ürünleri tespit etmekte zorlanırım	1	2	3	4	5
Kullandığım ürünleri değiştirmem çok kolay değildir.	1	2	3	4	5
Toplumsal değerleri dikkate alırım.	1	2	3	4	5
Pek çok konuda toplumlumun bakış açısı beni ilgilendirmez.	1	2	3	4	5
Toplum çevreye yeterince duyarlıdır.	1	2	3	4	5
Toplumun çevreye duyarlılığı artıyor.	1	2	3	4	5
Reklam ve tanıtımlar beni etkiler.	1	2	3	4	5
Toplumun çevresel konulardaki duyarlılığını dikkate alırım.	1	2	3	4	5
Ürünün çevreci olmasını dikkate alırım.	1	2	3	4	5
Ürün seçerken kendimi doğaya karşı sorumlu hissederim.	1	2	3	4	5
Arkadaşlarımın ürün tercihlerini dikkate alırım.	1	2	3	4	5
Yakınlarım/güvendiğim kişilerin fikirleri beni etkiler.	1	2	3	4	5
Yakınlarım/güvendiğim kişilerin çevreye duyarlı olmaları beni etkiler.	1	2	3	4	5
Çevreci ürün kullanmak benim kişisel imajımı olumlu olarak etkiler	1	2	3	4	5
Çevreci ürün kullanımı benim yaşam tarzımla uyumludur.	1	2	3	4	5
Çevreci ürünleri kolaylıkla bulabilirim.	1	2	3	4	5
Çevreci ürünleri satın almak istediğimde zor bulurum.	1	2	3	4	5
Her ürünün çevreci sertifika etiketi olmadığı için çevreci sertifikalı ürünleri tespit etmekte zorlanırım	1	2	3	4	5
Çevreci/yeşil ürün alımının doğaya faydalı olduğunu düşünüyorum.	1	2	3	4	5
Sürdürülebilir ürünlerin çevreye katkısına inanmıyorum.	1	2	3	4	5
Aileme/arkadaşlarıma çevre dostu olarak ambalajlanmış ürünler almalarını tavsiye ederim.	1	2	3	4	5
Her zaman her üründe çevreci ürünler arar bulurum	1	2	3	4	5
Çevreci ürün alma alışkanlığım yoktur	1	2	3	4	5

Elektronik/teknolojik ürünleri seçer iken dikkate aldığınız hususları dikkate alarak aşağıdaki ifadelere ne kadar katıldığınız cevaplayınız.	1-Tamamen katılmıyorum 2-Katılmıyorum 3-Ne Katılıyor ne katılmıyorum 4-Katılıyorum 5-Tamamen katılıyorum

Elektronik ürünleri atabileceğim geri dönüşüm kutularını kolaylıkla bulabiliyorum.	1	2	3	4	5
Çevreci teknolojik ürün almayı faydalı buluyorum.	1	2	3	4	5
Elektronik ürünlerin geri dönüşüm kutularına atılmasını faydalı buluyorum.	1	2	3	4	5
Çevreci Teknolojik ürünler kullanmak isterim.	1	2	3	4	5
Aileme/arkadaşlarıma ömrü tamamlanmış olan elektronik ürünleri uygun şekilde geri dönüşüme atmalarını tavsiye ederim.	1	2	3	4	5
Yakın bir zamanda çevreci olan teknolojik ürünler kullanmaya başlayacağım.	1	2	3	4	5
Daha az elektronik alet kullanarak doğaya daha az zarar verip sağlıklı bir çevrede yaşamama yardımcı olmayı planlıyorum.	1	2	3	4	5

Hijyenik kâğıt ürünlerini seçer iken dikkate aldığınız hususları dikkate alarak aşağıdaki ifadelere ne kadar katıldığınız cevaplayınız.	1-Tamamen katılmıyorum 2-Katılmıyorum 3-Ne Katılıyor ne katılmıyorum 4-Katılıyorum 5-Tamamen katılıyorum				
Renginin beyaz olmasını önemserim.	1	2	3	4	5
Kâğıdın yumuşak olmasını önemserim.	1	2	3	4	5
Kâğıdın emiciliği iyi olduğu için alırım.	1	2	3	4	5
Düzenli olarak tuvalet kâğıdı alırım, kullanırım.	1	2	3	4	5
Beyaz renk saflığı temsil eder	1	2	3	4	5
Geri dönüşümlü/eski kâğıttan üretilen ürünleri almam.	1	2	3	4	5
Çevreci bir tuvalet kâğıdı almayı faydalı buluyorum	1	2	3	4	5
Geri dönüşümlü/eski kâğıttan üretilmiş olması yararlıdır.	1	2	3	4	5
Çevreci kâğıt ürünleri kullanmak isterim.	1	2	3	4	5
Yakın bir zamanda çevreci hijyenik kâğıt ürünleri kullanmaya başlayacağım.	1	2	3	4	5
Artık çevreci bakım ürünleri alıyorum	1	2	3	4	5
Çevresel ürünlerin kullanımının artması için ne önerirsiniz?					
Eklemek istediğiniz bir şey var mıdır?					

APPENDIX C

CONSTRUCT DEFINITIONS AND ANALYSES

Table C1 Construct Initials and Meanings

Construct Code	Construct Name
Price	Price
PP_ratio	Price per value ratio
P_Color	Paper color
P_Softness	Paper softness
P_Absorb	Paper absorption
Brand	Brand awareness
Quality	Product quality
Promotion	Promotion
UseIntensity	Use intensity
WhiteColor	White color
TrustLack	Lack of trust
EcoLabel	Eco-labeling
Conservative	Conservative
sValue	Social Value
sValue-e	Environmental Social Value
InfluenceExternal	External Influence
InfluenceExternal-e	Environmental External value
eValue	Environmental Value
InfluencePeer	Influence peer
InfluencePeer-e	Environmental influence Peer
Image	Image
Compatibility	Compatibility
EoU	Ease of Use
Usefulness	Usefulness
Attitude	Attitude
Intention	Intention
Use	Use

Table C2 T-Test Analysis Results

	Female	Male		Total	Levene's Test for Equality of Variances		
n=	56	71		127			
Variable	Mean	Mean	Mean Diff	Mean	Sig.	Variance	Sig. (2-tailed)
Conservative2	4.210	4.630	-0.420	4.450	0.000	Equal variances not assumed	0.004
Intention2	4.630	4.370	0.260	4.480	0.005	Equal variances not assumed	0.076
Intention	4.625	4.415	0.210	4.508	0.016	Equal variances not assumed	0.099
WhiteColor	4.610	4.800	-0.190	4.720	0.002	Equal variances not assumed	0.106
sValue_e2	2.020	2.380	-0.360	2.220	0.285	Equal variances assumed	0.113
P_Color	4.230	4.480	-0.250	4.370	0.016	Equal variances not assumed	0.128
Use Intensity	4.820	4.720	0.100	4.760	0.006	Equal variances not assumed	0.177
Intention3	4.630	4.460	0.170	4.540	0.015	Equal variances not assumed	0.186
Usefulness3	4.180	4.380	-0.200	4.290	0.430	Equal variances assumed	0.198
Conservative1	3.340	3.100	0.240	3.200	0.026	Equal variances not assumed	0.243
Image	3.550	3.770	-0.220	3.680	0.894	Equal variances assumed	0.280
Usefulness2	4.410	4.250	0.160	4.320	0.113	Equal variances assumed	0.325
sValue_e1	2.290	2.510	-0.220	2.410	0.472	Equal variances assumed	0.326
EcoLabel	3.410	3.230	0.180	3.310	0.080	Equal variances assumed	0.349
EoU1	2.820	3.010	-0.190	2.930	0.022	Equal variances not assumed	0.385
Compatibility	3.820	3.990	-0.170	3.910	0.289	Equal variances assumed	0.441
sValue	2.598	2.697	-0.099	2.654	0.246	Equal variances assumed	0.493
EoU	2.406	2.514	-0.108	2.467	0.067	Equal variances assumed	0.527
EoU2	2.840	2.970	-0.130	2.910	0.175	Equal variances assumed	0.558
sValue2	3.050	2.930	0.120	2.980	0.000	Equal variances not assumed	0.578
Usefulness6	3.040	3.150	-0.110	3.100	0.026	Equal variances not assumed	0.587
Influence External	4.450	4.350	0.100	4.390	0.409	Equal variances assumed	0.600
Brand	4.660	4.730	-0.070	4.700	0.446	Equal variances assumed	0.618

EoU3	2.430	2.540	-0.110	2.490	0.181	Equal variances assumed	0.630
Intention1	4.520	4.450	0.070	4.480	0.586	Equal variances assumed	0.643
Attitude2	4.460	4.390	0.070	4.430	0.414	Equal variances assumed	0.644
Price	4.610	4.550	0.060	4.570	0.502	Equal variances assumed	0.654
P_Softness	4.360	4.420	-0.060	4.390	0.449	Equal variances assumed	0.664
Usefulness1	4.450	4.380	0.070	4.410	0.471	Equal variances assumed	0.668
Usefulness5	4.450	4.390	0.060	4.420	0.578	Equal variances assumed	0.727
Trust Lack	1.380	1.420	-0.040	1.400	0.538	Equal variances assumed	0.738
PP_ratio	4.800	4.830	-0.030	4.820	0.544	Equal variances assumed	0.758
eValue1	3.700	3.760	-0.060	3.730	0.909	Equal variances assumed	0.758
sValue1	3.040	2.970	0.070	3.000	0.024	Equal variances not assumed	0.778
Quality	4.540	4.580	-0.040	4.560	0.479	Equal variances assumed	0.787
Attitude	4.107	4.077	0.030	4.091	0.102	Equal variances assumed	0.791
P_Absorb	3.770	3.820	-0.050	3.800	0.565	Equal variances assumed	0.795
InfluencePeer2	2.890	2.830	0.060	2.860	0.532	Equal variances assumed	0.810
Attitude1	4.480	4.450	0.030	4.460	0.508	Equal variances assumed	0.826
Usefulness	4.421	4.403	0.019	4.411	0.694	Equal variances assumed	0.861
Promotion	4.320	4.350	-0.030	4.340	0.892	Equal variances assumed	0.872
InfluencePeer	2.920	2.880	0.039	2.898	0.245	Equal variances assumed	0.880
Usefulness4	4.630	4.610	0.020	4.610	0.820	Equal variances assumed	0.890
eValue2	3.840	3.820	0.020	3.830	0.316	Equal variances assumed	0.910
eValue	3.768	3.789	-0.021	3.780	0.658	Equal variances assumed	0.912
Attitude4	3.800	3.790	0.010	3.800	0.156	Equal variances assumed	0.932
InfluencePeer_e	2.980	3.000	-0.020	2.990	0.837	Equal variances assumed	0.944
InfluencePeer1	2.950	2.930	0.020	2.940	0.127	Equal variances assumed	0.951
Attitude3	3.680	3.680	0.000	3.680	0.176	Equal variances assumed	0.988
InfluenceExternal_e	3.070	3.070	0.000	3.070	0.046	Equal variances not assumed	0.996
EoU4	1.540	1.540	0.000	1.540	0.960	Equal variances assumed	0.998

Table C3 ANOVA Results - Age

Age			18-24	25-34	35-44	45-54	55+	Total
n=			23	30	36	17	21	127
Variable	F	Sig.	Mean	Mean	Mean	Mean	Mean	Mean
Compatibility	4.101	0.004	3.83	4.60	3.75	3.35	3.76	3.91
EcoLabel	3.812	0.006	3.83	3.63	3.08	3.12	2.81	3.31
eValue2	3.252	0.014	3.87	4.27	3.83	3.12	3.71	3.83
Image	2.654	0.036	3.43	4.17	3.72	3.18	3.57	3.68
Attitude3	2.324	0.060	3.52	4.07	3.75	3.41	3.38	3.68
Usefulness6	2.103	0.085	3.48	3.40	2.89	2.59	3.05	3.10
eValue1	2.046	0.092	3.52	4.13	3.86	3.29	3.52	3.73
Attitude4	2.009	0.097	3.74	4.13	3.86	3.41	3.57	3.80
Intention1	1.694	0.156	4.65	4.27	4.53	4.24	4.71	4.48
WhiteColor	1.465	0.217	4.83	4.60	4.81	4.88	4.48	4.72
Intention	1.46	0.219	4.76	4.35	4.58	4.35	4.45	4.51
Intention3	1.45	0.223	4.78	4.37	4.58	4.41	4.52	4.54
sValue_e1	1.35	0.256	2.22	2.53	2.11	2.59	2.81	2.41
Intention2	1.28	0.282	4.74	4.33	4.58	4.29	4.38	4.48
InfluenceExternal_e	1.25	0.292	2.78	3.07	2.89	3.35	3.48	3.07
sValue2	1.22	0.306	2.61	3.10	2.83	3.29	3.24	2.98
InfluenceExternal	1.21	0.309	4.57	4.63	4.33	4.24	4.10	4.39
P_Softness	1.21	0.312	4.57	4.43	4.42	4.47	4.05	4.39
sValue1	1.07	0.373	2.74	3.03	2.81	3.35	3.29	3.00
Usefulness3	1.01	0.404	4.13	4.37	4.44	4.00	4.33	4.29
Promotion	0.92	0.455	4.52	4.57	4.22	4.12	4.19	4.34
InfluencePeer1	0.88	0.477	3.09	3.17	3.03	2.41	2.71	2.94
Conservative1	0.85	0.499	3.39	2.93	3.39	3.18	3.10	3.20
InfluencePeer2	0.84	0.500	3.00	2.90	3.08	2.41	2.62	2.86
Price	0.82	0.513	4.57	4.43	4.53	4.71	4.76	4.57
UseIntensity	0.72	0.579	4.83	4.80	4.67	4.82	4.76	4.76
P_Color	0.7	0.597	4.57	4.27	4.36	4.53	4.19	4.37
Attitude1	0.67	0.614	4.65	4.30	4.44	4.47	4.52	4.46
EoU4	0.66	0.622	1.52	1.27	1.67	1.59	1.67	1.54
Conservative2	0.65	0.632	4.52	4.40	4.39	4.71	4.33	4.45
EoU3	0.64	0.633	2.57	2.57	2.64	2.35	2.14	2.49
EoU2	0.58	0.675	2.96	2.97	3.08	2.82	2.57	2.91
sValue_e2	0.57	0.687	2.04	2.27	2.06	2.41	2.48	2.22
EoU1	0.51	0.727	3.09	2.97	3.03	2.82	2.62	2.93
Brand	0.5	0.735	4.70	4.80	4.56	4.71	4.81	4.70
InfluencePeer_e	0.48	0.747	3.04	3.13	3.08	2.59	2.90	2.99
Usefulness4	0.48	0.754	4.74	4.47	4.67	4.65	4.57	4.61

	F	Sig.					
TrustLack	0.41	0.802	1.26	1.53	1.39	1.35	1.43	1.40
Usefulness2	0.38	0.821	4.48	4.23	4.28	4.24	4.43	4.32
Usefulness1	0.36	0.837	4.39	4.57	4.33	4.41	4.33	4.41
PP_ratio	0.33	0.855	4.83	4.83	4.75	4.82	4.90	4.82
Quality	0.32	0.862	4.70	4.60	4.50	4.41	4.57	4.56
Attitude2	0.28	0.891	4.57	4.33	4.44	4.35	4.43	4.43
P_Absorb	0.26	0.901	3.96	3.67	3.83	3.76	3.76	3.80
Usefulness5	0.13	0.973	4.52	4.40	4.42	4.35	4.38	4.42

Table C4 ANOVA Results - Occupation

Occupation			Student	Employed	Unemployed	Retired	Total
			30	68	14	15	127
	F	Sig.	Mean	Mean	Mean	Mean	Mean
eValue	5.66	0.001	3.93	3.99	2.93	3.33	3.78
eValue1	5.32	0.002	3.73	4.01	2.86	3.27	3.73
EcoLabel	4.79	0.003	3.93	3.13	2.93	3.20	3.31
eValue2	4.90	0.003	4.13	3.96	3.00	3.40	3.83
Usefulness3	3.47	0.018	4.23	4.49	3.79	4.00	4.29
Image	3.33	0.022	3.67	3.90	2.93	3.40	3.68
Intention3	3.12	0.029	4.63	4.56	4.71	4.07	4.54
sValue_e1	3.01	0.033	2.00	2.38	3.14	2.67	2.41
InfluencePeer1	2.99	0.034	3.50	2.94	2.36	2.33	2.94
InfluencePeer	2.60	0.055	3.35	2.94	2.29	2.37	2.90
sValue	2.43	0.069	2.43	2.61	2.96	2.98	2.65
EoU4	2.30	0.080	1.20	1.53	1.71	2.07	1.54
InfluencePeer2	2.17	0.095	3.20	2.94	2.21	2.40	2.86
Compatibility	2.04	0.112	4.07	4.01	3.21	3.80	3.91
Attitude3	1.98	0.120	3.70	3.82	3.36	3.27	3.68
Intention	1.96	0.124	4.60	4.54	4.57	4.10	4.51
Attitude	1.57	0.200	4.18	4.14	3.98	3.80	4.09
Attitude4	1.42	0.241	3.87	3.90	3.57	3.40	3.80
InfluencePeer_e	1.35	0.262	3.37	2.96	2.50	2.87	2.99
UseIntensity	1.16	0.327	4.80	4.72	4.71	4.93	4.76
Usefulness	1.14	0.335	4.44	4.47	4.30	4.19	4.41
Intention2	1.12	0.343	4.57	4.53	4.43	4.13	4.48

sValue_e2	1.06	0.370	2.10	2.13	2.36	2.73	2.22
InfluenceExternal	0.89	0.448	4.57	4.41	4.29	4.07	4.39
Attitude1	0.83	0.479	4.63	4.40	4.57	4.33	4.46
Usefulness6	0.77	0.511	3.37	2.97	3.21	3.07	3.10
P_Softness	0.75	0.525	4.40	4.47	4.29	4.13	4.39
Conservative1	0.73	0.537	3.40	3.21	3.14	2.87	3.20
Usefulness1	0.72	0.539	4.47	4.41	4.57	4.13	4.41
sValue1	0.66	0.578	2.80	2.99	3.14	3.33	3.00
Conservative	0.64	0.589	3.88	3.85	3.82	3.60	3.83
InfluenceExternal_e	0.61	0.610	2.83	3.09	3.29	3.27	3.07
Intention1	0.58	0.629	4.50	4.41	4.71	4.53	4.48
Promotion	0.57	0.639	4.50	4.32	4.36	4.07	4.34
WhiteColor	0.49	0.693	4.67	4.78	4.57	4.67	4.72
Usefulness4	0.47	0.701	4.67	4.65	4.57	4.40	4.61
sValue2	0.47	0.707	2.83	2.96	3.21	3.20	2.98
Quality	0.46	0.710	4.63	4.59	4.50	4.33	4.56
Attitude2	0.44	0.725	4.50	4.44	4.43	4.20	4.43
TrustLack	0.40	0.751	1.33	1.38	1.43	1.60	1.40
Usefulness2	0.37	0.773	4.37	4.37	4.21	4.13	4.32
P_Absorb	0.36	0.779	3.83	3.85	3.57	3.67	3.80
Conservative2	0.31	0.821	4.37	4.50	4.50	4.33	4.45
EoU2	0.27	0.846	2.90	2.99	2.86	2.67	2.91
PP_ratio	0.26	0.857	4.80	4.81	4.93	4.80	4.82
Usefulness5	0.24	0.869	4.47	4.44	4.36	4.27	4.42
Brand	0.20	0.893	4.70	4.68	4.86	4.67	4.70
Price	0.17	0.916	4.53	4.59	4.50	4.67	4.57
EoU	0.13	0.944	2.38	2.50	2.46	2.48	2.47
EoU1	0.13	0.945	2.90	2.99	2.79	2.87	2.93
P_Color	0.12	0.949	4.33	4.37	4.50	4.33	4.37
EoU3	0.09	0.966	2.50	2.51	2.50	2.33	2.49

Table C5 Questionnaire Constructs and Items

Construct	Variable	Question
Attitude	Attitude1	I'm positive to sustainable products
	Attitude2	I would like to use green technological products
	Attitude3	I recommend products with eco-packaging to my friends and family.
	Attitude4	I recommend my family and friends to recycle technological products after they complete their lifecycle.
Brand	Brand	I would like to buy a toilet paper with a brand that I already knew
Compatibility	Compatibility	Environmental products are compatible with my lifestyle
Conservative	Conservative1	It is not easy for me to change the products that I have been already using
	Conservative2	I don't buy any products that are produced from recycled paper
Eco-Labeling	Eco-Labeling	I find it too difficult to find environmentally friendly products since every product does not have eco-friendly certification
Ease of Use	Ease of Use1	I can easily find and buy green products
	Ease of Use2	It is hard to find environmentally friendly products when I want to purchase them
	Ease of Use3	I find it too difficult to find environmentally friendly products since every product does not have eco-friendly certification
	Ease of Use4	I can easily find recycling bin in which I can throw away electronic products
Environmental Value	Environmental Value1	It is important that the products are environmentally friendly
	Environmental Value2	I feel responsible for environment while choosing products
Image	Image	Using environmentally friendly products affect my image in a positive way
Influence External	Influence External	Advertisements and promotions affect me.
Influence External-e	Influence External-e	I take into account the thoughts of public
Influence Peer-e	Influence Peer-e	The fact that people around me pays attention to environmental issues affect me
Influence Peer	Influence Peer1	I take my friend's idea into account while buying a product
	Influence Peer2	The ideas of people around me affect me

(Cont. on next page)

Intention	Intention1	I am planning to start using environmental-friendly products
	Intention2	I will start using green technological products soon
	Intention3	By using less electronics, I am planning to give less harm to environment
Paper Absorption	Paper Absorption	It is important that it absorbs liquids efficiently
Paper Color	Paper Color	It is important that the white colored paper
Paper Softness	Paper Softness	It is important that the texture is soft
Price per value ratio	Price per value ratio	The price-quality ratio is an important criterion
Price	Price	The price is an important criterion for me
Promotion	Promotion	The promotions affect my decision.
Quality	Quality	The quality is an important criterion for me
Social Value-e	Social Value-e1	Society pays enough attention to environmental concerns
	Social Value-e2	The attention of society on environmental concerns have been increasing
Social Value	Social Value1	Social values are important for me
	Social Value2	I don't pay attention to what people think in many topics
Trust Lack	Trust Lack	I don't believe in sustainable products
	Use1	I purchase environmentally friendly products
	Use2	I always look for green products and purchase them
	Use3	I don't have the habit of purchasing green products
Usefulness	Usefulness1	It's good to buy green paper product
	Usefulness2	I find it important to purchase green technological products
	Usefulness3	I think that purchasing green products are good for environment.
	Usefulness4	I don't believe that sustainable products have a positive effect on environmental issues.
	Usefulness5	It is important to throw away electronic products into recycling bins
	Usefulness6	It is good that the products are produced from recycled paper
Use Intensity	Use Intensity	I buy and use toilet papers on a regular basis
White Color	White Color	The white color represents purity

Table C6 Correlation Analysis

Correlations		EoU	Usefulness	Attitude	Intention
Price	Pearson Correlation	-0.14	0.17	0.04	-0.04
	2-tailed Sign.	0.116	0.053	0.637	0.655
	N	127	127	127	127
PP_ratio	Pearson Correlation	-0.15	0.15	0.12	0.02
	2-tailed Sign.	0.087	0.097	0.164	0.864
	N	127	127	127	127
P_Color	Pearson Correlation	0.12	0.00	-0.05	0.05
	2-tailed Sign.	0.194	0.989	0.556	0.617
	N	127	127	127	127
P_Softness	Pearson Correlation	0.11	0.02	-0.08	0.04
	2-tailed Sign.	0.233	0.823	0.370	0.643
	N	127	127	127	127
P_Absorb	Pearson Correlation	-0.01	0.04	-0.03	-0.10
	2-tailed Sign.	0.956	0.639	0.720	0.243
	N	127	127	127	127
Brand	Pearson Correlation	-0.07	0.11	0.09	0.00
	2-tailed Sign.	0.429	0.200	0.334	0.963
	N	127	127	127	127
Quality	Pearson Correlation	-0.06	0.16	0.08	0.03
	2-tailed Sign.	0.472	0.073	0.402	0.723
	N	127	127	127	127
Promotion	Pearson Correlation	-0.07	0.03	0.10	-0.07
	2-tailed Sign.	0.436	0.720	0.290	0.453
	N	127	127	127	127
UseIntensity	Pearson Correlation	0.02	0.02	0.01	-0.05
	2-tailed Sign.	0.785	0.797	0.943	0.606
	N	127	127	127	127
WhiteColor	Pearson Correlation	0.17	0.01	0.01	-0.01
	2-tailed Sign.	0.051	0.930	0.874	0.895
	N	127	127	127	127
TrustLack	Pearson Correlation	-0.06	-0.37	-0.13	0.00
	2-tailed Sign.	0.512	0.000	0.143	0.988
	N	127	127	127	127

EcoLabel	Pearson Correlation	-0.12	0.04	0.28	0.00
	2-tailed Sign.	0.197	0.627	0.001	0.983
	N	127	127	127	127
Conservative1	Pearson Correlation	0.02	0.07	0.08	0.01
	2-tailed Sign.	0.863	0.410	0.377	0.888
	N	127	127	127	127
Conservative2	Pearson Correlation	0.00	0.15	0.04	0.10
	2-tailed Sign.	0.963	0.097	0.652	0.246
	N	127	127	127	127
sValue1	Pearson Correlation	-0.73	0.06	-0.04	-0.05
	2-tailed Sign.	0.000	0.536	0.652	0.586
	N	127	127	127	127
sValue2	Pearson Correlation	-0.71	0.03	-0.04	-0.17
	2-tailed Sign.	0.000	0.715	0.621	0.061
	N	127	127	127	127
sValue_e1	Pearson Correlation	0.06	-0.11	-0.04	0.05
	2-tailed Sign.	0.504	0.214	0.675	0.613
	N	127	127	127	127
sValue_e2	Pearson Correlation	-0.08	-0.13	-0.11	-0.12
	2-tailed Sign.	0.358	0.154	0.241	0.163
	N	127	127	127	127
InfluenceExternal	Pearson Correlation	-0.06	0.05	0.10	-0.07
	2-tailed Sign.	0.480	0.585	0.273	0.425
	N	127	127	127	127
InfluenceExternal_e	Pearson Correlation	-0.70	0.06	0.01	-0.01
	2-tailed Sign.	0.000	0.529	0.916	0.916
	N	127	127	127	127
eValue1	Pearson Correlation	-0.10	0.41	0.59	-0.02
	2-tailed Sign.	0.245	0.000	0.000	0.852
	N	127	127	127	127
eValue2	Pearson Correlation	-0.16	0.28	0.40	0.00
	2-tailed Sign.	0.070	0.001	0.000	0.970
	N	127	127	127	127
InfluencePeer1	Pearson Correlation	0.09	0.06	-0.02	-0.01
	2-tailed Sign.	0.309	0.534	0.795	0.873
	N	127	127	127	127

InfluencePeer2	Pearson Correlation	0.11	0.07	-0.07	0.00
	2-tailed Sign.	0.204	0.438	0.420	0.975
	N	127	127	127	127
InfluencePeer_e	Pearson Correlation	0.13	0.12	0.00	-0.03
	2-tailed Sign.	0.153	0.177	0.967	0.723
	N	127	127	127	127
Image	Pearson Correlation	-0.13	0.31	0.50	-0.02
	2-tailed Sign.	0.153	0.000	0.000	0.854
	N	127	127	127	127
Compatibility	Pearson Correlation	-0.05	0.31	0.50	0.00
	2-tailed Sign.	0.617	0.000	0.000	0.965
	N	127	127	127	127
EoU1	Pearson Correlation	0.92	-0.02	-0.01	0.02
	2-tailed Sign.	0.000	0.799	0.914	0.795
	N	127	127	127	127
EoU2	Pearson Correlation	0.93	-0.03	-0.01	-0.05
	2-tailed Sign.	0.000	0.714	0.888	0.592
	N	127	127	127	127
EoU3	Pearson Correlation	0.83	-0.01	0.05	0.02
	2-tailed Sign.	0.000	0.953	0.594	0.839
	N	127	127	127	127
EoU4	Pearson Correlation	0.42	0.05	0.05	0.03
	2-tailed Sign.	0.000	0.618	0.574	0.779
	N	127	127	127	127
Usefulness1	Pearson Correlation	-0.02	0.76	0.41	0.29
	2-tailed Sign.	0.848	0.000	0.000	0.001
	N	127	127	127	127
Usefulness2	Pearson Correlation	-0.05	0.86	0.53	0.50
	2-tailed Sign.	0.591	0.000	0.000	0.000
	N	127	127	127	127
Usefulness3	Pearson Correlation	-0.01	0.68	0.49	0.14
	2-tailed Sign.	0.872	0.000	0.000	0.125
	N	127	127	127	127
Usefulness4	Pearson Correlation	0.06	0.39	0.13	0.01
	2-tailed Sign.	0.500	0.000	0.146	0.887
	N	127	127	127	127

Usefulness5	Pearson Correlation	0.00	0.78	0.62	0.67
	Si2-tailed Sign.	0.975	0.000	0.000	0.000
	N	127	127	127	127
Usefulness6	Pearson Correlation	0.09	0.01	0.01	-0.05
	2-tailed Sign.	0.303	0.916	0.947	0.567
	N	127	127	127	127
Attitude1	Pearson Correlation	-0.09	0.62	0.59	0.66
	2-tailed Sign.	0.302	0.000	0.000	0.000
	N	127	127	127	127
Attitude2	Pearson Correlation	0.00	0.79	0.66	0.69
	2-tailed Sign.	0.983	0.000	0.000	0.000
	N	127	127	127	127
Attitude3	Pearson Correlation	0.08	0.22	0.75	-0.15
	2-tailed Sign.	0.365	0.014	0.000	0.087
	N	127	127	127	127
Attitude4	Pearson Correlation	0.06	0.22	0.77	-0.09
	2-tailed Sign.	0.536	0.013	0.000	0.311
	N	127	127	127	127
Intention1	Pearson Correlation	0.10	0.27	0.17	0.47
	2-tailed Sign.	0.243	0.002	0.051	0.000
	N	127	127	127	127
Intention2	Pearson Correlation	0.01	0.49	0.35	0.96
	2-tailed Sign.	0.951	0.000	0.000	0.000
	N	127	127	127	127
Intention3	Pearson Correlation	0.00	0.39	0.31	0.94
	2-tailed Sign.	0.970	0.000	0.000	0.000
	N	127	127	127	127

Table C7 Descriptive Statistics

	N	Mean	Median	Std. Deviation	Minimum	Maximum
PP_ratio	127	4.82	5	0.50	3	5
UseIntensity	127	4.76	5	0.43	4	5
WhiteColor	127	4.72	5	0.68	3	5
Brand	127	4.70	5	0.80	1	5
Usefulness4	127	4.61	5	0.78	3	5
Price	127	4.57	5	0.72	3	5
Quality	127	4.56	5	0.86	1	5
Intention3	127	4.54	5	0.68	3	5
Intention	127	4.51	5	0.71	2	5
Intention1	127	4.48	5	0.81	1	5
Intention2	127	4.48	5	0.82	1	5
Attitude1	127	4.46	5	0.80	2	5
Conservative2	127	4.45	5	0.81	3	5
Attitude2	127	4.43	5	0.84	1	5
Usefulness5	127	4.42	5	0.83	1	5
Usefulness1	127	4.41	5	0.86	1	5
P_Softness	127	4.39	5	0.84	3	5
InfluenceExternal	127	4.39	5	1.00	1	5
P_Color	127	4.37	5	0.91	3	5
Promotion	127	4.34	5	1.06	1	5
Usefulness2	127	4.32	5	0.89	1	5
Usefulness3	127	4.29	5	0.87	2	5
Compatibility	127	3.91	4	1.19	1	5
eValue2	127	3.83	4	1.10	1	5
P_Absorb	127	3.80	3	1.05	1	5
Attitude4	127	3.80	4	0.96	1	5
eValue1	127	3.73	4	1.16	1	5
Image	127	3.68	4	1.14	1	5
Attitude3	127	3.68	3	0.97	1	5

EcoLabel	127	3.31	3	1.10	1	5
Conservative1	127	3.20	3	1.15	1	5
Usefulness6	127	3.10	3	1.22	1	5
InfluenceExternal_e	127	3.07	3	1.26	1	5
sValue1	127	3.00	3	1.26	1	5
InfluencePeer_e	127	2.99	3	1.41	1	5
sValue2	127	2.98	3	1.24	1	5
InfluencePeer1	127	2.94	3	1.52	1	5
EoU1	127	2.93	3	1.24	1	5
EoU2	127	2.91	3	1.26	1	5
InfluencePeer2	127	2.86	3	1.43	1	5
EoU3	127	2.49	2	1.23	1	5
sValue_e1	127	2.41	2	1.26	1	5
sValue_e2	127	2.22	2	1.28	1	5
EoU4	127	1.54	1	1.10	1	5
TrustLack	127	1.40	1	0.79	1	3

Table C8 Descriptive Statistics

Construct	Publications
Use	Yatish Joshi, Zillur Rahman, 2015; Rong-Da Liang, 2015; Jeffery Bray et al, 2011
Use Intensity	Yatish Joshi, Zillur Rahman, 2015; Rachel Ann Mulhall et al, 2014; William Young et al, 2010
EoU	Rong-Da Liang, 2015; Jeffery Bray et al, 2011; Varho and Salmela, 2006; Roberts, 1996; Scholder-Ellen, 1994
Intention	Sergio Silva Braga Junior et al, 2015; Yu-Shan Chen, Ching-Hsun Chang, 2011; Barnhardt, et al, 2016; Lewis Akenji, 2014; Justin Paul et al, 2016; Schwartz, 1992; Bagozzi et al. 1990
Attitude	Justin Paul, et al, 2016; Sergio Silva Braga Junior et al, 2015; William Young et al, 2010; Hae-Kyong Bang et al, 2000; Barnhardt et al, 2016; Jeffery Bray et al, 2011; Ajzen,

	1994; Han et al., 2010; Sidique et al., 2010; Hines et al., 1987; Follows and Jobber, 2000
Usefulness	Davis, 1989; Sriram and Forman, 1993; Roe et al., 2001; Clark et al, 2003; Varho and Salmela, 2006; Roberts, 1996; Scholder-Ellen, 1994
Social value	Aindrila Biswas et al, 2015; Patricia Shanley et al, 2012; Kilchling et al, 2009; Yatish Joshi et al, 2015; Aindrila Biswas, Mousumi Roy, 2015; Justin Paul, et al, 2016; Chan, Ricky Y K, 2001; Josephine Pickett-Baker, Ritsuko Ozaki, 2008; Li-Wei Wu et al, 2015; Lingchao Li et al, 2015; Sheth et al., 1991; Ajzen, 1991; Arvola et al., 2008; Straughan and Roberts, 1999; Aqueveque, 2006
Environmental value	Sergio Silva Braga Junior et al, 2015; Aindrila Biswas, Mousumi Roy, 2015; Justin Paul et al, 2016; William Young et al, 2010; Christine S. Koberg et al, 2003
Compatibility	Li-Wei Wu et al, 2015; Aindrila Biswas, Mousumi Roy, 2015; Graça Martinhoa et al, 2015
Quality	Hing Kai Chan et al, 2008; Mads Greaker, 2003; Graça Martinhoa et al, 2015; Justin Paul et al, 2016
Brand value	Josephine Pickett-Baker, Ritsuko Ozaki, 2008; Yatish Joshi, Zillur Rahman, 2015; Yu-Shan Chen, 2009; Chatterjee, 2009; Ladenburg, J., 2008; Skipton et al, 2001; Hartmannet et al, 2005; Keller, 1993; Suki, 2015; Geyer-Allely and Zacarias-Farah, 2003; Agiaslis and Krontalis, 2014; Chenand Chang, 2012; Yadav and Pathak, 2016; Eze and Ndubisi, 2013; Norazah, 2013; Peattie, 2010; Laroche al., 2001; Smith and Paladino, 2010; Wolsink, 2007; Padel and Foster 2005; Lime et al, 2016; Huanget al, 2014; Rokicka, 2002
Trust	Yu-Shan Chen, 2009; Yatish Joshi, Zillur Rahman, 2015; Josephine Pickett-Baker, Ritsuko Ozaki, 2008; Yu-Shan Chen, Ching-Hsun Chang, 2011. Schurr and Ozanne, 1985; Rotter, 1971; Hart and Saunders, 1997; Lee et al., 2011;

	Harris and Goode, 2010; Schlosser et al., 2006; van der Heijden et al., 2003; Kalafatis and Pollard, 1999; Chen, 2010; Netemeyer et al., 2005; Morrison, 1979; Lu et al., 2010;
Eco-labeling	Yatish Joshi, Zillur Rahman, 2015; Rong-Da Liang, 2015; Pei Xu et al, 2012; Prakash, 2001; Rex and Baumann, 2007; D'Souza et al., 2006; Rashid, 2012; Leire and Thidell, 2005; Lyer, 1999; D'Souza, 2004; Bleda and Shackley, 2008
Promotion	Wisdom Kanda et al, 2015
Price	Aindrila Biswas,Mousumi Roy, 2015; Yatish Joshi, Zillur Rahman, 2015; Barnhardt et al, 2016; Pei Xu et al, 2012; Rachel Ann Mulhall et al, 2014; Walley, 1994; McCarthy, 2006
Conservative	Mads Greaker, 2003; Yatish Joshi et al, 2015; Barnhardt, et al, 2016; Sergio Silva Braga Junior et al, 2015; Graça Martinhoa et al, 2015

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