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Consumer Perceptions of Eco-Friendly Products

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This is to certify that the doctoral study by

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Abstract

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MBA, Keller Graduate School, 2009

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

The rate of failure to manage e-waste and the business sectors' failure to produce more eco-friendly products is high. These failure rates cause companies to lose profits on expanding an eco-friendly customer market. The central research question addressed by this correlational design examined the quality, price, and brand loyalty of eco-friendly products related to customers' willingness to recycle e-products. Consumer and buying behavior theories served as the theoretical framework in this investigation. SurveyMonkey was used to distribute the researcher-developed survey to the participants for the collection of the data. The collection data instrument was validated by performing a pilot test using students of the subject organization. The final sample size consisted of 381 participants, 18-24 years old. The strength of the association between ranked variables was determined using Spearman correlation while the customer behavior relationships of interest were examined using ordinal regression. One of the key findings was that when customers had used a certain brand in the past, they were more likely to continue buying that brand, even when the price increased. However, another finding showed that some customers were not willing to recycle electronic devices even if more drop-off recycling facilities were available. The profitability of green product innovations due to brand loyalty, combined with a demonstration of social responsibility by a business, could create a powerful venue for positive social change. The socially-responsible activities of a business could promote awareness that green products and recycling of e-waste are important for an environmentally-secure future.

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Section 1: Foundation of the Study

In 2009 the Environmental Protection Agency (EPA) reported that U.S. consumers generated over 3.19 million tons of *e-waste* including televisions, telephones, video cameras, and computer equipment. In the United States, only 430,000 tons, or 13.6%, of these electronic items had been disposed of and recycled (Environmental Protection Agency, 2009). The creation of global electronic waste was 40 million tons per year, and the United Nations Environment Programme (UNEP) estimated that, by 2020, e-waste levels could rise by as much as 500%. As the global e-waste has grown by about 40 million tons a year concerns about e-waste ramifications have increased (Sanitation Updates, 2010). Walsh (2009) suggested that the massive amount of improperly disposed e-waste has raised toxicity in the air to dangerous levels. Consequently, researchers have begun to investigate strategies to mitigate the negative ramifications of e-waste (Robinson, 2009).

One strategy to reduce e-waste is to encourage consumers to purchase electronic products that are environmentally friendly (Ngo, 2008). Research by Ngo (2008) found that consumers were more likely to make purchases based on product labeling design combining specific environmental details and a numerical rating system. Consumers who would pay more for eco-products believed that eco-friendly products would reduce e-waste variables (Datta, 2011). The purpose of the present study was to assess the level of consumer willingness to pay more for eco-friendly products, and consumers willing to recycle e-waste at drop-off recycling centers. The relationships among quality (Ladhari, Souiden, & Ladhari, 2011), price (Bennett, 2011), and brand loyalty (Muk, 2012) have

been the subject of research for several decades; however, the relationship between these variables and consumer outcomes related to eco-friendly products has not been extensively explored in the current literature. This paper will add to the current research on product factors and consumer behavior, thus attempting to close a gap in the professional literature regarding eco-friendly products and consumer conservation behavior.

Background of the Problem

Consumers play a large role in the management of e-waste. Due to increased global interest, 90% of American consumers were concerned about the way their purchases affected the environment, and they would be willing to change their purchasing behavior in an effort to improve the environment (Choi, 2012). Consumer interest in the environment had an effect on the success of manufacturing, and manufactures that have associated themselves with environmental causes have rebounded from the recession significantly faster than traditional manufacturers who had not done so. Companies that had profited from developing and selling *green* and *sustainable products* have increased over the years (Berger, 2010). Green sustainable products met the following criteria: sustainability, *cradle-to-cradle design*, *source reduction*, innovation, and viability (Green Technology, 2010). Cradle-to-cradle design is a holistic economic, industrial, and social framework, which seeks to create systems that are not just efficient but essentially waste-free (Watson, Boudreau, & Chen, 2010). For example, General Electric (GE) introduced compact fluorescent light bulbs in 2005. At first, GE captured less than 5% of the market; however, only 2 years later, corresponding to an increase in public awareness of

threats to climate change, GE captured 20% of the market (Banon Gomis, Guillén Parra, Hoffman, & Mcnulty, 2011; Dhiman, Marques, & Holt, 2010).

Companies' leaders are able to increase their competitive position by using eco-friendly products. Bonini and Oppenheim (2008) suggested that GE increased its revenues, enhanced its brands, and strengthened its competitive position because of its increased focus on eco-friendly products and the consumers' positive response to them. Other companies have also seen the green evolution as a way to save and cut the overhead cost. If consumers decided to purchase only eco-friendly products, then manufacturers would have to comply and make more profit (Orange, 2010). Although the findings indicated that not all consumers believed that they would actually have an impact on the environment, researchers have not established whether enough consumers believe that purchasing eco-friendly products is good for the environment and that this could amount to a viable strategy for reducing e-waste (Peattie, 2010).

Voinea and Filip (2011) analyzed the main changes in consumer buying behaviors during the 2008 North American economic crisis which threatened the collapse of large financial institutions and found that price played a critical role in purchase decisions. Similarly, Braimah and Tweneboah-Koduah (2011) demonstrated that price ranks ahead of green concerns as a major influence in a purchasing decision. Whereas some researchers suggested using a cost-based technique to establish the price of a product (Alvarez & Lippi, 2012; Ferson & Lin, 2011), others suggested that the cost of manufacturing was the most important determinant in product pricing (Gordon, 2012). Guth, Levati, and Ploner (2012) argued that full and marginal cost pricing was consistent

with the *satisficing* model. Ryan (2011) explained that the satisficing model showed how a consumer made a purchase decision when faced with an array of similar choices that were all for sale at the same physical location. In this study, I assessed consumer decisions based on their preference for eco-friendly products versus non-eco-friendly products. In this model, a company objective was not only to maximize profit, but also to earn a satisfactory return on investment. Gordon (2012) and Atkinson (2013) suggested that price would not be the only determinant in the marketing mix. It was currently unknown how the price points of eco-friendly products would affect consumer behavior and whether consumers who believed in the efficacy of eco-friendly products were willing to pay more for those products (Lee, 2011). It was also unclear how willing consumers would be to recycle e-waste at drop-off recycling centers (Saphores, Ogunseitan, & Shapiro, 2012).

Some researchers demonstrated that quality had an impact on consumer behavior as consumer behavior models revealed that quality was a positive antecedent to purchase intentions (Gallarza, Gil-Saura, & Holbrook, 2012; Melnik, Richardson, & Tompkins, 2011; Monroe, 2012). According to the Zeithaml model (as cited in Gallarza et al., 2012) perceived quality and purchase intention are measurable. In the Zeithaml model, the consumer perception of perceived quality shows consumers' judgments about a product's overall superiority or excellence. Although other researchers have studied the effect of consumers' green purchasing behavior using quality attributes as a contributors to the formation of purchase intention (Chen & Chai, 2010; Lindqvist, 2010), researchers do not currently know how quality affects consumers' willingness to pay more for eco-friendly

products or the consumers' willingness to recycle e-waste at drop-off recycling centers. This study will add to the existing knowledge base surrounding these topics.

In addition to the important role that product quality plays, Han and Ryu (2009) concluded that brand loyalty also influences consumer behavior. Research also suggested that customer satisfaction was influenced by physical surroundings and price perception (Ariffin, Bibon, & Saadiah, 2011; Han & Ryu, 2009). Other researchers maintained that these factors had an impact on customer satisfaction and that customer satisfaction depended on customer loyalty (Ladhari et al., 2011). Loyal customers were more likely to recommend products and services and engage in positive word-of-mouth behaviors as a result they spend extra money in service operation than nonloyal customers were more likely to do so (Ladhari et al., 2011). In addition, loyal customers were less costly to serve because they already knew the product or service well and required less information (McKercher & Guillet, 2011). Thus, in recent years, service providers have focused on achieving customer loyalty by delivering superior value and by identifying and enhancing the key factors that determine loyalty (Chen, 2010). The key factors that make up customer brand loyalty are captive customers or convenience seekers and contented and committed customers (Mao, 2010).

Mao (2010) defined captive customers as repeatedly purchasing the same product, service, or brand because of a lack of opportunities to substitute alternatives, whereas convenience-seekers might not respect the brand, but act out of convenience. Mao contended that consumers, who had a positive attitude toward a brand, did not consume

extra products or services. Lastly, committed consumer loyalty was active in both attitude and behavior.

The concept of *green branding* had slowly started to emerge. Green branding consists of a set of attributes and benefits that are associated with reduced adverse environmental impact and the ability to make a positive impression on consumers and raise their concerns for the environment (Wong, 2010). It was unknown how brand loyalty would affect consumers' willingness to pay more for eco-friendly products and the consumers' willingness to recycle e-waste at drop-off recycling centers. In this study, I attempted to clarify the relationships among service quality, price, brand loyalty, and eco-friendly products.

Problem Statement

In 2009 the Environmental Protection Agency (EPA) reported that U.S. consumers generated over 3.19 million tons of *e-waste* including televisions, telephones, video cameras, and computer equipment. In the United States, only 430,000 tons, or 13.6%, of these electronic items had been disposed of and recycled (Environmental Protection Agency, 2009). The power generated from recycling a million laptops can power 3,500 U.S. homes for a year (EPA, 2012). As consumers continue to purchase and replace electronic items, these figures will continue to rise (Rani, Singh, & Maheshwari, 2012). Despite the high rate of e-waste, Sharma and Bagoria (2012) contended that green marketing for eco-friendly products would reach $3.5 trillion by the year 2017, due to catering to environmentally conscious consumers. The general business problem is the need to manage the high rate of failure of e-waste and to produce more eco-friendly

products, thus not missing profits and a growing eco-friendly customer market. The specific business problem was that business managers did not have sufficient evidence to develop marketing and pricing strategies reflecting addressing the relationship between the high level of e-waste and the consumer's preference for eco-friendly products.

Purpose Statement

The purpose of this quantitative study was to examine the relationship between the high level of e-waste and the consumer's preference for eco-friendly products and provide business managers with the information they need to develop advertising and pricing strategies. The method used was convenience sampling. The geographic location used for this study was central Florida. The population sampled was comprised of students from University of South Florida (USF) registered on the SurveyMonkey database. I used correlation analysis to determine the relationships between the independent variable consumers' views on eco-friendly products on reducing waste, and consumers' willingness to pay more money for eco-friendly items. Product price perceptions, quality perceptions, and brand loyalty perceptions were the three dependent variables used in this study.

The findings of this study might contribute to social change by encouraging product manufacturers to produce more environmentally friendly products than nonenvironmentally friendly products. This increase could lead to a reduction in e-waste by providing more justification for the proliferation of products with a lower environmental liability rating rather than having products with high environmental liability.

Nature of the Study

To explore and investigate consumer views on eco-friendly products I used a quantitative correlational design to address the purpose of this study. A qualitative methodology would explore attitudes, behavior, and experiences through such methods as interviews or focus groups. A smaller pool of participants is required to participate since this type of research yields in-depth opinions from participants. Smaller groups allow consumers to express clear ideas and share feelings that do not typically come out in a quantified survey or paper test. In qualitative research, the contact with participants tends to last quite a bit longer than in a quantitative study (Chen & Macredie, 2010). In contrast, the quantitative methodology is an exploration that aims to measure variables and their relationships (Jandaghi & Matin, 2011). Unlike qualitative research, quantitative research uses measurable data to determine facts and patterns. A quantitative method offered the best approach for this study because data gathering from a large sample via survey and collecting quantitative data allowed me to determine consumer perceptions and intentions though statistical means. I administered an online survey through SurveyMonkey (see Appendix A) to University of South Florida members of the SurveyMonkey database, and the data gathered helped to assess consumer perspectives on eco-friendly products.

The design of this study was nonexperimental and correlational. In an experimental design, the researcher would measure the impact of an intervention on an outcome (Chen & Macredie, 2010; Smith, Wright, & Breakwell, 2011). Without a random assignment, manipulation, or treatment, nonexperimental investigations are

possible (Holbrook, 2011). The correlational design was appropriate for this study to find answers to the research questions, which required estimating the degree of association between variables (Chen & Macredie, 2010).

Although correlational methods cannot imply causation, correlation does allow for the determination of the strength and nature of the relationship between two variables. Only a small number of empirical investigations explore what motivates a consumer to purchase eco-friendly products, the present study provides a description of the consumers' understanding of whether eco-friendly products are suitable for the environment, whether they are beneficial in reducing e-waste, and whether consumers would be willing to pay more for eco-friendly products.

Research Questions

The research question this study will answer is how does the high level of e-waste correlate with consumer preference for eco-friendly products? The following research questions examined consumers' views on eco-friendly product quality, eco-friendly products price, and eco-friendly product brand loyalty and how these views would relate to consumers' willingness to recycle e-waste at drop-off recycling facilities and consumers' willingness to pay more for green products.

RQ1: To what extent does eco-friendly product quality relate to customer willingness to recycle e-waste at drop-off recycling facilities?

RQ2: To what extent does eco-friendly product price relate to customer willingness to recycle e-waste at drop-off recycling facilities?

RQ3: To what extent does eco-friendly product brand loyalty relate to customer willingness to recycle e-waste at drop-off recycling facilities?

RQ4: To what extent does eco-friendly product quality relate to customer willingness to pay more for green products?

RQ5: To what extent does eco-friendly product price relate to customer willingness to pay more for green products?

RQ6: To what extent does eco-friendly product brand loyalty relate to customer willingness to pay more for green products?

RQ7: To what extent do gender and age differences relate to customer willingness to pay more for green products?

RQ8: To what extent is a relationship extant between e-waste and eco-friendly product purchasing?

Hypotheses

The null hypotheses and alternative hypotheses set forth this study were as follows:

H_o1: There is no significant statistical relationship between eco-friendly product quality and customer willingness to recycle e-waste at drop-off recycling facilities.

H_a1: A significant statistical relationship exists between eco-friendly product quality and customer willingness to recycle e-waste at drop-off recycling facilities.

H_o2: There is no significant statistical relationship between eco-friendly product price and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_a$*2: A significant statistical relationship exists between eco-friendly product price and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_o$*3: There is no significant statistical relationship between eco-friendly product brand loyalty and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_a$*3: A significant statistical relationship exists between eco-friendly product brand loyalty and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_o$*4: There is no significant statistical relationship between eco-friendly product quality and customer willingness to pay more for green products.

*H$_a$*4: A significant statistical relationship exists between eco-friendly product quality and customer willingness to pay more for green products.

*H$_o$*5: There is no significant statistical relationship between eco-friendly product price and customer willingness to pay more for green products.

*H$_a$*5: A significant statistical relationship exists between eco-friendly product price and customer willingness to pay more for green products.

*H$_o$*6: There is no significant statistical relationship between eco-friendly product brand loyalty and customer willingness to pay more for green products.

*H$_a$*6: A significant statistical relationship exists between eco-friendly product brand loyalty and customer willingness to pay more for green products.

*H$_o$*7: There is no significant statistical relationship between gender, age, and customer willingness to pay more for green products.

*H$_a$*7: A significant statistical relationship exists between gender, age, and customer willingness to pay more for green products.

H_o8: There is no significant statistical relationship between e-waste recycling, income, and age.

H_a8: A significant statistical relationship exists between e-waste recycling, income, and age.

Survey Questions

All survey information is completely confidential. Your responses are very important. Thank you for participating in the survey.

Please circle the option that applies to you

Section 1 Demographics	1	2	3	4	5
1. Your gender	male	Female			
2. Your age range	18-24	25-31	32-38	39-45	46-52
3. Education level	high school graduate	some college – no degree	AA degree	BA/ BS degree	Master's Degree or higher
3b. Income	0-24,999	25,000-49,000	50,000-99,999	100,000-149,000	150,000-+

Please circle the option that applies to you

Section 2 - Willingness to pay more for green products	Never	Rarely	Sometimes	Often	Always
4. I have used green product before.	1	2	3	4	5

5. I believe that green products are more expensive than nongreen products.	1	2	3	4	5
6. I am willing to pay more for green products.	1	2	3	4	5
7. Indicate the percentage you are willing to pay for green products	between 1% - 10% more	between 11% - 20% more	between 21% - 30% more	between 31% - 40% more	between 41% - 50% more
8. I believe the price of green products effect my decision to purchase them.	1	2	3	4	5

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
9. I believe the quality of green products effect my decision to purchase.	1	2	3	4	5
10. I believe that green products are of better quality than nongreen products.	1	2	3	4	5
11. I would recommended green products based on quality to my friends.					
12. I would switch to green products if they were more available at my local store.	1	2	3	4	5
13. I would switch to green products if they were promotional deals such as TVs ads and local printed coupons available at my local store.	1	2	3	4	5

14. I am more likely to buy a certain product because it has a brand name I have used in the past.	1	2	3	4	5

Select the option that best describes you best

Section 3 Willingness to Recycle e-Waste	Never	Rarely	Sometimes	Often	Always
15. I recycle electronic devices or e-waste (products such as computers, televisions, VCRs, stereos, copies, fax machines, cellular phones as opposed to discarding them as trash).	1	2	3	4	5

Select the option that best describes you best

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
16. I would start recycling electronic devices if I receive a financial incentive for doing so.	1	2	3	4	5
17. If I had the choice of discarding an old electronic device I would use a drop-off recycling facilities.	1	2	3	4	5
18. I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.	1	2	3	4	5

19. I would you buy and recycle electronic devices if there was an awareness campaign in my area about the dangers of not recycling.	1	2	3	4	5

Theoretical or Conceptual Framework

Consumer behavior theories and buying behavior in advertising were the theoretical frameworks used in this investigation. Through the results of this research, I will explain an aspect of buyer behavior.

Consumer Behavior Theories

Consumer behavior theories cover two areas: consumer perception and collective consciousness (Cohen, n.d.). The consumer perception theory suggests that consumers understand how perception of a product or service influences their behavior. Researchers studying consumer perception explored branding, buyer's remorse, positioning, repositioning or depositioning, sensory perception and value, and quality (Kher et al., 2010; Monday, 2011; Rosenzweig & Gilovich, 2011).

Perception relates to the consumer's ability to make some sense of reality from external sensory stimuli (Rosenzweig & Gilovich, 2011). Branding involves imposing an identifying feature on products or services so that they would be easy to identify by the public (Kher et al., 2010). Positioning occurs when marketers try to build up their brand. Positioning involves actively creating images that are both appealing to and recognizable by certain target groups. Repositioning relates to altering the image to appeal to a larger market of consumers to help influence a larger target market, whereas depositioning

relates to the practice of trying to devalue a substitute (Timofte, 2013). Value relates to

the customer's perception that a product's benefits outweigh its cost. These benefits can

be either qualitative or quantitative. Quality relates to value, while taking into account

measuring goods and services against the competition (Timofte, 2013). Buyer's remorse

relates to a feeling of regret that occurs after one has made a purchase and, then, realizes

that one has missed a better opportunity to buy a product or service (McKnight, Paugh,

McKnight, & Parker, 2010).

In the cognitive dissonance theory, cognition (e.g., attitudes, desire, intention) is

dissonant, or conflicted, when consumers are unable to keep away from a situation, as

well as from information, that might add dissonance (Sahgal & Elfering, 2011). This is

apparent when a consumer chooses one brand over another. Similarly, cognitive

dissonances that occur after a purchase is post purchase dissonances (Bose & Sarker,

2012). Saleh (2012) was able to show that post purchase regret comes from low

consumer satisfaction, and low satisfaction leads to no-repurchase intention, the tendency

to shift to alternative brands, and negative word-of-mouth reports about the brand in

question.

Theories of collective consciousness reflect the shared beliefs and attitudes held

within a society. Researchers such as Dekker, Hummerdal, and Smith (2010); Filippakou

and Tapper (2010); and Jung (2012) suggested that an autonomous individual would

come to identify with a larger group. While this was true for some groups (as for

example in Japan), other groups (for instance in the United States), had a more self-

aggrandizing need over others (Cohen, n.d.). Self-aggrandizing nations had a high

opinion of them and viewed themselves as very different from others. Collective-consciousness information helped marketers target their market by appealing to consumers' individualism in the United States but not in other parts of the world.

Buying Behavior Theories

Some theories related to buying behavior include the generic theory of buying behavior, cultural theory of buying behavior, and the environmental theory of buying behavior. These three theories are explaining how consumers tend to buy products and services. Consumers would go through a series of steps before making a purchase and customer decisions depend on a number of different factors such as cultural influences, personality, and environmental elements (Lehtinen, 2012).

The generic theory of buying behavior highlights the basic procedures followed by consumers when making a purchase. The customer would recognize a need to make a purchase and start researching potential products and pricing. An example would be a customer about to buy a television set: He or she would evaluate features, benefits, and pricing, and finally make a decision to purchase. Additionally, the way the customer feels about the brand would also tell how likely the customer is to purchase from the same company again. In a 2000 study, 89% of teenagers said that they "would likely switch brands to one associated with a good cause" (Hyllegard, Yan, Olga, & Attmann, 2010).

Proponents of the cultural theory of buying behavior highlight the cultural influences shown to affect the buyers' behavior (Penn, n.d.). An individual's cultural beliefs and values develop over time and within the context of a community. These

values and beliefs lead to certain purchases (Yuan, Song, & Kim, 2011). Researchers

have explored cultural variables and their effects on online shopping (Ha & Stoel, 2012)

and brand loyalty (Carman, 2011).

Supporters of the environmental theory of buying behavior suggested that

purchasers would buy different items based on different situations and variations in

customer knowledge. For example, a buyer in the United States would buy winter

clothes in November or December and not during the summer (Bloch, 2011). Mazar and

Zhong (2010) used environmental theory to explore the occurrence of green purchase

decisions using socio demographic variables and personality indicators that measured

environmental consciousness.

Operational Definitions

This section clarifies terms in this study. Some are topic specific, whereas others

might convey a variety of different meanings in relation to other subject matter.

e-Waste: A popular, informal name for electronic products nearing the end of

their useful life. Computers, televisions, VCRs, stereos, copiers, and fax machines are

common electronic products (California Department of Resources Recycling and

Recovery, 2013).

Green: The term *green* encompasses a variety of environmental concerns. Some

of the current concerns relate to the depletion of natural and scarce resources. Examples

include bad and excessive production and consumption activities, waste accumulation,

and emissions because of production processes, the use of hazardous materials, fast

replacement, consumption patterns and usage, and usage and disposal habits. There are

also unhealthy products and side effects arising from unhealthy environments, the use of improper materials, improper choices, and uses due to uninformed consumer decisions, unsafe or unpleasing work environments due to inadequate safety management, and lack of appropriate aesthetics (Chen, 2010).

Green sustainability products: Such products meet the following criteria: (a) sustainability by meeting the needs of society in ways that can continue indefinitely into the future without damaging or depleting natural resources, and (b) sustainability meeting present needs without compromising the ability of future generations to meet future needs (Green Technology, 2010).

Greenwashing: Greenwashing occurs when a company or organization spends more time and money claiming to be green through advertising and marketing than through implementing business practices that minimize environmental impact. Some consider it an example of whitewashing, but with a green brush (Greenwashingindex.com, 2011).

Innovation: Innovation involves developing alternatives to existing technologies, whether fossil fuel or chemical-intensive agriculture, which have demonstrated to damage health and the environment (Green Technology, 2010).

Source reduction: The attempt to reduce waste and pollution by changing patterns of production and consumption (Green Technology, 2010).

Sustainable products: Such products reduce the impact on the environment by virtue of being responsibly sourced products (e.g., those that are either renewable or sustainably harvested). A sustainably harvested source material does not harm the

surrounding area, pollute the air, or permanently reduce the supply (Sebhatu, Enquist, Johnson, & Gebauer, 2011).

Viability: Viability involves creating a center of economic activity around technologies and products that benefit the environment, speeding their implementation, and creating new careers that truly protect the planet (Green Technology, 2010).

Assumptions, Limitations, and Delimitations

Assumptions

This study contains two foundational assumptions. The primary assumption was that participants would be honest in their responses to the survey. Honest responses were essential to the integrity of the study, and I made every effort to elicit honest answers. For example, I would assure participants that their responses were confidential and would remain anonymous. Additionally, the survey questions were short to keep participants interested and focused on providing the most pertinent responses. The survey was also pilot tested to ensure that questions were straightforward and easy to understand and that respondents were likely to answer honestly and appropriately.

A second assumption was that consumers were aware of recycling efforts and able to answer questions about the likelihood of their practicing recycling. There was an assumption that participants would know the location of their nearby recycling centers. Daoud (2011) stated that American households account for most of the electronic market, but they recycle only 26% of the time, thereby producing an enormous amount of e-waste. The assumption that consumers were becoming more aware of the effect of their

spending habits on the environment and the trend that they were making changes to protect natural resources for future generations appears to be accurate (Spiegel, 2011).

Limitations

There were several potential limitations in this study. One limitation of the survey was administration within an online database so that only participants who had access to the Internet and had a survey account would able to participate. I analyzed a large number of responses by age and gender representing a diverse pool of online USF student registered with Survey Monkey. This provided a level of validity to the data analysis. Another limitation was the availability of persons to participate. Although participants would receive no incentives for participation, the survey was brief in order to encourage responses. Participants received a number of reminders to encourage them to take part in the survey. Another limitation was the potential for a social desirability bias. Respondents might indicate that they were more likely to recycle or pay more for a green item because they considered it an environmentally conscious activity. This was consistent with information found through the literature review (Lee, 2011). With this study, I also explored whether consumer's attitude and behavior, environmental consciousness and willingness to pay more for green products still prevailed. Lee was able to prove those college students who were more concerned about the environment tended to be willing to pay more for green apparel. The quantitative methodology also limits exploring the conclusions from an investigation. In nonexperimental research, causality cannot be determined. The correlational method allows for the examination of

significant statistical relationships to be reported (Leedy & Ormrod, 2010). Information on these relationships helps to close a gap in the professional literature.

Delimitations

A delimitation of the study was the selection of products within the consumer-electronics industry; thus, the results might not apply to products from other industries. Another delimitation was that the sample consisted of persons who currently reside in the state of Florida; the results might not generalize to individuals who are not Florida residents. Last, University of South Florida students between 18 and 24 years of age, who have registered as members of SurveyMonkey, made up the sample. Accordingly, the results might not generalize to individuals outside this university and age range or to persons who are not members of SurveyMonkey. Based on E-Marketer (2008) research suggesting that this demographic shows the greatest tendency to integrate green behavior into their daily lives, I chose this age range for my research.

<div align="center">Significance of the Study</div>

Reduction of Gaps

Recent studies indicated that eco-friendly product choices share a relationship with product pricing. Researchers Draper, Dawson, and Casey (2011) and Lee (2011) were able to identify target consumers who were willing to pay more for environmentally friendly products. Other researchers such as Millson (2012) focused on determining green customers' purchase intentions and the usefulness of ecological product labels and pricing. No research was extant on the relationship between belief in products being good for the environment and willingness to purchase eco-friendly products. Currently,

the EPA (2011) defined green products as products made in a way to reduce their environmental impact. There was also a paucity of research on consumers' self-reported understanding of the role played by eco-products in reducing e-waste and creating appropriate outcomes for the environment. This information could be useful for business, and it might influence business practices. This study adds to the existing knowledge on the topic and is a step in the direction of closing a gap in the literature.

Implications for Social Change

As dissemination of information related to the advantages of green technology increased, manufacturing companies were making decisions about their products. Some companies were already becoming more socially and environmentally responsible and found that their profits increased as they changed along with their consumers' preferences. Other companies were lagging behind in these considerations. I began this investigation with a firm belief that, if the results of my study would demonstrate a significant statistical relationship between consumers' belief that purchasing eco-friendly products is good for the environment and inspired their willingness to pay more for such products, then I needed to promulgate this information. This information might be valuable for businesses, especially ones subscribing to traditional business models, and it might contribute to social impact. The results of this study might benefit society by encouraging product manufacturers to make investments and explore development opportunities in green products. The findings might also encourage manufacturers to pursue higher environmental ratings per product rather than lower ones. If I could demonstrate to product manufacturers that investing in environment-friendly factors will

directly affect their ability to increase their profits, then they might consider implementing more green technology in their consumer electronics, which, in turn, will create social benefits for consumers and society by reducing e-waste. The results of the current investigation might also be informative for consumers who had decided for themselves which factors were most important when they made a purchase decision. If consumers were aware of the relationship between a product's price and its impact on the environment, perhaps it would motivate them to modify their purchasing decisions.

A Review of the Professional and Academic Literature

The purpose of the literature review was to provide a background of the issues and factors surrounding consumer behavior related to eco-friendly products and to determine if a relationship existed between consumer understanding and their willingness to pay more for eco-friendly products. Previous research suggested that customer satisfaction shares a relationship with the physical surroundings, price perception, brand loyalty, and the quality of goods and services (Ariffin et al., 2011; Han & Ryu, 2009). The cost to the environment could be overwhelming because most of these products produce e-waste. In 2010, the United Nations Environment Programme (UNEP) reported that the generation of global electronic garbage was 40 million tons per year, and estimates suggested that by the year 2020, e-waste levels could rise by as much as 500%. Electronic waste and the role businesses play in managing electronic waste are critical issues under these circumstances. The enormous amount of environmental pollution related to industrial manufacturing worldwide and evidenced in recent years has caused

society in general to become more concerned about environmental conditions (Chen, 2010).

Researchers and experts agree that e-waste is an enormous emerging environmental problem, and some companies have become invested in reducing e-waste by creating products that reduce the amount of e-waste generated (Bereketli, Genevois, Albayrak, & Ozyol, 2011). This has created an entire industry promoting a green environment, eco-friendly products, green branding, and green jobs (Ahn, 2010). Green jobs would grow from 610,000 in 2008 to 810,000 in 2013, while green investment would grow from $2.02 billion to $115.2 billion US (Ahn, 2010). These emerging changes would also increase the overall demand for eco-friendly products and with it the cost to the business sector, which, inevitably, would cause higher prices for consumers. The purpose of this research was to investigate how willing were consumers to pay more for eco-friendly products if they believed that such products would reduce e-waste and, further, whether a statistically significant relationship existed between these variables.

Consumer Perspectives

In this study, I sought to clarify, through a review of the literature, whether customer perspectives were related to purchase decisions and perceived risks and also the extent to which they might be related to a number of conditions such as brand loyalty, advertising effectiveness, innovation, and pricing (Becker, 2009; Cheung & Thadani, 2010). To reduce customer doubt related to purchase decisions, consumers process available information regarding each product and form a first impression. To that end,

consumers viewed products in an arrayed queue where they could evaluate each product to make a basic judgment about the product (Muhamad, Melewar, & Alwi, 2011).

Product price perceptions. Of all the elements in the queue, price turned out to be the most salient influence for consumers (Bennett, 2011). Price was a powerful piece of information for the consumer, reported Farrell and Shapiro (2010, p. 12). Balakrishnan (2011) called price "the sacrifice to obtain a product" (p. 253). Consumers can attach a value to price; therefore, price plays an important part in their decision-making process about a product. Customers used price as a cue in evaluating their experiences with a product or service and in shaping their attitude toward a provider (Han & Ryu, 2009). What was unknown, however, was whether consumers were willing to pay more for an item if it offered environmental advantages, and it was to that question that the present study addressed itself.

Brand loyalty perceptions. Han and Ryu (2009) and Ariffin et al. (2011) suggested that physical surroundings and price perception influence customer satisfaction. Other researchers also maintained that these factors had an impact on customer satisfaction and that customer satisfaction led to customer loyalty (Ladhari et al., 2011). Loyal customers were more likely to engage in positive word-of-mouth behaviors and spending extra money in a service operation than nonloyal customers were likely to do so (Ladhari et al., 2011). In addition, loyal customers were less costly to service because they knew the product or service well and required less information (McKercher & Guillet, 2011). Thus, in recent years, service providers focused on

achieving customer loyalty by delivering superior value and identifying and enhancing the main factors they had determined to inspire loyalty (Chen & Chen, 2010).

Product quality perceptions. Numerous researchers have conducted investigations into the relationship between price and quality (Bennett, 2011; Zheng, Chiu, & Choi, 2012). Hui (2010) explored how brand names can affect the consumers' reliance on technology-adoption decisions and protection from security technologies. Hui used an experimental research method to study the effects of brand name and knowledge on the adoption decision of antivirus software. In the 2 x 2-research method, two groups of students used two different brands. Hui randomly selected subjects to participate in different groups, presented them with information about different brands of antivirus software, and the respondent indicated their product choices. Hui used z tests and logistic regression to analyze the data received from each group. The findings demonstrated that, with other cues held constant, price was the only factor to predict the consumers' perceived quality. Hui also reported that the brand name did affect product choice. A strong brand tended to inspire a false sense of security and lead to poor product choices, whereas knowledge could reduce the consumers' reliance on brand name in a security-technology adoption decision.

Rao (2007) measured the two forms of market information, price, and store, in his study. The results indicated that, although price was the dominant variable, the inclusion of store image had a significant impact on consumers' product-quality perception. Rao conducted a meta-analysis that investigated the influence of price and brand name or store name on buyers' evaluations of product quality. Results of the analysis revealed

that, for consumer products, the relationships between price and perceived quality and between brand name and perceived quality were positive and statistically significant. Overall, these early investigations demonstrated that price strongly affected the consumer's quality perception.

Ho (2010) examined customer satisfaction and the role-played by total quality management (TQM). The authors were able to demonstrate that improved quality could actually save money. With the use of a meta-analysis, existing research studies on TQM revealed that TQM significantly increased customer satisfaction across various industrial sectors and cultural settings. The researchers noted that this result challenged a fundamental assumption of the day, namely that producing higher quality goods and services meant incurring greater costs. Most people assumed that development of higher quality products would require raw materials that were more expensive, extra care in processing, more inspections, and the hiring of more skill workers. Hassen, Rahmanb, and Haruna (2012) demonstrated that quality could be improved by reducing and reworking mistakes to ensure that things would be corrected the first time (better process control), which would result simultaneously in financial savings and a better quality product.

Consequences of Electronic Waste

Many electronic items contain dioxin, and an inappropriate disposal strategy can release dioxin into the environment. Numerous health problems have resulted from high levels of dioxin, including stillbirths, low birth weight, and premature deliveries. E-waste is one of the causes of dangerous gases and other chemicals into the environment as well,

specifically lead, beryllium, arsenic, mercury, antimony, and cadmium, all of which affect people's health and the environment in a negative way. Based on the health and environmental ramifications associated with e-waste, researchers were beginning to investigate strategies to reduce, or at least stop increasing, the amount of e-waste. However, additional research is required in this area.

Role of Business in Managing Electronic Waste

Researchers and experts agreed that e-waste was an emerging environmental problem and some companies were starting to invest in reducing e-waste. For them, managing e-waste provided augmented business opportunities, especially given the volumes of e-waste currently generated and the content containing both toxic and valuable materials (Bereketli et al., 2011).

Not all businesses agreed on e-waste management strategies (Lepawsky, 2012; Wu, 2011). Although most researchers and consumers agreed on the necessity of preserving a livable planet, some maintained that environmental regulation hampers business competitiveness. In addition, despite presumed social benefits of environmental standards, leaders in private industry maintained that prevention cost and clean-up cost would lead to higher prices for electronics and reduced competitiveness (Redclift, 2009). The differences that have come to characterize the discussion of the environment and nature in the social sciences descriptions are the distinctions between critical realism and social constructivism, and Redclift reviewed the main intellectual challenges of both positions. Redclift blamed a lack of theoretical development in carbon dependency on an apparent stalemate.

Green environment. Because of the enormous amount of environmental

pollution evidenced in recent years, which relates to industrial manufacturing worldwide,

society has become increasingly concerned about environmental conditions (Chen,

2008b). Because of the increased societal attention and consumer demand for

environmentally friendly products, more and more companies were willing to accept the

environmental responsibility (Zeng, Meng, Yin, Tam, & Sun, 2010). Currently,

environmental concerns were rapidly emerging as a mainstream issue for consumers,

especially because of global warming, and many companies were seeking to profit from

the opportunity. Environmental pollution could result from the inefficient use of

resources, but businesses could increase their productivity with the use of green

innovation (Zeng et al., 2010). Green innovation relates to innovation in environmentally

responsible products and services that were both sustainable and contributing to reducing

the impact of greenhouse gases (GHG) on the environment (Cooke, 2012).

Chioua, Chana, Letticea, and Chung (2011) promoted the concept of core

competence, and many previous studies explored the relevant issues of core competence;

however, no research to date has explored core competencies of firms with green

innovation or environmental management. In order to achieve core competencies, some

researchers maintained that a company should meet three requirements by (a) gaining

potential access to a wide variety of markets, (b) contributing to the customer benefits of

the product, and (c) developing products that were difficult for competitors to imitate

(Gimzauskiene & Staliuniene, 2010). The creation of core competencies is beneficial for

company performance and corporate success (Paik, 2011). If companies want to adopt

green marketing successfully, their environmental concepts, and ideas should be in all aspects of marketing (Sandhu, Ozanne, Smallman, & Cullen, 2010). When companies are able to provide products or services that satisfy their customers' environmental needs, the customers might be more favorably disposed toward their products or services.

Eco-Friendly Products

Eco-friendly products, or green products, are products that do not harm the environment whether in their production, use, or disposal. Businesses and consumers alike were attempting to reduce their impact on the environment by practicing energy conservation and reducing pollution to the environment; thus, many environmental factors were currently under review. In addition, GreenPeace (2010) corroborated the importance of environmental factors, in their ranking of the top 18 manufacturers of consumer electronics such as personal computers, mobile phones, TVs, and game consoles, according to their policies on toxic chemicals, recycling, and climate change. GreenPeace aimed at eliminating hazardous substances, recycling obsolete products, and reducing the impact of the manufacturers' operations on the climate. The eco-rating system helps to prevent *greenwashing*, a term used to describe false or misleading advertising by leading companies, designed to convince consumers that their products were environmentally friendly, when in actuality they were not.

According to one research, more than 95% of consumer products claiming to be green commit at least one of the greenwashing offenses such as hidden trade-off, no proof of being green, and vagueness (Mitchell & Ramey, 2011). At this writing, there were only a few consumer-product rating companies in existence. The Electronic

Product Environmental Assessment Tool (EPEAT) was a standard tool used for evaluating, certifying, and registering green computers and other electronic consumer products according to three tiers of environmental performance: Bronze, Silver, and Gold (Obrien, 2010). No current industry standards were available for rating green products.

Environmental positioning. Environmental positioning was an effective way to lure consumers to try new brands and product variants. Firms with established brands were increasingly leveraging the brand equity associated with their core products and launching green brand extensions. Some companies were taking independent action to improve environmental performance by self-advertising their environmental activities or by participating in voluntary environmental programs (VEP) that required participants to self-monitor and publicly report their environmental performance (Darnall, Potoski, & Prakash, 2010; Harrington, Khanna, & Deltas, 2011). In other instances, companies received a third-party certification for environmental activities (Darnall et al., 2010). Keller and Lehman (2009) suggested that marketers of leading brands usually advertise heavily to reinforce some of the brand attributes as a way of positioning the brand schema effectively in the consumers' minds. Although this might be effective, consumers were likely to have already attributed their own opinions and existing perceptions as part of their brand schemas for well-established and highly familiar brands (Laceya, Close, & Finney, 2010; Völckner, Sattler, Ringle, & Thurau, 2010).

The nature of the product category itself would produce some expectations of product attributes (Kocyigit & Ringle, 2011). Consumers were likely to have strong notions of typical product attributes for highly familiar brands, as there was relatively

little room for ambiguity in the perceptions of these brands in comparison to other brands. A number of researchers have suggested that product attributes dominate consumer decision making, which also link pioneering advantage to attribute typicality (Perera & Chaminda, 2013). Perera and Chaminda (2013) explored corporate social responsibility (CSR) and its relationship with identifying stakeholders along with categorizing types of CSR initiatives and linking corporate social performance to firm performance. The researchers suggested that CSR should enhance its sustainable competitive advantage in social performance. Using literature reviews, the researchers were able to demonstrate that, for CRS to gain competitive advantage, it should be part of the company's mission and visible to external audiences.

Absolute levels or values of product attributes alone cannot be the basis for new product variants or line extensions. Rather, evaluations based on the congruency between an extension product's attributes and consumers' existing expectations about the parent brand schemas as well as product categories (Völckner et al., 2010). Völckner et al. (2010) investigated the importance of brand extension in consumer expectations. The researchers used two large data sets to identify four areas, namely generalizability of relevance of brand extension factors, the research results beyond the lab into conditions with real extensions, generalizability of findings across consumers, and product categories and parent brand and their generalizability across success measures.

The results indicated that there were major differences across customer segments. The researchers concluded that green product-line extensions were product variants in the product category that satisfied the functional needs of the customers, but eco-friendly

positioning could help customers reduce their carbon footprint. The researchers also

noted that consumers had to reconcile the perceptions of benefits associated with

environmental green claims and how such perceptions correlated with dominant attributes

in a product-category schema for familiar and parent-brand schemas (Völckner et al.,

2010).

Green branding. Green branding and imaging were important when

distinguishing products and services based on quality features (Hur, Yoo, & Hur, 2010).

Brand images included symbolic meanings with the attributes of a brand that could help

customers develop a mental picture of the brand and link it to offers (Chen, 2010).

According to Myrden, Kelloway, and Scotia (2012), brand image covered functional

benefits, symbolic benefits, and experiential benefits. Based on the understanding that

green brands are those that consumers associate with environmental conservation and

sustainable business practices, the green-brand image was becoming more important for

companies, especially due to the widespread environmental consciousness of consumers

and strict international regulations of environmental protection. A well-implemented

green brand identity could provide benefits to companies that were environmentally

conscious, and consumers could select products that were greener than other products.

Commercial success of green branding could become successful only if the

communication of branding messages was effective (Paço, Alves, & Shiel, 2013).

Green positioning. Sharma and Singh (2013), along with Schaper (2010),

suggested that green positioning was an essential factor in the success of green branding

strategies. By utilizing a green positioning strategy, a company could build functional

brand attributes that built brand associations by delivering information on

environmentally sound product attributes. In order to be effective, this positioning

strategy should be based on relevant environmental advantages of the product compared

to competing conventional products and might refer to production processes, product use,

or product elimination, or all of these in combination (Sabchez, Martínez-Ruiz, Jiménez-

Zarco, & Megicks, 2012). For example, a car brand is environmentally sound if the

models in question produced significantly lower emissions than their competitors did.

Several studies addressed the value perception of selected environmental product

attributes (Park, Choi, & Kim, 2011). Park et al. (2011) explored a number of variables

to understand consumer behavior and the choices consumers made with regard to

environmentally friendly products. The researchers reviewed current research on the

topic to try to find the relationships among sociodemographic variables and preferences

for environmentally sustainable products. Findings were mix especially in the area of

income, where previous research showed that income could be negatively, positively, or

insignificantly related to green consumer choices.

Researchers also suggested that there was a negative correlation between pro-

environmental attributes and attributes in product categories for nonhuman consumption.

Kayande, Roberts, Lilien, and Fong (2007) examined the incoherence of fuel-efficient

and powerful cars on consumer uncertainty perceptions, preference, and likelihood of

purchase. The subjects in this study were ($N = 77$) 2nd-year MBA students. The

researchers were able to prove, through a mathematical model, that products that

positively combined valued attributes might increase some elements of preference for the

product. However, if those attributes occurred in unexpected combinations, incoherence would also increase uncertainty, which, in turn, might lower other elements of preference. The results of the investigation corroborated earlier research on this topic.

Prior research on schema incongruity suggested that, when an additional attribute in a product variant is congruent with dominant attributes in the product category schema, it improves product evaluations. The findings also indicated product improvement drove its salability even when the improvement was irrelevant to the main operation of the product (Ahearne, Rapp, Hughes, & Jinal, 2010)**.**

Because neither regulations nor independent verification of product sustainability existed, consumers had to make their purchase choices based on unsustainable environmental claims. Although there was no regulation of claims, consumers preferred some claims to others. Kangun, Carlson, and Grove (1991) indicated that consumers were able to distinguish between specific (tangible and concrete environmental benefits) and vague claims. Kangun et al. investigated how organizations increased their target in advertising as consumers became more environmentally conscious than they had been before. The researchers developed two typologies; the first one sorted advertised environmental claims into five distinctive types, and the second one delineated categories of misleading or deceptive environmental claims. The researchers found that certain types of claims placed among environmental advertisements were more susceptible to causing consumer confusion and perceptions of possible deception. Further, the findings of Simula, Lehtimäki, and Salo (2009) suggested that environmental claims perceived as clear and straightforward would result in positive perceptions of the product as well as

the advertiser, whereas vague claims tended to result in negative perceptions and suspicions of greenwashing. Simula et al. noted that the growth of sustainable development required a high level of directed innovation. The authors reported that the relationship between scale effects and administration, purchasing, pricing, technology, marketing, and profitability had an effect on the environment, and they suggested alternatives to quality management standards as well as codes of practice to influence the sustainable development on business practices. Chang and Fong (2010) maintained that green marketing and improving brand image, which was an important determinant of customer satisfaction could achieve differentiation between products.

Literature Related to Research Design

The methods used most often in the reviewed literature were descriptive in nature. Some researchers used experimental models such as the brand loyalty model, the word-of-mouth, or WOM, model (Becker, 2009), and the TQM model (Ho, 2010) to guide their research. In this study, I chose the descriptive method as the most appropriate approach.

I utilized a cross-sectional, descriptive survey method to explore the relationships among demographic variables (age, gender), consumer perspectives on eco-friendly products (product quality, product price, brand loyalty), and consumer behaviors (willingness to pay more for an item, willingness to drop off e-waste). Descriptive research would explore relationships between nonmanipulated variables and phenomena, or existing problems, with the intent of providing a potential solution (Adu-Agyem, Sabutey, & Emmanuel, 2013). Descriptive research methods explored the phenomenon under present conditions, without modifying the variables under study (Redmond, 2010).

In the current study, consumer perception factors of product quality; perceived value; and brand loyalty, as defined by Chen (2008a) in his 2008 model, were under consideration. Demographic data analyzed in this study included general consumer information such as age and gender. Consumer perception factors and demographics were part of the collection process of the online sample survey of adult consumers.

Transition

Researchers indicated that consumers were becoming more environmentally conscious than ever before as information about the scarcity of natural resources increasingly entered the public discourse. Consequently, companies are starting to price and manufacture products for emerging market with environmentally conscience consumers in mind. With their empirical research, researchers had clearly demonstrated the importance of pricing in consumers' decision-making behavior; however, there is a paucity of literature on the relationship between environmental factors and pricing, quality, brand loyalty, and the relationship between understanding how eco-friendly products affect the environment and consumers' willingness to pay more for them.

The purpose of this quantitative correlational study was to describe consumer behavior related to eco-friendly products and determine if a relationship existed between consumer perceptions and behaviors regarding eco-friendly products. Results from the current investigation might contribute to the field of business practice by increasing the understanding of product manufacturers and by providing information on the strength of the relationship between price and a product's environmental impact and its effect on consumer behavior. The results from this study might also contribute to social change by

encouraging product manufacturers to better price their environmentally friendly

products in order to sell more, which in return could create more social benefits for the

community by reducing e-waste. The results of the current investigation might also

provide relevant information to consumers who are willing to pay more for a product that

has fewer negative environmental consequences.

Section 2 of the study describes the research method chosen for this study. The

section provides information on the sampling technique used; the role of the researcher; a

discussion of the data collection, the instrument used for data collection, and its reliability

and validity; and, finally, the data analysis.

Section 3 of the study presents the findings of the (data analysis; a discussion of

the applications to professional practice, the implications for social change,

recommendations for actions and further study, and reflections). Section 3 ends with a

summary of the findings and conclusions.

Section 2: The Project

Purpose Statement

The purpose of this quantitative study was to examine the relationship between the high level of e-waste and the consumer's preference for eco-friendly products and provide business managers with the information they need to develop advertising and pricing strategies. The geographical location for this study was central Florida. A convenience sample of randomly selected registered members of SurveyMonkey who were currently attending the University of South Florida participated in the research by completing an online survey hosted by SurveyMonkey. The researcher-designed questionnaire assessed consumer demographics (gender and age), the consumers' product perception (i.e., consumers' views on eco-friendly products, using the dependent variables price, quality, and brand loyalty), and consumer behaviors (using the independent variables willingness to pay more for eco-friendly products and willingness to recycle e-waste at drop-off recycling centers).

With inferential data analysis, I used correlation and regression analysis to determine the extent of the relationships among consumer perceptions, consumer behaviors, and demographic variables. Information gained through this research should provide business managers with greater insights into the consumers' views regarding eco-friendly products, their willingness to reduce e-waste, and their willingness to pay more for eco-friendly products. The findings of this study could bring about positive social change by encouraging product manufacturers to produce more environmentally friendly products than environmentally harmful ones. This will lead to a reduction in e-waste by

providing incentives for the proliferation of products with a low environmental liability rating in preference to products with high environmental liability.

Role of the Researcher

Researchers (as citied in Smith, Wright, and Breakwell, 2011 and Komesaroff, 2012) actively anticipate and address each ethical dilemma that might occur at every stage of their research. A researcher must ensure that the sources of data used in the study are reliable and that the data analysis and interpretations are ethical. To that end, the researchers must make every effort to maintain the integrity of the data and the protection of study participants and their rights.

Prior to inviting subjects to participate, I obtained approval to conduct the study from the Internal Review Board (IRB) of Walden University. This approval was contingent upon my appropriate and adequate description of the research process, including participant identification, invitation to participate, informed consent, data collection, data analysis, and data management procedures. After extending the invitation to participate in the study (Appendix B), I had no plans for interacting with the subjects, unless they contacted me for additional information about the study. As the researcher, I assured the participants that their anonymity and online data would be password protected and accessed only by me. Further, as the researcher, I would not be a member of the staff of their university or have any affiliation with this university or with potential research participants. I chose the University of South Florida for conducting this study based on the size of the student body and its geographical location. As indicated in the invitation, after completion of the study and upon the request of the

participants a final report and summary of descriptive and inferential statistics and the study's findings will be available for their review.

Participants

The population consisted of young adults attending the University of South Florida (USF) in the United States. The average age of students at USF was 23 years (USF college portrait, 2011). According to research by E-Marketer (2008), a leading marketing group, this age group shows the greatest tendency to integrate green behavior into their daily lives when compared to other age groups. The demographic data collected (i.e., age and gender) helped to explore the salient perceptions of young adults regarding eco-friendly products. Currently, SurveyMonkey has 600 USF students registered.

Approximately 381 students received an e-mail invitation to participate (see Appendix B) out of the 600 USF college students who registered with the SurveyMonkey Contributor Member database subgroup. The Tabachnick and Fidell (2007) formula was used as the sample calculator to test for the minimum number of participants to complete this study. The Tabachnick and Fidell (2007) formula for sample size is $50 + 8(m)$, where m=# of predictor variables. There are three independent variables attached to this study i.e. price, quality and brand loyalty. Therefore, the sample size calculation $50 + 8(3) = 74$ a minimum of participants. I was fortunate to have a sample population of 381. This represents the population of 47,214 potential participants residing on the USF campus.

In the event that not enough of the SurveyMonkey Contributor Members responded positively to the invitation to participate in the study, a plan was in place for contacting the USF student body to gather more participants. Potential participants received an informed-consent form together with information about the study (see Appendix B); they had to give their consent by completing the online consent form before they could participate in the survey. The online survey enabled gathering data from a large group inexpensively. The survey was a workable way to assemble a sufficiently large pool of subjects for addressing the hypotheses (Amponsah-Tawiah, Dartey-Baah, & Ametorwo, 2012); the survey is an environmentally friendly, paperless method (McPeake, Bateson, & O'Neill, 2014) and provided a faster response rate than other methods such as telephone interviews or in-person interviews (Kaplowitz, Lupi, Couper, & Thorp, 2012; Novick et al., 2011).

The method of participant selection was nonprobability convenience sampling (Kakinami & Conner, 2010) of a target population at USF. Researchers often use convenience sampling when it is the only way to gain access to certain groups such as such as marijuana users (Hathaway et al., 2010) or incarcerated youth (Abrams, 2010). Such samples might have to satisfy additional IRB requirements because they are in protected groups. Convenience sampling in the current study facilitated recruitment of a sample large enough to perform data analysis.

Research Method and Design

Research Method

The three methodological approaches to conducting research are quantitative, qualitative methods and mixed method. (Marczyk, DeMatteo, & Festinger, 2010). In qualitative research, one could explore attitudes, behaviors, and experiences with the use of such methods as interviews or focus groups (Church & Ekberg, 2013). The yield of qualitative research consists of in-depth opinions from the participants who usually number far fewer than in quantitative studies, but the contact with the former tends to last much longer (Chen & Macredie, 2010). By contrast, in quantitative research, one can quantify attitudes and behaviors or measure variables (Jandaghi & Matin, 2011). Unlike qualitative research, quantitative research uses measurable data that rely, facts, and patterns. The quantitative approach was best suited for this study because I intended to obtain data from a large sample via questionnaires assessing consumer behaviors and perceptions using numerical data. I also planned to use statistical means to quantify, measure, and analyze the data and express the results numerically. Quantitative methodology also allowed me to test multiple variables of costumer behavior reported by the sample to determine which variables have a significant effect on e-waste reduction.

Chen and Chai (2010) distributed 200 questionnaires to undergraduate students at a major private university in Malaysia to assess their attitudes toward the environment and green products and to measure the relationship between attitude toward the environment and the use of green products. Results indicated that there was no difference according to gender in the students' attitude toward the environment and their

use of green products. One important finding through multiple linear regression analysis was that how consumers view both the government's role and their personal norms toward the environment contributed significantly to their attitude on purchasing green products and recycling e-waste.

Lee (2011) described how researchers such as Laroche used a conceptual framework that considered many factors such as demographics, knowledge, values, attitudes, and behavior that influence consumers' willingness to pay more for environmentally friendly products. Laroche (as cited in Lee, 2011) disseminated 2,387 questionnaires to selected household in a North American city. The questionnaires included Likert scales and measured participant responses to several questions. The first part of the survey collected demographic information (i.e., gender and age), the second part measured consumer attitudes toward a variety of topics related to the environment, and the last part measured behaviors of the respondents toward the environment. One significant finding was that values played an important role in the consumers' willingness to spend more for green products.

A mixed method was not appropriate for this study since there was insufficient time to explore the qualitative rationale for the respondents' responses.

Research Design

In the current study, I used a quantitative design. Smith et al. (2011) and Komesaroff (2012) explained that quantitative research designs fit two basic types: experimental and nonexperimental designs. Nonexperimental designs consist of

descriptive research and correlational studies, whereas experimental designs include experiments and causal-comparative or quasi-experimental research.

The first design, descriptive research, is to determine and describe the status of an identified variable. Descriptive research involved the gathering of data that describe events, and then the data collection organization, tabulated, depicted, and described (Graney, Martínez, Missall, & Aricak, 2010). Tom and Eves (1999) provided an example of this type of descriptive research, where 120 pairs of advertisements were collected to test whether they used rhetorical figures. The researchers found that 45% of the advertisement had used some form of rhetorical figures. The conclusion was that advertisements that used rhetorical figures performed better in terms of recall and persuasion than advertisements that did not.

The second design, and the method used in this study is correlational research. A study qualifies as nonexperimental and correlational if the data lend themselves only to interpretations about the degree to which certain things tend to co-occur or relate to each other. Chang and Zauszniewski (2011) used a nonexperimental, cross-sectional, correlational design to examine the interrelationships among a situational factor (maternal depression), learned resourcefulness (LR), and target behaviors (depression and adaptive functioning in school-aged children). The major advantage of a correlational design in this study was that the collected data were easy to interpret. The major disadvantage of the correlational designs was that the reason for the associations discovered was unclear. As the purpose of the current study was to gather information on the relationships among consumer perceptions, consumer behaviors, and demographic variables, the correlational

design was appropriate.

The third design, experimental research, is an attempt to maintain control over all factors that might affect the results of an experiment. In doing so, the researcher attempts to determine or predict what might occur (Li, Hung, & Tangpong, 2012). Some of the steps involved in experimental research are identifying and defining the problem, formulating hypotheses and deducing the consequences, constructing an experimental design that represents all the elements, conducting the experiment, compiling raw data and reducing it to usable forms, and applying an appropriate test of significance. Some of the advantages of this method are researcher control over the variables by determining the ideal population for achieving clear results (Weathington, Cunningham, & Pittenger, 2012). Some of the disadvantages of this method are potential personal bias of the researcher, the sample might not be representative, and the results might apply only to one situation and might be difficult to replicate (Weathington et al., 2012). Gruppen (2008) who examined the dispersion of airborne infectious viruses and the development of brain pathology because of exposure conducted an example of this type of research. The researcher used lab rats to perform this study and controlled all the variables.

The fourth design, causal-comparative or quasi-experimental methodology, identifies cause-and-effect relationships between independent and dependent variables (Smith et al., 2011). D'Onofri, Lahey, Lichtenstein, and Turkheimer (2013) conducted an example of this type of research. The researchers explored how genetic and biological influences, environmental risks, and behavior act and interact across development to result in psychological and physical health problems. The researchers were able to show,

by examining past studies, that a need existed for more quasi-experimental studies to further the understanding of the true causes of human health and development.

Population and Sampling

The focus of this study was to describe self-reported consumer behaviors related to eco-friendly products to determine if a relationship exists between consumers' perceptions related to eco-friendly products and their willingness to pay more for such products. The survey target audience was USF Students between the ages of 18 and 24 years from the SurveyMonkey database of respondents. According to E-Marketer (2008) research, this demographic had the greatest tendency to integrate green behavior into their daily lives when compared to other age groups. As reported in the *University of South Florida Fact Book,* the total student population for the 2011 academic year was 47,214 (USF System, 2011), and of those students, 600 were registered in the SurveyMonkey database.

Eligibility criteria for participating in this study required that the respondent be a student at USF, between 18 and 24 years of age, a registered user of SurveyMonkey, and live in the United States. Of the entire 600 USF student population registered on the SurveyMonkey database, I invited 381 potential participants. The only exclusion criterion used specified age, in that participants had to belong to the 18 to 24 year age range.

Ethical Research

To protect the participants' rights I addressed a number of ethical considerations throughout the research process. All potential respondents received an invitation,

Informing them about the purpose of the study, requirements for participation, and the

rules for completing the survey. By signing the consent document, the participant

acknowledged his or her voluntary participation in this study (see Appendix B). In the

consent document, I informed the respondents that they could withdraw from the study at

any time by exiting from the survey or by not submitting their responses at the end of the

survey.

I assured the respondents about complete confidentiality and anonymity and that I

would not use any identifying information anywhere on the completed survey. The

researcher would be the only person to know the identities of the participants and the

responses to the questionnaires. As an added measure of security, I converted the names

of survey respondents to Participant 1 (P1), Participant 2 (P2), and so forth. These

generalized categories provided enough information without compromising the

respondents' privacy. Respondents received a small financial incentive through

SurveyMonkey upon the successful completion of their questionnaires.

All online information regarding potential participants is stored in a password-

protected electronic folder and accessible only to the researcher. Data deletion will take

place 5 years after the completion of the study with the use of a freeware program called

CyberShredder. The SurveyMonkey research profile removal will take place after the

study to guard against any misuse of the participants' information.

Data Collection

Data Collection Instruments

I developed a survey for data collection (see Appendix A). Existing measurement instruments were not appropriate for this study, and customized instruments by variables were different from study to study. Therefore, for this study a new instrument was developed.

Before launching the data collection, I performed a pilot survey to ensure the validity of the questionnaire. Five participants received the questionnaire via e-mail from SurveyMonkey.com to make sure that the participants clear and readily answered the questions. The results from the pilot survey ensured instrument validity. The questions' purpose was to examine consumer perspectives on product price, product quality, and brand loyalty, as well as self-reported consumer behavior of paying more for an item and willingness to drop off e-waste. Also collected were demographic variables (i.e., age and gender). With the pilot study, I also wanted to make sure that the survey was comprehensive and had a high level of content validity. High content validity was a necessary attribute of the questionnaire survey in this study. Each survey question corresponds to one of the study variables and the research questions. The rating scale for each question indicates a respondent's level of agreement or disagreement with the statement. For example, the response to Question 4 on the survey ("I have used green products before") would yield a score from 1- 5. This score became the data for data analysis of the applicable variable. A score of 1 would indicate a low level of agreement, whereas a score of 5 would indicate a high level of agreement.

Data Collection Techniques

     Study variables and questionnaire items. The purpose of the study was to evaluate relationships among consumer perspectives on product price, product quality, and brand loyalty; consumer behaviors of paying more for an item and willingness to drop off e-waste at drop-off centers; and demographic variables of age and gender. To that end, a researcher-developed questionnaire assessed respondents' perceptions, behaviors, and demographic variables.

     Product price perspectives. The two survey questions used in this research helped to elevate participants' perspectives on price. Survey questions pertaining to price perceptions were Questions 5 and 8. Responses to these items would be in the form of a 5-point Likert-type scale where 1 = *never*, and 5 = *always.* The calculation score will be the total for the responses of the two questions and the total product price perspective.

     Product quality perspectives. The three survey questions used in this research helped to elevate participant's perspectives on quality. Survey questions pertaining to product quality perceptions were Questions 9, 10, and 11. Responses to these items would be in the form of a 5-point Likert-type scale where 1 = *strongly disagree,* and 5 = *strongly agree*. The calculation score will be the total responses of the three questions and the total product price perspective.

     Perceptions on brand loyalty. The four survey questions used in this research helped to elevate participant's perspectives on brand loyalty. Survey questions pertaining brand loyalty perceptions were Questions 12, 13, and 14. Responses to these items will be in the form of a 5-point Likert-type scale where 1 = *strongly disagree*, and 5 =

strongly agree. The calculation score would be the total responses of the four questions and the total product price perspective.

Consumer behaviors. I used survey questions to measure consumers' self-reported behaviors of willingness to pay more for a green items and willingness to recycle e-waste. The survey question used to enquire about willingness to pay more for green products was Question 6. Responses to this item will be in the form of a 5-point Likert-type scale where 1 = *never*, and 5 = *always*. For Question 6, 1 = *strongly disagree*, and 5 = *strongly agree*. The calculation score will be the total responses of the 10 questions and the total product price perspective.

Questions 18 on the survey inquired about willingness to recycle e-waste. Responses to this item will be in the form of a 5-point Likert-type scale where 1 = *never*, and 5 = *always*. The calculation score will be the total responses to Question 18 and the total product price perspective.

Following approval by the IRB of Walden University, I sent an e-mail invitation to the target sample of 381 randomly selected potential USF participants registered with SurveyMonkey (see Appendix B). The participants first had to agree to the informed-consent conditions (Faden, Beauchamp, & Kass, 2014), and then they would move onto the survey link. Participation was voluntary, and subjects could quit the study at any time. The participants did not need to provide any identifying information.

Measuring the first three items of the survey established a relationship among product price, product quality, and brand loyalty and labeled a measure either as effective or ineffective. A product price was effective if the price of the product inspired the

consumer to pay more for an item and drop it off at an e-waste drop-off station at the end of its usefulness. Once a consumer deemed a product effective or ineffective, I conducted a correlation analysis to determine if the remaining survey items had a positive correlation with the consumer behaviors of paying more for an item and willingness to drop off e-waste. The collection and validity test data from the pilot survey were able to measure the internal consistency for each question in the survey.

After obtaining IBR approval, I conducted the pilot study began. The pilot study participants had 2 weeks to submit their comments for analysis and validation of the research questions. After the completion of the pilot study, the online survey participants also had 2 weeks to respond to the survey. When the survey responses did not reach the set target number within 2 weeks, I sent a reminder e-mail to the invited participants. The survey closed when 381 respondents had taken the survey; then, the data collected with SurveyMonkey went to the Statistical Package for the Social Sciences (SPSS) for analysis. A summary of the analysis of raw data is available Section 3.

Data Organization Technique

Following receiving approval from IRB, I distributed an e-mail invitation targeting 381 randomly selected potential participants from SurveyMonkey. The SurveyMonkey (2013) website reported that more than 30 million unique subjects responded to SurveyMonkey surveys each month. This online resource collected information from a large group of participants in a relatively short period about purchasing habits.

The SurveyMonkey Contributor Member database consisted of 30 million members. The selection of participants was from SurveyMonkey Contributor Member database, for a target sample of 381 participants. The participants knew that they could stop their participation at any time; they provided their answers on a voluntary basis. I kept the responses confidential, and the participants remained anonymous. I analyzed the collected data using SPSS software (Appendix A).

Data Analysis

I used SurveyMonkey for data collection in this quantitative study. Access to the survey on the SurveyMonkey website is password protected. As the researcher, I was the only one able to check on the number of responders and review their responses. Once the participants had completed the survey, the responses went from SurveyMonkey to the SPSS software for analysis. I ensured that the SPSS data file would take each subject's scores on each of the 19 survey questions, and I then analyzed the results.

I used SPSS Version 17 to perform data organization, analysis, calculated, and reported descriptive and inferential results. Descriptive statistics included the means, standard deviations, and the ranges of variables (i.e., responses to each question). I used Spearman correlation coefficients for RQs 1-6 and multiple regressions models for RQs 7-8 to analyze and evaluate the data and to answer the research questions.

To evaluate the answers to Research Question 1, I used Spearman correlation analysis to analyze the relationship between the total product quality score and willingness to recycle e-waste at drop-off recycling facilities. To evaluate answers to Research Question 2, I calculated the Spearman correlation score using the total product

price perception scores and willingness to recycle e-waste at a drop-off recycling facilities. To evaluate answers to Research Question 3, I calculated the Spearman correlation coefficient to analyze the correlations between the total brand loyalty scores and willingness to recycle e-waste at a drop-off recycling facility scores. To evaluate answers to Research Question 4, I calculated the Spearman correlation to analyze the relationship between the product quality scores and willingness to pay more for a green product. To evaluate answers to Research Question 5, I calculated the Spearman correlation to analyze the relationship between total product price perception scores and willingness to pay more for a green product. To evaluate Research Question 6, I calculated the Spearman correlation to analyze the relationship between total brand loyalty scores and willingness to pay more for a green product. To evaluate answers to Research Question 7, I conducted a multiple regression analysis using age and gender as predictor variables and customer willingness to pay more for green products and customer willingness to recycle e-waste at drop-off recycling facilities as criterion variables. Finally, to evaluate answers to Research Question 8, I conducted a multiple regression using e-waste as the predictor variable and eco-friendly product purchasing as criterion variable.

Reliability and Validity

Reliability

I used Cronbach's alpha to test the internal consistency of the survey instrument for the subject population. There are four general classes of reliability estimates. Firstly, Inter-Rater or Inter-Observer Reliability, assesses the degree to which different

raters/observers, gives consistent estimates of the same phenomenon. Secondly, Test-Retest Reliability assesses the consistency of a measure from one time to another. Thirdly, the Parallel-Forms Reliability assesses the consistency of the results of two tests constructed in the same way from the same content domain. Finally, Internal Consistency Reliability assesses the consistency of results across items within an instrument. Internal consistency reliability assesses the reliability of the summation scale and several items from a total score (Kurtz, McCrae, Terracciano and Yamagata, 2010). Some of the tests used to calculate these results are the Average Inter-item Correlation, Average Item total Correlation, Split-Half Reliability, and Cronbach's Alpha. Cronbach's alpha tests the inter-item reliability of the survey questions to examine their relationship to each other. The coefficient alpha measures the degree to which the questions examine the same core constructs. Cronbach's alpha values measure between 0 and 1, where the acceptable values of alpha ranges from 0.70 to 0.95 (Dennick & Tavakol, 2011. The Cronbach's alpha value for this study was 0.685. Cronbach's alpha value means that the survey questions were adequate per the internal consistency reliability coefficient. One of the means for ensuring the validity and reliability was to assure each respondent could only take the survey once. The survey questions were the same for all respondents, and the survey remained opened for 2 weeks to ensure that respondents' experience was consistent.

Validity

There are two types of study-centric validity, internal validity, and external validity (Thomas, Nelson, Silverman, & Silverman, 2010). Internal validity refers to

both how well a study is being conducted (research design, operational definitions used,

the measurement of variables, what is being measured, among other considerations) and

how confidently one might conclude that the observed effect(s) are attributable to the

independent variable and not some extraneous ones (Kidd & Morgan, 2010). External

validity represents the extent to which a study's results can apply to other people or

settings (Thomas et al., 2010).

I used the online survey instrument to determine the relationships among

consumer perspectives, consumer behavior, and demographic variables, and claim no

causality between the study's variables. The use of an online survey allowed for wide

selection of candidates from University of South Florida.

Applying my knowledge of the green industry and the geographical region, I

ensured that all of the necessary, fundamental elements of the survey applied.

Additionally, the distribution of the pilot survey to five participants not associated with

the study enabled me to examine the clarity of the measurement instrument (i.e., the

survey. The purpose for the pilot study was to ensure that the instrument was clear,

comprehensible, and easy to understand. If the results of the pilot study had revealed

some question clarity issues, I would have applied corrective measures to all such issues,

before using the questionnaire in the main data collection stage.

I used a non-parametric method for data analysis, which does not require

parametric assumptions because interval data conversion to rank-ordered data. The

Spearman's rank correlation provides a distribution free test of independence between

two variables. This method helps to improve validity in the study since handling rank-

ordered data is one of the strengths of non-parametric tests.

Transition and Summary

The purpose of the current investigation was to examine the relationship among consumer perspectives and consumer behaviors such as willingness to pay more for eco-friendly products. In order to explore this information, I used a quantitative, nonexperimental, correlational design.

The results of this research will contribute to the business practice literature with an increased understanding of the strength and nature of the relationship between customers' preferences and their willingness to pay more for eco-friendly products. The results of the investigation might be relevant for researchers, product manufacturers, and consumers. The information garnered from the study might serve as an impetus for social change by encouraging product manufacturers to address the environmental concerns of environmentally conscious consumers. The information gained from this study might also create some social benefits for communities in which certain companies are operating by leading to an eventual reduction in e-waste through proper disposal of electronic waste. Included in this section was information about the (research method and design of the study, population and sampling technique, instrument, data collection and data analysis procedures, and the role of the researcher). I discussed the appropriateness and justification of the research method chosen, along with the research questions.

Section 3 presents the findings of the (data analysis; a discussion of the applications to professional practice, the implications for social change,

recommendations for actions and further study, and reflections). Section 3 ends with a

summary of the findings and conclusions.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative correlational study was to examine the relationships among demographic variables (gender and age), consumer perspectives, and consumer behavior. The research questions and hypotheses were put forth to examine consumers' views on eco-friendly product quality, eco-friendly product price, and eco-friendly product brand loyalty as they relate to consumers' willingness to pay more for green products and willingness to recycle e-waste at drop-off recycling facilities.

This section provides a restatement of the research questions and hypotheses and an explanation of the statistical methods employed, namely, the Spearman correlation coefficient to measure the strength of the association between ranked variables and ordinal regression to examine the customer behavior relationships of interest. Provided in this section is a detailed description of the results of the study, including the (presentation of finding, application of the finding to professional practice, implications for social change, recommendations for action and further research, and a reflection of the researcher's experience with this topic). The section ends with a summary and conclusion.

Research Questions and Hypotheses

Research Questions

The following eight research questions were guiding the study:

RQ1: To what extent does eco-friendly product quality relate to customer willingness to recycle e-waste at drop-off recycling facilities?

RQ2: To what extent does eco-friendly product price relate to customer willingness to recycle e-waste at drop-off recycling facilities?

RQ3: To what extent does eco-friendly product brand loyalty relate to customer willingness to recycle e-waste at drop-off recycling facilities?

RQ4: To what extent does eco-friendly product quality relate to customer willingness to pay more for green products?

RQ5: To what extent does eco-friendly product price relate to customer willingness to pay more for green products?

RQ6: To what extent does eco-friendly product brand loyalty relate to customer willingness to pay more for green products?

RQ7: To what extent do gender and age differences relate to customer willingness to pay more for green products?

RQ8: To what extent is a relationship extant between e-waste and eco-friendly product purchasing?

Hypotheses

In this study, I used the significance value of less than 0.05 to reject any of the following null hypotheses addressing the research questions.

*H$_o$*1: There is no significant statistical relationship between eco-friendly product quality and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_a$*1: A significant statistical relationship exists between eco-friendly product quality and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_o$*2: There is no significant statistical relationship between eco-friendly product price and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_a$*2: A significant statistical relationship exists between eco-friendly product price and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_o$*3: There is no significant statistical relationship between eco-friendly product brand loyalty and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_a$*3: A significant statistical relationship exists between eco-friendly product brand loyalty and customer willingness to recycle e-waste at drop-off recycling facilities.

*H$_o$*4: There is no significant statistical relationship between eco-friendly product quality and customer willingness to pay more for green products.

*H$_a$*4: A significant statistical relationship exists between eco-friendly product quality and customer willingness to pay more for green products.

*H$_o$*5: There is no significant statistical relationship between eco-friendly product price and customer willingness to pay more for green products.

*H$_a$*5: A significant statistical relationship exists between eco-friendly product price and customer willingness to pay more for green products.

*H$_o$*6: There is no significant statistical relationship between eco-friendly product brand loyalty and customer willingness to pay more for green products.

H_a6: A significant statistical relationship exists between eco-friendly product brand loyalty and customer willingness to pay more for green products.

H_o7: There is no significant statistical relationship between gender, age, and customer willingness to pay more for green products.

H_a7: A significant statistical relationship exists between gender, age, and customer willingness to pay more for green products.

H_o8: There is no significant statistical relationship between e-waste recycling, income, and age.

H_a8: A significant statistical relationship exists between e-waste recycling, income, and age.

The research findings indicated that price was not the primary factor why people were unwilling to pay more for green products or recycle e-waste at drop-off recycling facilities. Brand loyalty and brand awareness played a major role in consumer willingness to recycle e-waste at drop-off recycling facilities and the consumers' willingness to pay more for green products. The next heading contains a detailed presentation of the findings.

Presentation of Findings

Pearson's Versus Spearman's Coefficient

The total number of respondents in this study was 313. Pearson's correlation coefficient measures the linear relationship between two normally distributed variables, that is, the line of best fit, whereas Spearman's correlation measures the relative rank order of the points. The selection chosen was Spearman's correlation, in preference over

Pearson's because Spearman's correlation coefficient does not require any assumptions about the frequency distribution of the two variables. Specifically, the variables reflect ordinal data and the calculation of Spearman's correlation results do not assume that the relationship between the variables is linear (Lund, 2013).

Spearman's correlation coefficient is a statistical measure of the strength of a *monotonic* relationship between two variables. If the value of one variable increases, so does the value of the other variable, or, conversely, as the value of one variable increases, the value of the other variable decreases. Spearman's rank correlation coefficient, or Spearman's rho, denoted by the Greek letter ρ (rho), or as r_s, which is a nonparametric measure of statistical dependence between two variables. One can verbally describe the strength of the correlation using the following guide for the absolute value of r_s where 0.00-0.19 expresses a very weak relationship, 0.20-0.39 expresses a weak relationship, 0.40-0.59 expresses a moderate relationship, 0.60-0.79 expresses a strong relationship, and 0.80-1.0 expresses a very strong relationship (Lund, 2013).

Consideration 1: Customer Willingness to Recycle e-Waste at Drop-Off Recycling Facilities

Research Question 1. To what extent does eco-friendly product *quality* relate to customer willingness to recycle e-waste at drop-off recycling facilities?

Research Question 1 addressed respondent views on products reliability and assessed whether respondent would keep or recycle a product based on the available of having recycling facilities. This question's aim was to capture the buying and recycling habit of respondents. The two survey items related to Research Question 1 were:

Item 15: I recycle electronic devices or e-waste (products such as computers, televisions, VCRs, stereos, copiers, fax machines, and cellular phones) as opposed to discarding them as trash.

Item 18: I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.

This research question addresses how likely, *based on quality*, customers recycle devices and if they consider using a local drop-off recycling facility. To answer Research Question 1, I tested the following hypotheses:

H_o1: There is no significant statistical relationship between eco-friendly product quality and customer willingness to recycle e-waste at drop-off recycling facilities.

H_a1: A significant statistical relationship exists between eco-friendly product quality and customer willingness to recycle e-waste at drop-off recycling facilities.

Table 1 shows the results of the Spearman's correlation test for customer willingness to recycle e-waste at drop-off recycling facilities and eco-friendly product quality. Product quality is defined through two primary dimensions, product features (e.g., e-friendly) and the products that are reflecting the intended features. Research Question 1 addresses respondent views on products quality/reliability and assess whether respondent would keep, get rid or recycle a product based its value at a recycling facilities. The aim is to capture the buying and recycling habit of respondents when it comes to assessing the quality of a product.

Table 1.

Spearman's Correlation Test for Customer Willingness to Recycle e-Waste at Drop-Off

Recycling Facilities and Eco-Friendly Product Quality

			Questions from the Questionnaire	
			I recycle electronic devices or e-waste (products such as computers, televisions, VCRs, stereos, copies, fax machines, cellular phones as opposed to discarding them as trash).	I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.
Spearman's ρ	I recycle electronic devices or e-waste (products such as computers, televisions, VCRs, stereos, copies, fax machines, cellular phones as opposed to discarding them as trash).	Correlation Coefficient	1	-.213[*]
		Sig. (2-tailed)	.	0
		N	313	313
	I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.	Correlation Coefficient	-.213[*]	1
		Sig. (2-tailed)	0	.
		N	313	313

Note. *I tested the correlation at the significance level of 0.05.

Per the values in the table above r_s = -.213, n = 313

Because the calculated significance was less than 0.05 or 1.437E-4, I rejected the null hypothesis (H_o1). The rejected hypothesis stated that there is no significant statistical relationship between eco-friendly product quality and customer willingness to recycle e-waste at drop-off recycling facilities.

Quality did not have a positive correlation with customer willingness to recycle e-waste at drop-off recycling facilities and this could be the strength expressed by this variable, that is, product quality. Product quality and reliability have steadily improved

over the years; Energy Star-qualified refrigerators currently last longer than they did 5 years ago. Refrigerators that were sold in 2010 are 20% - 30% more energy efficient than nonqualified refrigerators and, at least, 40% more energy efficient than nonqualified refrigerators sold in 2001 (General Electric, 2014). The change in quality of the product has allowed consumers to keep products longer and delay recycling.

Research Question 2. To what extent does eco-friendly product *price* relate to customer willingness to recycle e-waste at drop-off recycling facilities?

The two survey items related to Research Question 2 were:

Item 16: I would start recycling electronic devices if I received a financial incentive for doing so.

Item 17: If I had the choice of discarding an old electronic device I would use a drop-off recycle facilities.

This research question asked would consumers use the local drop-off recycle facilities if product pricing that included a financial incentive is available. To answer Research Question 2, I tested the following hypotheses.

H_o2: There is no significant statistical relationship between eco-friendly product price and customer willingness to recycle e-waste at drop-off recycling facilities.

H_a2: A significant statistical relationship exists between eco-friendly product price and customer willingness to recycle e-waste at drop-off recycling facilities. Table 2 shows the results of the Spearman's correlation test for customer willingness to recycle e-waste at drop-off recycling facilities and eco-friendly product price.

Table 2.

Spearman's Correlation Test for Customer Willingness to Recycle e-Waste at Drop-Off

Recycling Facilities and Eco-Friendly Product Price

			Questions from the Questionnaire	
			I would start recycling electronic devices if I receive a financial incentive for doing so.	If I had the choice of discarding an old electronic device I would use a drop-off recycling facilities.
Spearman's ρ	I would start recycling electronic devices if I receive a financial incentive for doing so.	Correlation Coefficient	1.000	.166[*]
		Sig. (2-tailed)	.	.003
		N	313	313
	If I had the choice of discarding an old electronic device I would use a drop-off recycling facilities.	Correlation Coefficient	.166[*]	1.000
		Sig. (2-tailed)	.003	.
		N	313	313

Note. * I tested the correlation at the significance level of 0.05.

$r_s = .166$, $n = 313$

Because the calculated significance was less than 0.05 r (0.0032), I rejected the

null hypothesis (H_o2). The rejected hypothesis stated that there is no significant

statistical relationship between eco-friendly product price and customer willingness to

recycle e-waste at drop-off recycling facilities.

Product price correlating with customer willingness to recycle e-waste at drop-off

recycling facilities might be due to the existence of a secondary market. Wang, Zhang,

Yin, and Zhang (2011) found two factors that could affect recycling styles: economic

benefit and convenience. The authors showed that reclaiming by peddlers played a major role in e-waste recycling in Beijing because the price offered for e-waste was much higher and onsite services were convenient. Similarly, reused cell phones in the United States are at 65%, and the buy-back price can range from a few dollars to $40 or $50, depending on the model of the phone (Geyer & Blass, 2010). Most consumers can easily sell their old phones, rather than recycle them.

Research Question 3. To what extent does eco-friendly product *brand loyalty* relate to customer willingness to recycle e-waste at drop-off recycling facilities?

The survey items related to Research Question 3 were:

Item 18: I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.

Item 19: I would buy and recycle electronic devices if there were an awareness campaign in my area about the dangers of not recycling.

This research question addressed the relationship between consumers' awareness of the dangers of not recycling and consumers' likelihood to use local drop-off recycles facilities. Awareness campaign about the dangers of not recycling helps to encourage consumer to purchase more products eco-friendly products. To answer Research Question 3, I tested the following hypotheses:

H_o3: There is no significant statistical relationship between eco-friendly product brand loyalty and customer willingness to recycle e-waste at drop-off recycling facilities.

H_a3: A significant statistical relationship exists between eco-friendly product brand loyalty and customer willingness to recycle e-waste at drop-off recycling facilities.

Table 3 shows the results of the Spearman's correlation test of customer willingness to recycle e-waste at drop-off recycling facilities and eco-Friendly product brand loyalty. With a recycling awareness campaign, managers could promote responsible habits from respondents to use recycling facilities when products have reached the end of their useful life.

Table 3.

Spearman's Correlation Test of Customer Willingness to Recycle e-Waste at Drop-Off Recycling Facilities and Eco-Friendly Product Brand Loyalty

			Questions from the Questionnaire	
			I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.	I would buy and recycle electronic devices if there was an awareness campaign in my area about the dangers of not recycling
Spearman's ρ	I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.	Correlation Coefficient	1.000	.537[*]
		Sig. (2-tailed)	.	.000
		N	313	313
	I would buy and recycle electronic devices if there was an awareness campaign in my area about the dangers of not recycling	Correlation Coefficient	.537[*]	1.000
		Sig. (2-tailed)	.000	.
		N	313	313

Note. * I tested the correlation at the significance level of 0.05.

$r_s = .537, n = 313$

Because the calculated significance was less than 0.05 (9.569E-25), I rejected the null hypothesis (H_o3). The rejected hypothesis, which stated that brand loyalty did not relate to customer willingness to recycle e-waste at drop-off recycling. Research Questions 3 addressed respondents' views on brand loyalty as it related to customer

willingness to recycle e-waste at drop-off recycling facilities. The questions also

addressed whether an awareness campaign would prompt respondents to start using the e-

waste at drop-off recycling facilities. The results could demonstrate the importance of

customer awareness of using recycling facilities, which is alignment with Wang et al.

(2011) findings that stated that consumers education played an important role in

recycling, as did the convenient location of recycling facilities, both these aspects tended

to enhance public participation in recycling (Wang et al., 2011). Management of

companies should begin programs to start an awareness campaign to shape consumer

behavior. Some managers of management companies have adopted an Extended

Producer Responsibility (EPR) policy. These policies required manufacturers to finance

the cost of recycling or of safely disposing of products that consumers no longer want.

Some businesses management saw programs that encourage consumers to bring back

products for recycling as opportunities for strengthening brand loyalty (Nash & Bosso,

2013). For example, Nestlé Waters, a major producer of bottled water products, recently

funded the start-up called Recycling Reinvented, a new organization dedicated to

advocating EPR for packaging (MacKerron, 2012). Other companies' leaders such as

those at Waste Management Incorporated have lent financial support to organizations'

leaders advancing EPR policies in the hope that these efforts will generate business for

them (Nash & Bossi, 2013).

Consideration 2: Customer Willingness to Pay More for Green Products

Research Question 4. To what extent does eco-friendly product *quality* relate to customer willingness to pay more for green products?

The four survey items related to Research Question 4 were:

Item 6: I am willing to pay more for green products.

Item 9: I believe the quality of green products affects my decision to purchase.

Item 10: I believe that green products are of better quality than nongreen products.

Item 11: I would recommend green products based on quality to my friends.

This research question compared the extent to which the quality of a green product relates to customers' willingness to pay more for green products than for a nongreen product. To answer Research Question 4, I tested the following hypotheses:

H_o4: There is no significant statistical relationship between eco-friendly product quality and customer willingness to pay more for green products.

H_a4: A significant statistical relationship exists between eco-friendly product quality and customer willingness to pay more for green products.

Table 4 shows the results of the Spearman's correlation test of customer willingness to pay more for eco-friendly product quality.

Table 4.

Spearman's Correlation Test of Customer Willingness to Pay More for Eco-friendly

Product Quality

			Questions from the Questionnaire		
			I am willing to pay more for green products.	I believe that green products are of better quality than nongreen products.	I believe the quality of green products affect my decision to purchase.	I would recommended green products based on quality to my friends.
Spearman's ρ	I am willing to pay more for green products.	Correlation Coefficient	1.000	-.445*	-.327*	-.517*
		Sig. (2-tailed)	.	.000	.000	.000
		N	318	318	318	318
	I believe that green products are of better quality than nongreen products.	Correlation Coefficient	-.445*	1.000	.157*	.461*
		Sig. (2-tailed)	.000	.	.005	.000
		N	318	318	318	318
	I believe the quality of green products effect my decision to purchase.	Correlation Coefficient	-.327*	.157*	1.000	.392*
		Sig. (2-tailed)	.000	.005	.	.000
		N	318	318	318	318
	I would recommended green products based on quality to my friends.	Correlation Coefficient	-.517*	.461*	.392*	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	318	318	318	318

Note. * I tested the correlation at the significance level of 0.05.

$r_s = -.445$, $n = 318$ (Item 9)

$r_{s\ =} - .327$, $n = 318$ (Item 10)

$r_{s\ =} - .517$, $n = 318$ (Item 11)

Because the calculated significance level was less than 0.05 (4.9373E-6, 2.3675E-9 and 3.8545E-23) respectively, I rejected the null hypothesis (H_o4), which stated that there is no significant statistical relationship between eco-friendly product quality and customer willingness to pay more for green products.

Quality might not be much of a concern in consumers' willingness to pay more for a green product because consumers might have not developed a high level of trust in eco-friendly products. Datta (2011) showed that a high percentage of respondents (82%) would consider buying eco-friendly products, but only a few (36%) actually trust the quality of the eco-friendly products. This apparent discrepancy might have been due to the perception of product performance and hesitation to use eco-friendly products.

Research Question 5. To what extent does eco-friendly product *price* relate to customer willingness to pay more for green products?

The three survey items related to Research Question 5 were:

Item 6: I am willing to pay more for green products.

Item 5: I believe that green products are more expensive than nongreen products.

Item 8: I believe the price of green products affects my decision to purchase them.

This research question compared the extent to which the price of a green product relates to customer willingness to pay more for green products than nongreen products. To answer Research Question 5, I tested the following hypotheses.

H_o5: There is no significant statistical relationship between eco-friendly products price and customer willingness to pay more for green products.

H_a5: A significant statistical relationship exists between eco-friendly product price and customer willingness to pay more for green products.

Table 5 shows the results of the Spearman's correlation test of customer willingness to pay more and eco-friendly product based on price.

Table 5.

Spearman's Correlation Test of Customer Willingness to Pay More and Eco-Friendly

Product Based on Price

			Questions from the Questionnaire		
			I am willing to pay more for green products.	I believe that green products are more expensive than nongreen products.	I believe the price of green products affects my decision to purchase.
Spearman's ρ	I am willing to pay more for green products.	Correlation Coefficient	1.000	-.157[*]	-.271[*]
		Sig. (2-tailed)	-	.005	.000
		N	318	318	318
	I believe that green products are more expensive than nongreen products.	Correlation Coefficient	-.157[*]	1.000	.409[*]
		Sig. (2-tailed)	.005	-	.000
		N	318	318	318
	I believe the price of green products effect my decision to purchase.	Correlation Coefficient	-.271[*]	.409[*]	1.000
		Sig. (2-tailed)	.000	.000	-
		N	318	318	318

Note. * I tested the correlation at the significance level of 0.05.

$r_s = -.157, n = -.318$

$r_s = -.271, n = -.381$

      Because the calculated significance was less than 0.05 (0.005 and 9.1365E-7)

respectively, I rejected the null hypothesis (H_o5). The rejected hypothesis stated that

there is no significant statistical relationship between eco-friendly products price and

customer willingness to pay more for green products.

Customers are willing to pay more for green products because they are willing to pay a premium for product sustainability as a baseline condition for consumer products. Doh, Howton, Howton, and Siegel (2010) showed that management should not ignore sustainability, as it would lead to negative results. Doh et al. stated that, since social performance is difficult for investors to track, they rely on expert endorsements from companies such as the Calvert Group. When the Calvert Group maintained and endorsed a company, the company's stock would remain stable.

Research Question 6. To what extent does eco-friendly product *brand loyalty* relate to customer willingness to pay more for green products?

The four survey items related to Research Question 6 were:

Item 6: I am willing to pay more for green products.

Item 12: I would switch to green products if they were more available at my local store.

Item 13: I would switch to green products if they were promotional deals such as TV ads and local printed coupons available at my local store.

Item 14: I am more likely to buy a certain product because it has a brand name I have used in the past.

This research question compared the extent to which brand loyalty to a green product related to customer willingness to pay more for green products than for nongreen products. To address Research Question 6, I tested the following hypotheses.

H_o6: There is no significant statistical relationship between eco-friendly product brand loyalty and customer willingness to pay more for green products.

H_a6: A significant statistical relationship exists between eco-friendly product brand loyalty and customer willingness to pay more for green products. Table 6 shows the results of the Spearman's correlation test for customer willingness to pay more and eco-friendly products and brand loyalty.

Table 6.

Spearman's Correlation Test for Customer Willingness to Pay More and Eco-Friendly

Products and Brand Loyalty

			What are these statements?			
			I am willing to pay more for green products.	I would switch to green products if they were more available at my local store.	I would switch to green products if they were promotional deals such as TV ads and local printed coupons available at my local store.	I am more likely to buy a certain product because it has a brand name I have used in the past.
Spearman's ρ	I am willing to pay more for green products.	Correlation Coefficient	1.000	-.551*	-.285*	.050
		Sig. (2-tailed)	-	.000	.000	.374
		N	318	318	318	313
	I would switch to green products if they were more available at my local store.	Correlation Coefficient	-.551*	1.000	.484*	.038
		Sig. (2-tailed)	.000	-	.000	.501
		N	318	318	318	313
	I would switch to green products if they were promotional deals such as TVs ads and local printed coupons available at my local store.	Correlation Coefficient	-.285*	.484*	1.000	.121*
		Sig. (2-tailed)	.000	.000	-	.032
		N	318	318	318	313
	I am more likely to buy a certain product because it has a brand name I have used in the past.	Correlation Coefficient	.050	.038	.121*	1.000
		Sig. (2-tailed)	.374	.501	.032	-
		N	313	313	313	313

Note. * I tested the correlation at the significance level of 0.05.

$r_s = -.551, n = 318$ (Item 12)

$r_s = -.285, n = 318$ (Item 13)

$r_s = .05, n = 313$ (Item 14)

Because the calculated significant was less than 0.05 (1.2839E-26, 2.3995E-7), I rejected the null hypothesis (H_o6). The rejected hypothesis, which states that there is no significant statistical relationship between eco-friendly product brand loyalty and customer willingness to pay more for green products.

Repeat purchasing of green products might induce consumers to pay a higher price because the consumers might now consider a store's green credentials when choosing where to shop (Tucker, Pearce & Bruce, 2012). Green credentials help to ensure that the consumer understands why the company's products are superior to those of other stores. Leaders of car companies understand that consumers are becoming increasing concerned about the effect the automobile has on the environment (Tucker, Pearce & Bruce, 2012). Marketing professionals of the car companies have developed an advertising campaign for their hybrid car that lets consumers know that the hybrid cars are the most efficient gas-and-electricity vehicle on the market. Hybrid cars are now the brand that most consumers have in mind when purchasing or shopping for an automobile that will save money on gas and reduce harmful effects to the environment.

Consideration 3: Customer Willingness to Pay More and to Recycle at Drop-Off Recycling Facilities

Research Question 7. To what extent are there gender and age differences in customers' willingness to pay more for green products?

For the three survey items related to Research Question 7, I collected demographic information for gender, age, and income.

To address Research Question 7, I used an ordinal regression analysis to test the following hypotheses:

H_o7: There is no significant statistical relationship between gender, age, and customer willingness to pay more for green products.

H_a7: A significant statistical relationship exists between gender, age, and customer willingness to pay more for green products.

To examine the issue of willingness to pay more, Table 7 shows the results of the Ordinal regression analysis of customer willingness to pay more for eco-friendly products based on gender, age, and income information.

Table 7.

Ordinal Regression Analysis of Customer Willingness to Pay more for Eco-Friendly Products based on Demographic Information

							95% Confidence Interval	
		Estimate	*SE*	Wald	*df*	Sig.	Lower Bound	Upper Bound
Threshold	[Sec2_Price_2 = 1]	-2.262	.434	27.154	1	.000	-3.113	-1.411
	[Sec2_Price_2 = 2]	-.350	.352	.990	1	.320	-1.041	.340
	[Sec2_Price_2 = 3]	2.410	.385	39.109	1	.000	1.655	3.166
	[Sec2_Price_2 = 4]	4.085	.449	82.914	1	.000	3.206	4.964
Location	[Gender=1]	.667	.233	8.188	1	.004	.210	1.124
	[Gender=2]	0[a]	-	-	0	-	-	-
	[Age=1]	-.093	.386	.058	1	.810	-.849	.663
	[Age=2]	.145	.385	.142	1	.706	-.610	.901
	[Age=3]	-.533	.409	1.694	1	.193	-1.334	.269
	[Age=4]	.304	.370	.672	1	.412	-.422	1.030
	[Age=5]	0[a]	-	-	0	-	-	-
	[Income=1]	1.249	.419	8.869	1	.003	.427	2.071
	[Income=2]	1.002	.418	5.755	1	.016	.183	1.821
	[Income=3]	.712	.384	3.439	1	.064	-.040	1.464
	[Income=4]	.799	.488	2.674	1	.102	-.159	1.756
	[Income=5]	0[a]	-	-	0	-	-	-

Parameter Estimates

Note. Link function: Logit.
Note. Threshold: Response categories 'logit functions' intercepts for each pricing category's logit function.
Note. Location: Independent variables 'logistic regression models' coefficients for willingness to pay more.
Note: a: Reference category

Ordinal regression analysis models enable researchers to examine the relationship between a set of predictors or independent variables and a polytomous ordinal dependent variable response. The first ordinal regression model (results in Table 7) measured "I am willing to pay more for green products" (dependent variable) against gender, age, and income (independent variables).

Table 8 shows the results of the goodness of fit for the ordinal regression analysis of customer willingness to pay more and eco-friendly products and table 9 shows that the assumption of the parallel lines cannot be rejected.

Table 8.

The Model Fitting Information, Which Shows the Statistical Significance of the Ordinal Regression Analysis for Customer Willingness to Pay More for Eco-Friendly Products

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	298.604			
Final	278.037	20.566	9	.015

Link function: Logit

Table 9.

Test of Parallel Line, Which Shows the Statistical Significance of the Ordinal Regression Analysis for Customer Willingness to Pay More for Eco-Friendly Products

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	278.037			
General	254.538	23.499	27	.658

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

Since the calculated significance level was less than 0.05 the model fitting information above validate my decision to reject the null hypothesis (H_o7), which stated that there is no significant statistical relationship between gender, and customer willingness to pay more for green products. Furthermore, as shown in Table 9, the test for parallel logit lines calculated the chi-square significance value as 0.658, which is larger than 0.05, which implies that the assumption of the parallel lines cannot be rejected.

The income range of the participants who *expressed a readiness to pay more* for green products was respondents who earned up to $49,999. The data results showed the need to develop awareness campaigns targeting respondents with incomes greater than $50,000. We also observe a significance value of 0.004, which shows that males were more likely to be willing to pay more for recyclable products than females.

Research Question 8. To what extent is there, a relationship between customer willingness to recycle e-waste at drop-off recycle facilities based on gender, age, and income?

The response items in the ordinal regression test were:

Item 6: I am willing to recycle more for green products.

Item 18: I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.

The testing, done via the following hypotheses, addressed Research Question 8 as it related to willingness to recycle e-waste at drop-off recycling facilities.

*H$_o$*8: There is no significant statistical relationship between e-waste recycling intent and gender, income, and age.

*H$_a$*8: A significant statistical relationship exists between e-waste recycling intent and gender, income, and age.

Table 10 shows the results of the Ordinal regression analysis of customer willingness to recycle e-waste at drop-off recycling facilities based on their demographic characteristics.

Table 10 shows the results of the ordinal regression analysis of customer willingness to recycle e-waste at drop-off recycle facilities based on demographic information.

Table 10.

Ordinal Regression Analysis of Customer Willingness to Recycle e-Waste at Drop-Off Recycling Facilities Based on Demographic Information

Parameter Estimates

							95% Confidence Interval	
		Estimate	SE	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[Sec3_Recycle_4 = 1]	-6.192	.800	59.880	1	.000	-7.760	-4.624
	[Sec3_Recycle_4 = 2]	-3.965	.438	81.898	1	.000	-4.824	-3.106
	[Sec3_Recycle_4 = 3]	-2.199	.373	34.657	1	.000	-2.931	-1.467
	[Sec3_Recycle_4 = 4]	-.074	.348	.045	1	.831	-.755	.607
Location	[Gender=1]	-.805	.225	12.815	1	.000	-1.246	-.364
	[Gender=2]	0[a]	-	-	0	-	-	-
	[Age=1]	-.578	.371	2.432	1	.119	-1.304	.148
	[Age=2]	-.858	.372	5.323	1	.021	-1.587	-.129
	[Age=3]	-.180	.393	.210	1	.646	-.949	.589
	[Age=4]	.138	.359	.148	1	.701	-.565	.840
	[Age=5]	0[a]	-	-	0	-	-	-
	[Income=1]	-.546	.404	1.832	1	.176	-1.337	.245
	[Income=2]	-.760	.405	3.523	1	.061	-1.553	.034
	[Income=3]	-.572	.374	2.339	1	.126	-1.305	.161
	[Income=4]	-.359	.473	.574	1	.449	-1.286	.569
	[Income=5]	0[a]	-	-	0	-	-	-

Note. Link function: Logit.

Note. Threshold: Response categories 'logit functions' intercepts for each recycling willingness category's logit function.

Note. Location: Independent variables 'logistic regression models' coefficients for *customer willingness to recycle e-Waste at Drop-Off Recycling Facilities*

Note: a: Reference category

Tables 11 and 12 below show the results of the model of fit and test of parallel lines for the customer willingness to recycle e-waste at drop-off recycle facilities based on demographic information. The model fitting information in Table 11 validated the decision to reject the null hypothesis (H_o8) and the test of parallel lines implied that the assumption of the parallel lines cannot be rejected.

Table 11.

The Model Fitting Information, Which Shows the Significance of the Ordinal Regression Analysis for Customer Willingness to Recycle E-Waste at Drop-Off Recycling Facilities Base

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	281.049			
Final	256.751	24.298	9	.004

Link function: Logit.

Table 12.

Test of Parallel Line, Which Shows the Significance of the Ordinal Regression Analysis for Customer Willingness to Recycle E-Waste at Drop-Off Recycling Facilities Base

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	256.751			
General	227.746	29.005	27	.361

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

Using ordinal regression enabled me to model the polytomous ordinal dependent variable response's relationship with the set of independent demographic variables gender, age, and income. The ordinal regression analysis estimated the correlation between the response to "I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area (Sec3_Recycle_4 - dependent variable)" against "gender, income, and age" (independent variables).

As reflected in Table 10, the results of testing Hypotheses for research question 8 were:

- Gender: Gender=1= Male participants were *less* willing to recycle e-waste at drop-off recycling facilities than female respondent.

- Age: Age=2=25-31 years old participants were less willing to recycle e-waste than the AGE=5=46-52 respondents.

- Income: There was no significant difference (at the .05 level) in willingness to recycle associated with the income categories.

Research question 8, inquired about customers' willingness to recycle e-waste. The results of testing the hypotheses for independent variable i.e. gender, income, and age along with the dependent variables for willingness to recycle e-waste at drop-off recycling facilities demonstrated that respondents between ages 25-31 were *not* as willing to recycle e-waste products as respondents between the ages of 46-52 even with the increased availability of recycling facilities. The calculated significance level was less than 0.05 and as a result, I rejected the null hypothesis (H_o8), which stated that there is no significant statistical relationship between e-waste recycling intent and gender, income,

and age. Some respondents might not be willing to practice in recycling behaviors as previously noted under Research Question 2, due to an inverse relationship with the existence of a secondary market. Consumer products such as Apple iPhones resell for as much as 10% to 50% of the cost of a new iPhone in emerging markets such as Africa and Latin America (Laseter, Ovchinnikov, & Raz, 2010).

The question I used to answer if customers would buy and recycle electronic devices in their area was "I would be willing to recycle electronic devices if more drop-off recycling facilities were available in my area." Both gender and income had a calculated significance level of less than 0.05 for customer willingness to recycle at a drop off facility. The model fitting information in Table 11, which had significant level of 0.004, validated my decision to reject the null hypothesis (H_o8), which stated that there is no significant statistical relationship between e-waste recycling intent and gender, income, and age. Furthermore, the test of parallel lines calculated the chi-square significant value as 0.361, which implied that the assumption of the parallel lines cannot be rejected. The results of this ordinal regression analysis showed that male participants and customers ages 25-31 were *not as* willing to buy and recycle electronic devices as female customers or customers in the older age categories. This is an indication that by promoting recycling habits, including awareness campaigns and recycles drives, is vital to encourage consumers ages 25 and 31 to start developing recycle habits and use recycling facilities.

Summary

In conclusion, the key findings are that product quality and price are significant for attaining consumers' brand loyalty, and in relationship to customers' willingness to recycle e-waste at drop-off recycling facilities and their willingness to pay more for green products. The findings indicate that male participants and participants between the ages of 25-31 were not as likely to recycle e-waste as female participants and participants in the older age group. Additionally, as reflected in Table 7, male participants and the participants who earned up to $49,999 *expressed a readiness to pay more* for green products.

Applications for Professional Practice

In Consideration 1, I explored customers' willingness to recycle e-waste at drop-off recycling facilities and found brand loyalty, as shown in Table 3, plays a significant part in customers' decision to recycle.

In Consideration 2, I explored customers' willingness to pay more for green products and found similar results: As shown in Table 6 when customers had used a certain brand before, they were more likely to continue buying that brand, even if the price went up.

Consideration 3, in Table 7 explored the association of W*illingness to Pay More* according with gender and income. The income range that expressed a readiness to pay for more for green products contained respondents that make up to $49,999. Consideration 3, Table 8 demonstrated the association of willingness to recycle electronic devices at a drop-off facility for green products and demographic variables. The age

range and income group that were less willing to recycle e-waste at drop-off recycling

facilities was the respondents in the 25-31 age group.

The results based on consumer views highlighted the fact that business managers

should focus on brand awareness to inform their customers of the benefits of using their

products as well as the availability of local recycling centers. Business managers should

also use customer testimonials, or experiences with green products, to encourage new

customers to switch from using non green products to eco-friendly products. Business

managers could create brand awareness by investing in marketing and advertising to

promote eco-friendly products.

Implications for Social Change

In Section 1, I indicated that findings from this study could provide an

opportunity to bring more awareness to the social responsibility of the business

community. Data analysis from Table 6 revealed that a significant statistical relationship

existed between social responsibility and brand loyalty, the implications for social change

became much clearer. Social responsibility reflects a business manager's willingness to

promote and address environmental responsibility. Social responsibility within

businesses drives social change and produces an atmosphere conducive to better business

practices (Chaminda and Perera, 2013).

The significant relationship between social responsibility and product innovation

creates a venue for social change (Close, Finney, and Laceya, 2010). The socially

responsible activities of business leaders can help to promote awareness. Therefore, the

evaluation of the findings of this study supported the need for more socially responsible

practice from business. These few actions could help to promote environmentally responsible behavior by consumers.

There is a need to transform the current markets into green markets by replacing inefficient processes with green, sustainable processes (Chang and Fong, 2010). Some of the strategies that several companies' leaders have used to separate themselves from the competition are by developing and rewarding businesses for promoting green and fair product strategies.

Recommendations for Action

The evaluation of the results of this study provided an opportunity to recommend actions that will continue to promote social responsibility within the business community. The first action that might further support socially responsible behavior of businesses is to quantify the variable *savings* by using a green-product alternative and include it on a company's balance sheet, or profit-or-loss statement. The steps toward achieving this task would require a combined effort from major groups (businesses, consumer advocate groups, government policy groups, marketing groups, shareholders, and the EPA). The Research and Development department will be able to develop better products, which will make their promotion more cost effective.

Business management should adopt a more environmentally and socially responsible supply-chain management-practice and promote such practices to consumers and other businesses. Starbucks (2013) and Google are two companies whose leaders have held themselves accountable for becoming *greener*. Starbucks stores' owners purchase coffee beans only from companies that are part of the Fair Trade Certified and

Certified Organic Coffee. Starbucks' storeowners are going green, whereby each storeowner will achieve LEED® certification. This focus has enabled Starbucks' leaders to reduce both operating costs and the environmental impact of its business practices (Starbuck, 2013).

Business managers need to communicate the environmental and social impacts associated with product use to their consumers. This means addressing and making consumers aware of any hidden costs of product ownership and educating consumers on how to decrease their "carbon" footprint when they make purchases as, for example, through energy use of electronic devices or waste avoidance upon product disposal. For example, every pack of Walkers potato crisps made by PepsiCo has a carbon-emissions label. PepsiCo found that 44% of carbon emissions, associated with each bag of crisps, came from the production of the raw materials, most notably the way in which its potatoes were cultivated, processed, and stored. Such information increases awareness of both the impact of the products and the carbon footprint of everyday foods (Eco-promising, 2008).

The second recommendation, based on research done by Kondon, Kurakwa, Kato, Umeda, and Takata (2006), is to explore a number of ways to reduce costs while investing in green products such as using best practice for the management of the product life cycles, expansion of the business scale, and technological innovation among others.

The final recommendation is business managers should focus on brand awareness to inform their customers of the benefits of using their products as well as the local recycling center. Business managers should also use customer testimonials, or

experiences with green products, to encourage new customers to switch from using nongreen products to eco-friendly products. Business managers could create brand awareness by investing in marketing and advertising to promote the benefits of purchasing eco-friendly products.

Recommendations for Further Study

There are many potential follow-ups to this study. The first and most obvious follow-up would be to widen the industry and geographical location to see if similar results exist. In this study, I explored consumer views on recycling and willingness to pay more for green products. It is unclear whether the same findings and conclusions would apply in other industries such as housing and the energy sector.

Second, the data in Section 1 include an EPA report on e-waste figures for 2009. This EPA report contained the most currently data available at the time of this study; another researcher could revisit the EPA figures as more recent data become available. It would be interesting to track the changes from 2009 to a future point in time to see if any significant changes occurred.

Third, researchers should focus on government policies regarding e-waste in light of increases or decreases in a country's population. Countries with larger populations may have more comprehensive polices due to their need to identify, control and improve more environmental variables. Exploring questions on the policies' effectiveness and efficiency could provide the foundation for further studies.

Reflections

With this research, I examined the level of consumer willingness to pay more for eco-friendly products and consumers willing to recycle e-waste at drop-off recycling centers. The research process has been both rewarding and challenging for two reasons. First, the results of this research provided significant insights into the decision-making process customers go though and helped focus on which variables (price, quality, or brand name) play an important part in the final purchase decision. Secondly, the literature and research findings revealed consumers (Chang & Fong, 2010) and business (Eco-promising, 2008) views on eco-friendly products. I believe that the information from this study provides a point in time reference of participating customers' spending decisions and propensity to recycle. I was surprised that business managers have not noticed the eco-friendly product trend sooner since this information about scarcity of resources has been around for several years. Based upon completing this study, I believe as customer demand for ecofriendly products increases, business managers will respond and more eco-friendly products will be available in stores along with people using drop-off center to recycle goods.

Summary and Conclusions

In conclusion, to promote green products as the wave of the future, the focus should be on product stewardship and product marketing. Because evolving and changing customers' views drive business product development, it is the customers' expressing their newly found interest in green products that should prompt businesses leaders to refocus their efforts and dedicate their resources to explore how they can

harness this new and potentially competitive advantage to increase companies' bottom

lines while satisfying the customer base.

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Appendix A: A Survey of Consumer Perceptions

All survey information will be kept completely confidential. Your responses are very important. Thank you for participating in the survey.

Please circle the option that applies to you

Section 1 Demographics	1	2	3	4	5
1. Your gender	Male	female			
2. Your age range	18-24	25-31	32-38	39-45	46-52
3. Education level	high school graduate	some college – no degree	AA degree	BA/ BS degree	Master's Degree or higher
3b. Income	0-24,999	25,000-49,000	50,000-99,999	100,000-149,000	150,000-+

Please circle the option that applies to you

Section 2 - Willingness to pay more for green products	Never	Rarely	Sometimes	Often	Always
4. I have used green product before.	1	2	3	4	5
5. I believe that green products are more expensive than nongreen products.	1	2	3	4	5
6. I am willing to pay more for green products.	1	2	3	4	5
7. Indicate the percentage you are willing to pay for green products	between 1% - 10% more	between 11% - 20% more	between 21% - 30% more	between 31% - 40% more	between 41% - 50% more

| 8. I believe the price of green products effect my decision to purchase them. | 1 | 2 | 3 | 4 | 5 |

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
9. I believe the quality of green products effect my decision to purchase.	1	2	3	4	5
10. I believe that green products are of better quality than nongreen products.	1	2	3	4	5
11. I would recommended green products based on quality to my friends.					
12. I would switch to green products if they were more available at my local store.	1	2	3	4	5
13. I would switch to green products if they were promotional deals such as TVs ads and local printed coupons available at my local store.	1	2	3	4	5
14. I am more likely to buy a certain product because it has a brand name I have used in the past.	1	2	3	4	5

Select the option that best describes you best

Section 3 Willingness to Recycle e-Waste	Never	Rarely	Sometimes	Often	Always
15. I recycle electronic devices or e-waste (products such as computers, televisions, VCRs, stereos, copies, fax machines, cellular phones as opposed to discarding them as trash).	1	2	3	4	5

Select the option that best describes you best

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
16. I would start recycling electronic devices if I receive a financial incentive for doing so.	1	2	3	4	5
17. If I had the choice of discarding an old electronic device I would use a drop-off recycling facilities.	1	2	3	4	5
18. I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.	1	2	3	4	5
19. I would buy and recycle electronic devices if there was an awareness campaign in my area about the dangers of not recycling.	1	2	3	4	5

Thank you!

Appendix B: Invitation to Participants and Informed Consent

Dear Sir or Madam,

You are invited to participate in a research project being conducted by a doctoral student at Walden University. The purpose of this study will be to describe self-reported consumer behavior related to eco-friendly products.

If you agree to participate, you will be asked to fill out a questionnaire that should take approximately 5 minutes of your time. The information provided by you in this questionnaire will be used for research purposes only. It will be confidential, anonymous, and you can decide to withdraw from questionnaire completion at any time during the study. You are asked not to include your name on the questionnaire. The submission of your questionnaire responses will not allow identification of your individual responses.

If you agree to participate, please move on to access the questionnaire link below. If you have any questions, please contact me by e-mail. Thank you for considering this request for participation.

Yours truly,

Sheik M Isaacs

Walden University

E-mail:Sheik_isaacs@yahoo.com

Appendix C: Correspondence between Research Questions and Survey Numbers

Willingness to Recycle e-Waste Subscale

RQ1. To what extend does eco-friendly products quality relate to customer willingness to recycle e-waste at drop-off recycling facilities? **Questions 15, 16, 17, 9, 10, 11**

RQ2. To what extend does eco-friendly products price relate to customer willingness to recycle e-waste at drop-off recycling facilities? **Questions 15, 16, 17, 5, 6, 8**

RQ3. To what extend does eco-friendly products brand loyalty relate to customer willingness to recycle e-waste at drop-off recycling facilities? **Questions 15, 16, 17, 12, 13, 14**

Willingness to Pay More for Green Products Subscale

RQ4. To what extend does eco-friendly products quality relate to customer willingness to pay more for green products? **Questions 18, 19, 7, 9, 10, 11**

RQ5. To what extend does eco-friendly products price relate to customer willingness to pay more for green products? **Questions 18, 19, 7, 5, 6, 8**

RQ6. To what extend does eco-friendly products brand loyalty relate to customer willingness to pay more for green products? **Questions 18, 19, 7, 12, 13, 14**

Demographics Subscale

RQ7. Are there gender, age, and education differences in customer willingness to pay more for green products and customer willingness to recycle e-waste at drop-off recycling facilities? **Questions 1, 2, 3**

Appendix D: SPSS Variables, Questions, and Descriptions

Variable	Description
Respondent ID	Respondent ID
CONSENTFORM	CONSENT FORM
Gender	Your gender
Age	What is your age?
Income	Household Income
Education	What is the highest level of education you have completed?
Green_Product_use	I have used green products before.
Consideration2_Price_1	I believe that green products are more expensive than nongreen products.
Consideration2_Price_2	I am willing to pay more for green products.
Consideration2_Price_3	Indicate the percentage you are willing to pay for green products.
Consideration2_Price_4	I believe the price of green products affects my decision to purchase.
Consideration2_Quality_1	I believe the quality of green products affects my decision to purchase.
Consideration2_Quality_2	I believe that green products are of better quality than nongreen products.
Consideration2_Quality_3	I would recommended green products based on quality to my friends.

Consideration2_Brand_ Loyalty_1	I would switch to green products if they were more available at my local store.
Consideration2_Brand_ Loyalty_2	I would switch to green products if they were promotional deals such as TV ads and local printed coupons available at my local store.
Consideration2_Brand_ Loyalty_3	I am more likely to buy a certain product because it has a brand name I have used in the past.
Consideration3_ Recycle_1	I recycle electronic devices or e-waste (products such as computers, televisions, VCRs, stereos, copiers, fax machines, cellular phones) as opposed to discarding them as trash.
Consideration3_ Recycle_2	I would start recycling electronic devices if I received a financial incentive for doing so.
Consideration3_ Recycle_3	If I had the choice of discarding an old electronic device I would use a drop-off recycling facility.
Consideration3_ Recycle_4	I would buy and recycle electronic devices if more drop-off recycling facilities were available in my area.
Consideration3_ Recycle_5	I would buy and recycle electronic devices if there was an awareness campaign in my area about the dangers of not recycling.

Appendix E: Household Income

Q23 **Household Income**

Answered: 295   Skipped: 45