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AN INVESTIGATION OF SUSTAINABLE PRODUCT PURCHASE BEHAVIOR: A
SOCIAL COGNITIVE PERSPECTIVE OF CONSUMER ACTION

by
Keith Edmund Ferguson

A Dissertation

Presented in Partial Fulfillment of Requirements for the
Degree of
Doctor of Business Administration
In the
Coles College of Business
Kennesaw State University

Kennesaw, GA
2014

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Coles College of Business
Doctor of Business Administration

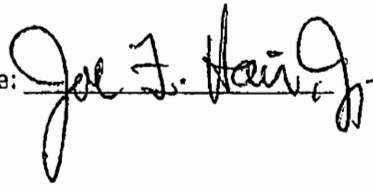
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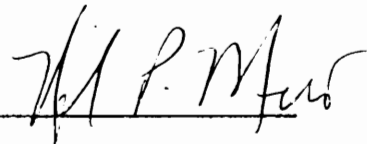
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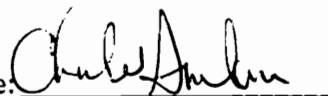
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DEDICATION

I want to dedicate this work to the constant love and support of my wife Maureen and my two lovely daughter's – Lauren and Delainey. Their understanding of my traveling to Georgia, the inability to attend all functions, and encouragement made the pursuit of my D.B.A. possible.

I would also like to dedicate this work to my Brother Kevin who passed away unexpectedly a month before starting at Kennesaw. His memory and love will not be missed and I am sorry I could not share the excitement of this research with him.

In addition, I want to dedicate this paper to my parents for the love and support they have provided me all my life. Their belief in me gave me the courage to pursue this dream.

Finally, I want to dedicate this research toward making our planet a better place for future generations with the hope that it will inspire others to investigate the necessity toward finding new ways to encourage purchasing sustainable products.

ACKNOWLEDGEMENTS

I want to acknowledge the mentorship, unselfish gift of their time, and high expectations of my committee. Their guidance and support allowed me to complete this journey and realize what the expectations are to produce quality research.

Joe Hair is a mentor, friend, and true global scholar. The accessibility he allowed me to himself is a priceless gift. He is one of a kind and I appreciate his determination and guidance.

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I finally want to acknowledge my family and adopted family for their support – the Thelen, Davis, and Williams families provided a soft bed, plenty of laughs, and great meals.

ABSTRACT

AN INVESTIGATION OF SUSTAINABLE PRODUCT PURCHASE BEHAVIOR: A SOCIAL COGNITIVE PERSPECTIVE OF CONSUMER ACTION

by
Keith Edmund Ferguson

Environmentally friendly products have been available since the 1970s receiving both praise and skepticism on the part of consumers. More recently, product focus has shifted towards a product's social, economic, and environmental concerns (sustainable products). While consumers admit they would buy sustainable products, this behavior is currently not occurring at the point of purchase. This research contributes to the existing literature by further exploring why a consumer's likelihood to purchase sustainable products is not translated into actual sales. Based on an extensive review of the extant literature a theoretical model was developed and tested using an online survey distributed to employees from a Mid-Western community college. The results will be analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM). The study contributes to the literature by answering calls from Henry (2009) to use social cognitive theory (Bandura, 1986) and Grant, Franklin, and Langford (2002) to use the Self-Reflection and Insight Scale in a research realm outside of psychology. Moreover, this research tests eco-labels as a antecedent of willingness-to-pay as called for by Laroche, Bergeron, and Barbaro-Forleo (2001). Other contributions of this study include extending the research examining sustainable consumption and using self-efficacy as a mediator. In summary, this research tests a theoretical model to gain insights into the factors influencing

likelihood to purchase sustainable products. Overall, sustainability perceptions are strong predictors of likelihood to purchase sustainable products, explaining 63% of the variance.

Keywords: Sustainability, ecologically conscious consumer, willingness-to-pay, likelihood to purchase, and sustainable products.

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CHAPTER 1 INTRODUCTION

“But to keep options open for future generations, present generations must begin now, and begin together, their efforts to achieve sustainable development.”

Brundtland Report, (1987 p. 5).

Motivation for this Research

The industrial age has realized great wealth and economic prosperity over the last 200 years. Unfortunately, this has brought hardship to the Earth’s ecosystem. The industrial age has produced global warming, depletion of ozone, deforestation, declining bio-diversity, acid rain, and toxic waste (Bandura, 2007; Shrivastava, 1995). In addition to the environmental damage caused by the industrial age, it is estimated that the Earth’s population will double from 5.5 billion in 1992 to 11 billion by 2030 (Daily & Ehrlich, 1992). The two most populated countries in the world are China and India, comprising 20% of the world’s population. In comparison, the United States makes up 5% of the world’s population, yet consumes 25% of the world’s fossil fuel resources. China and India currently consume less energy than an average Western European country (Pachauri & Jiang, 2008). These statistics will likely change rapidly as the two countries are experiencing tremendous economic growth resulting in higher levels of consumption, greater need for natural resources, increased waste, and more pollution (Hubacek, Guan, & Barua, 2007). The increase in population and consumption, coupled with rapid depletion of the Earth’s finite natural resources place a greater need than ever on sustainable practices (Bandura, 2007).

In addition to the increase in population, consumption, and environmental degradation, sustainable efforts on the part of corporations are increasing (Jose & Lee, 2007). Since its inception in 1999, the use of Global Reporting Initiatives has increased (Raar, 2002), and corporations are increasingly using their website to promote their sustainable efforts (Rikhardsson, Andersen, Jacob, & Bang, 2002). Consumer concerns about ways in which businesses affect the environment through their products' use and manufacturing processes have been documented since the 1960's (Henion & Wilson, 1976). Stakeholders today are placing greater demands on corporations to be sustainable in their practices, products, and focus (Berns et al., 2009). The increased emphasis on incorporating sustainable business practices by firms places a greater need to identify their influence on consumers who purchase these products.

Additional motivation for this research is negative changes to the environment. The 1980s witnessed a series of manmade disasters that triggered a call for preserving the environment (Peattie, 2001b). In addition, 24/7 news coverage and increased ownership of cellular phones that have access to the internet has contributed to the immediate awareness of environmental issues (Ardalan, Linkov, Shubnikov, & LaPorte, 2008). Moreover, the increased instance of skin cancer (De Gruijl, 1999), storage of fresh water and food (Mohammadi & Kaviani, 2003), and coastal flooding (McGranahan, Balk, & Anderson, 2007) create a need to find ways in which consumers and businesses can positively affect the environment to reverse these trends.

Finally, this research seeks to identify ways to decrease the gap between consumers' intentions to be sustainable and the inability to translate these intentions at the point of sale (Kollmuss & Agyeman, 2002). This gap has been referred to as the halo

effect (Auger & Devinney, 2007), attitude-intention gap (Vermeir & Verbeke, 2006), and the value-action gap (Blake, 1999). An example of this gap is represented by consumers' demand for environmentally friendly vehicles. More specifically, Chevrolet produced an electric-gasoline hybrid automobile (the Volt that can travel up to 900 miles on a tank of gasoline. Despite initial consumer demand, production of the Volt was halted because of low sales (<http://blogs.wsj.com/drivers-seat/2012/03/03/chevy-volt-why-isnt-it-selling-well/>). What is problematic with the halo effect is that researchers have not identified, much less agreed upon, a set of variables that explain this purchase behavior (Gupta & Ogden, 2009; Moisander, 2007; Young, Hwang, McDonald, & Oates, 2010). In order to gain a deeper understanding of the likelihood to purchase sustainable products the situational and environmental factors that affect this must be investigated from different perspectives than in the past (Vermeir & Verbeke, 2006).

The Origins of Sustainability

Sustainability gained popularity after the 1987 World Commission on Environment and Development held in Tokyo Japan. A speech given by Chairwoman Gro Harlem Brundtland called for an immediate need to be sustainable by addressing social, economic, and environmental issues facing the planet (Brundtland, 1987). As a result, consumer demand for sustainable products has encouraged companies to offer products to meet that demand in order to gain first mover advantages (Nidumolu, Prahalad, & Rangaswami, 2009; Young et al., 2010).

Sustainable products offer an ecologically friendly substitute to current products, use less natural resources, and limit their harm to the environment (Peattie, 2001b). For the purpose of this study, sustainable products provide environmental, social, and

economic benefits, in addition to protecting the Earth and mankind. While the goal of sustainable products seems simple, there is no agreement amongst researchers as to which variables more strongly influence the likelihood of purchasing sustainable products (Hines, Hungerford, & Tomera, 1987). Therefore, research must be conducted in order to provide marketers ways in which to increase this likelihood.

The Conceptual Model

A review of the extant literature identified three predominant indicators of likelihood to purchase sustainable products. These indicators were: ecologically conscious consumers, willingness-to-pay, and sustainable consumption (see Appendix A). Each indicator will be discussed briefly in order to provide the reader with an understanding of their significance to this research.

Ecologically Conscious Consumer

A reoccurring theme in likelihood to purchase sustainable product research is identifying the ecologically conscious consumer (Ellen, Wiener, & Cobb-Walgren, 1991; Roberts, 1996; Roberts & Bacon, 1997; Straughan & Roberts, 1999). Research conducted by Roberts (1996) identified the ecologically conscious consumer as one who made a special effort to buy products that were safe for the environment. The ecological consumer took time to read product labels to ensure the product was environmentally safe and sought products with reduced packaging. Despite the search for environmentally safe products and supporting the companies that manufacture them, a disconnect exists between the reported likelihood to purchase and actual purchase behavior (Kalamas, Cleveland, & Laroche, 2013).

Components of the Ecologically Conscious Consumer

This study identifies components that comprise the ecologically conscious consumer as indicated by Roberts (1996) as: ecologically conscious consumer behavior, psychographics (perceived consumer effectiveness and environmental concern), liberalism, and demographics. Results of the research conducted by Roberts (1996) found that demographics and liberalism explained very little of the variance. Therefore, to be parsimonious these variables will not be included in this study.

Ecologically conscious consumer behavior. Roberts (1996) tested ecologically conscious consumer behavior using scale items relating to various aspects of behaviors that are performed with environmental preservation in mind. While results varied, the author found that behavior among consumers was changing to reflect a more pro-environmental outlook that guided actions.

Perceived consumer effectiveness. Perceived consumer effectiveness is the measure of the consumer's judgment regarding their ability to have an impact on environmental problems (Antil & Bennett, 1979). Maibach (1993) suggested that higher levels of self-efficacy positively impacts one's perceived consumer effectiveness. In addition, Berger and Corbin (1992) revealed that levels of perceived consumer effectiveness have a direct influence on the actions of the consumers.

Environmental concern. Concern for the environment is shown to have a direct correlation to consumers who are more ecologically conscious (Kinnear, Taylor, & Ahmed, 1974). While preservation of the environment may increase levels of consumer concern, there is a segment of the population that feels environmental preservation is the responsibility of the government or business, or that the cost of being ecologically conscious is too high (Maibach, 1993). Therefore, while high levels of environmental

concern exist there is a need to determine factors that are a stronger influence on the behavior of the ecologically conscious consumer.

Self-Reflection. Self-reflection is identified by Bandura (1986) as a unique trait of humans. Consumers can reflect upon past experiences to form a course of action that drives behavior. Courses of action based on previous experiences can motivate or discourage consumers in their behaviors. Therefore, self-reflection is used in this study to determine if social learning has an impact on the ecologically conscious consumer.

Willingness-to-pay for sustainable products

A consumer's willingness-to-pay for sustainable products is an additional predictor of the likelihood to purchase sustainable products that is addressed in this study. Sustainable products typically carry a premium, so in order for consumers to purchase them it is important to study what is an acceptable premium they are willing to pay (Anderson & Hansen, 2004). This research utilizes research conducted by Laroche et al. (2001) to identifying variables that affect a consumer's willingness-to-pay.

Components that Comprise Willingness-to-pay.

Laroche et al. (2001) identified correlates of willingness-to-pay for sustainable products as: demographics, values, attitudes, environmental knowledge, and behaviors. A similar finding noted in the previous section was that demographics were a poor predictor of a consumer's willingness-to-pay. In addition, behaviors are included as a first order construct of the ecologically conscious consumer. Therefore, demographics and behaviors were not included as constructs in this study to achieve parsimony in the theoretical model.

Defaults. One additional construct that was tested to determine willingness-to-pay is defaults. Defaults are programs that consumers are enrolled in automatically. To opt-out of a program in which they are automatically enrolled, consumers must voluntarily take action to do so. Thus, defaults are mandated choices imposed on consumers. Typically, defaults are a deviation from a choice consumers would normally have selected to one they are automatically placed in without choice (Brown & Krishna, 2004). Although defaults may not be the choice consumers would have normally selected, Sunstein and Thaler (2003) found that consumers were often reluctant to opt-out or search for alternatives.

Attitudes. Attitudes are one's beliefs about an object or situation that has the likelihood to lead to the intent to act based on these beliefs (Rokeach, 1968). While positive attitudes have the potential to increase the likelihood to purchase sustainable products, measuring their influence has to be conducted with specificity (Follows & Jobber, 2000).

Values. Values are goals that act as guiding principles shown to shape behavior based on the level of importance placed upon them (Schwartz, 1994). While values and attitudes are closely related, attitudes are based on one's values (Follows & Jobber, 2000). Once values are learned they become part of one's value set and thus influence behavior. Therefore, positive values toward the use of purchasing sustainable products can greatly influence the likelihood of purchase.

Eco-literacy. Eco-literacy is a construct developed by Laroche, Toffoli, Kim, and Muller (1996) to assess consumers' abilities to identify ecologically significant symbols, understand ecological concepts, and measure ecological behaviors. Eco-literacy gives

researchers a more objective means to determine the effect environmental knowledge has on behavior (Stutzman & Green, 1982). Laroche et al. (2001) found that eco-literacy was a poor predictor of willingness-to-pay for sustainable products. Therefore, Laroche et al. (2001) suggest that future research should be conducted to find additional variables that more accurately predict willingness-to-pay on the part of consumers.

Eco-labels. Eco-labels contain environmentally significant information indicated on a product's label to inform consumers. Thøgersen (2000) tested the impact eco-labels have on consumer purchase behavior. The author found that eco-labels positively affected purchase behavior and predicted consumers who exhibited higher levels of environmental concern. Therefore, eco-labels and eco-literacy are examined to determine if they enhance the predictive power of the environmental knowledge construct and more accurately predict willingness-to-pay for sustainable products, as called for by Laroche et al. (2001).

Sustainable consumption

The final predictor of the likelihood to purchase sustainable products that is examined in this study is sustainable consumption. Sustainable consumption is made up of two behaviors recycling frequency and consumption reduction of solid waste on the part of businesses and consumers (Oskamp, 2000). These behaviors are relevant because sustainable consumption can help reduce the depletion of natural resources, lower pollution, and identify ways to recycle products that still have usefulness. A major threat to practicing sustainable consumption, as identified in the literature, is overconsumption on the part of consumers in developed nations. Products in developed countries represent symbolic meaning of one's status and social class, so practicing sustainable consumption

is counterintuitive to consumers (Cooper, 2005). Therefore, the need to extend research to identify ways to promote sustainable consumption and alter the marketing message to make it more acceptable will benefit the preservation of Earth for future generations.

The First Order Construct of Recycling Frequency.

The construct of recycling frequency was measured using the scale devised by Sidique, Lupi, and Joshi (2010). That scale pertains to this study as it relates not only to recycling behavior, but also to the effect that familial influences have on recycling. Family influence is part of the theoretical foundation of this research and its influence was also tested.

The First Order Constructs of Consumption Reduction–Waste Reduction and Consumption Levels.

A review of the literature revealed that consumption reduction is influenced by reducing waste (Barr, Gilg, & Ford, 2001) and consuming less (Cooper, 2005). Reducing waste and consumption are a two prong approach on the part of businesses and individuals. Excessive packaging, rapid developments in technology and using material possessions as a means to establish social class status signal reasons why consumption levels are high. Ways to alleviate excessiveness must be discovered in order to enable consumers to consume products at a level that will reduce rapid depletion of finite natural resources.

Waste reduction. Reducing waste on the part of consumers is driven by various reasons. Ebreo, Hershey, and Vining (1999) identified several reasons for engaging in waste reduction behavior, including monetary gain and environmental preservation. In addition, the authors found that future consequences scores as measured by the

Consideration of Future Consequences scale (Strathman, Gleicher, Boninger, & Edwards, 1994) were a better predictor of waste reduction behavior than lifestyle or economically motivated factors. Additional suggestions for improving waste reduction behavior include refilling products (Oskamp, 2000), limiting the amount of packaging (Porter & Van der Linde, 1995), and more bottle return legislation (Kahhat et al., 2008).

Consumption levels. The consumption level of goods on the part of developed countries poses a major problem for environmental preservation (Wackernagel & Rees, 1997). The use of consumer goods often represents a consumer's social status, personality, and group affiliation. In addition, rapid product development and improvements have created a "throw-away society". While it may seem impossible to curtail the level of consumption, products must be developed to increase longevity, recyclability, and durability (Cooper, 2005).

Theoretical Foundation of this Study

This research utilizes social cognitive theory as the theoretical foundation. Social cognitive theory is an observational learning theory that represents an alternative approach to studying sustainability. It focuses on how behaviors are influenced by observing others, as well as how these observations shape social behaviors and cognitive processes (Bandura, 1986). What is unique about social cognitive theory is the introduction of self-efficacy beliefs, which enable individuals to pursue actions they feel they can accomplish by observing the actions of others (Bandura, 1977). For example, if recycling behavior is perceived to be easily accomplished by an individual observing another's actions, the individual may replicate this behavior at some point in time because they feel they can be successful in achieving this goal if they are motivated to do

so. In addition, using social cognitive theory is a response to Henry (2009) calling for more theoretical development of how sustainability is learned through social cognitive theory.

Research Objectives

The following objectives of this research are listed below:

1. Gain a deeper understanding of how behavior, self-reflection, and psychographics (perceived consumer effectiveness and environmental concern) define the ecologically conscious consumer. The use of self-reflection is a contribution to the literature and answers a call by Grant et al. (2002) to test it in areas of research outside of psychology.
2. Augment the work of Laroche et al. (2001) by determining if eco-labels strengthen environmental knowledge and the predictability of willingness-to-pay.
3. Extend the research conducted on sustainable consumption (recycling frequency and consumption reduction).
4. Extend the research conducted on the likelihood to purchase sustainable products by using a social cognitive theory (Henry, 2009). An additional contribution is using self-efficacy as a mediator. The use of self-efficacy as a mediator is a unique approach, as a review of the literature failed to find previous empirical research that utilized it as a potential explanation of the strength of the relationship between the three independent variables and the dependent variable.
5. Test the theoretical model and gain insights into the relationships among the constructs.

6. Offer suggestions from the findings to help marketers address ways in which sustainable products will be purchased more frequently in order to reduce the halo effect and stop planetary degradation.

Organization of the Study

Likelihood to purchase sustainable product research has traditionally focused on purchase intentions and reasons why consumers choose to buy or not to buy sustainable products (Laroche et al., 2001; Wong, Turner, & Stoneman, 1996). This stream of research has provided many insights into determining sustainable product behavior but little effort has been devoted to how learned knowledge, and social and individual aspects of knowledge, affects buying behavior (Henry, 2009). This study contributes to a better understanding of the likelihood to purchase sustainable products by examining how sustainability is learned and if this learned behavior influences buying behavior.

The current study is organized into five chapters. The first chapter describes an overview of sustainability, objectives of this research, and introduces the conceptual framework of this study. Chapter two is a review of the literature discussing the major constructs of the research and the applicable hypotheses. The chapter reviews topics such as ecologically conscious consumer behavior, willingness-to-pay, sustainable consumption, self-efficacy, and the likelihood to purchase sustainable products. Chapter three provides an overview of the research methodology, the development of the survey instrument, the data analysis approach, and the justification for this analysis. Specific topics included in the chapter include data collection, sample size, power analysis, and the use of structural equation modeling to measure the relationship proposed in the theoretical model. Chapter four provides an overview of the statistical analysis and

findings. Chapter five summarizes the implications of these findings, limitations and suggestions for future research.

CHAPTER 2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Overview

Chapter Two presents a comprehensive review of the literature focusing on the likelihood to purchase sustainable products. The constructs to be used and their relationships to likelihood to purchase sustainable products reflect past research findings, and new relationships that were tested to extend the literature (see Appendix F for a comprehensive review of the literature contributing to this study). In addition to the review of the literature, Chapter Two explains the theoretical model and present the rationale to support the hypotheses relevant to gaining a better understanding of factors that potentially influence the likelihood to purchase sustainable products.

A Review of the History of Environmental Awareness by Businesses and Consumers

Environmental awareness and the impact the firm and its products have had on the eco-system has been noted since the 1960s (Henion & Wilson, 1976). In the 1970s the focus shifted to looking at ways environmental awareness could translate into products that address the environment. This shift was termed ecological marketing. Ecological marketing was concerned with how marketing activities cause environmental problems, and how businesses could provide a remedy to solve ecological problems (Henion & Wilson, 1976). Peattie (2001b) describes the characteristics of ecological marketing as:

1. Narrowly focused on environmental problems.
2. Identifying the particular products, companies or industries causing the environmental problems, or proposing solutions to correct them.
3. Increasing the number of governmental regulations through legal action.

To achieve a greater level of ecological behavior, governmental regulations were imposed on businesses. Legal requirements placed on businesses to comply with governmental regulations designed to minimize their impact on the environment were termed “end-of-pipe” improvements. In short, companies tried to minimize the amount of pollution they generated through their manufacturing processes at the end of the process versus in the initial design (Hart, 1995). Most companies viewed the increase in governmental regulations as a hindrance to their business practices but some forward-looking companies embraced these practices, and as a result found favor with consumers. Examples of these businesses include Ben & Jerry’s, The Body Shop, and 3M (Peattie, 2001a) .

A series of catastrophes in the 1980s prompted environmentalists to call for changes that would motivate firms and consumers to be more conscientious (Brundtland, 1987). Examples of these environmental catastrophes include the Bhopal tragedy in 1984; the discovery of a hole in the ozone layer in the Antarctic in 1985; the nuclear disaster at Chernobyl in 1986; and the Exxon-Valdez oil spill in Alaska in 1989. These events brought to light the vulnerability of the environment and human life (Peattie, 2001b).

Another contributing factor that increased the impact of environmental disasters on consumers was the advent of 24/7 news coverage. People were exposed to real time news coverage of catastrophic events and this led to a heightened awareness of the devastation caused by the disasters. Instant awareness of disasters helped to emphasize the need for environmental protection as well as encourage businesses to focus on measures they could take to prevent disasters (Roberts, 1996).

A Shift in Focus from Concentrating Solely on the Environment to Sustainability

The term “sustainability” was coined in the Brundtland Report presented in 1987 at the World Commission on Environment and Development. The Brundtland Report had a significant impact on the call for sustainable practices of both businesses and consumers. A major outcome of this report was the call for social, economic, and environmental considerations to achieve sustainable development (Brundtland, 1987).

Sustainability concerns address the consumption and production of goods that do not deplete natural resources at a rate faster than they can be replenished. Sustainable marketing focuses on the reduction of pollution and waste at a level that can be safely absorbed by the environmental ecosystem (Peattie, 2001b). The call for sustainability was significant because it helped to synthesize consumer needs regarding environmental, societal, and economic well-being by companies. These three factors of sustainability were previously addressed individually, and trade-offs occurred, thus reducing their impact on businesses and consumers. Traditionally businesses focused strictly on financial strategies to ensure economic return to shareholders, as well as employees (Banerjee, 2002). This limited, single-bottom-line approach was expanded to include both social and environmental impacts of business to create a triple-bottom-line

approach. Thus, the triple-bottom-line approach focuses on economic returns, social impact, and environmental dimensions of sustainable development to harmonize the traditional single bottom-line approach by addressing seven dimensions of the traditional economic aspects of quality and social justice. The seven dimensions include: markets, values, transparency, life cycle technology, partnership, time, and corporate governance (Elkington, 1998). Banerjee (2002) described the triple-bottom-line approach as a controversial derivative of sustainable development while Nidumolu et al. (2009) suggested there are no other alternatives that achieve similar goals.

Sustainable development is defined as “a process of change in which the exploitation of resources, direction of investments, orientation of technological development, and institutional change are made consistent with future as well as present needs” (Brundtland, 1987, p. 46). In order to practice sustainable development, firms need to have environmentally focused corporate management, social equity through corporate social responsibility, and economic prosperity through value creation. Discussions about sustainability coalesce around these three principles and cannot be effective without the interaction with each other (Bansal, 2005).

Sustainability is a global issue that seeks to improve and sustain our environment (Schmidheiny, 1992). The world has a finite number of natural resources. Countries that consume and expend at a greater level than others are a burden to future generations (Bandura, 2007; Brundtland, 1987). The practice of reducing solid waste and recycling are ways to sustain and improve our world (Oskamp, 2000). A relevant consideration to the demands on global finite resources is the level of economic prosperity being experienced by China and India. As consumers in these countries obtain greater wealth,

there will be an increase in purchases of goods, increased pollution and a greater need for energy (Hubacek et al., 2007). Thus, future global demand for limited natural resources, increased pollution and energy consumption require a sustainability imperative.

More recent calls for sustainability have shifted from the end-of-pipe pollution cleanup of the 1970s towards using clean technology. Clean technology seeks to reduce or eliminate pollution in the design, as opposed to post-production (Klassen & Whybark, 1999). The call for clean technology is exemplified by the introduction in recent years of hybrid vehicles, alternate energy, and increases in mass transit.

Marketing's Influence on Green Consumer Products and the Need to Expand the Research

The concept of the “green consumer” was introduced as the type of consumer that is motivated by minimizing their impact on the environment when making purchasing decisions. Elkington, Hailes, and Makower (1990) developed *The Green Consumer Guide* and defined green consumers in terms of their tendency to avoid products that:

1. Endangered the health of others.
2. Significantly damaged the environment in the use, disposal, and production of goods.
3. Increased waste through over packaging, unnecessary features, and short life spans.
4. Used raw materials from endangered species or threatened the environment.
5. Involved cruelty to animals.
6. Adversely affected other countries.

The green consumer concept was popular initially but then consumers seemed to lose interest. Research revealed that a contributing factor to the decline in green marketing was cynicism displayed by consumers toward green products, green claims, and the companies producing these goods (Kangun, Carlson, & Grove, 1991). The late 1990s brought about a shift from the early focus on environmental sustainability to incorporating social, economic, and environmental sustainability into corporate strategy.

While sustainable development offers firms a competitive advantage in the marketplace (Chabowski, Mena, & Gonzalez-Padron, 2011), research on sustainability needs to go further to understand the underlying constructs that lead to sustainable actions (Campbell, 2007; Castello & Lozano, 2009). Moreover, Belz (2006) contends that as we have entered the 21st century there is a need for theory development since we still do not fully understand in practice how sustainable marketing functions.

The Theoretical Model to Be Used For This Study

The components of the theoretical model proposed for this study were defined in Chapter One. The theoretical model is comprised of first, second, and third order constructs that describe the variables used in this research. All the relationships in the model are reflective in nature (see below). The ultimate dependent variable is a second order construct which is reflective of the social, economic, and environmental importance of the likelihood to purchase sustainable products.

The theoretical model consists of three predictor variables: the ecologically conscious consumer, willingness-to-pay, and sustainable consumption. The ecologically conscious consumer is a second order construct defined by the first order constructs of

ecologically conscious consumer behavior, self-reflection, perceived consumer effectiveness, and environmental concern.

Willingness-to-pay is a third order construct defined by the second order constructs defaults, attitudes, values, and environmental knowledge. Environmental Knowledge is a second order construct comprised of the first order constructs eco-literacy and eco-labels.

Sustainable consumption is a third order construct defined by the first order construct recycling frequency and the second order construct consumption reduction. The first order constructs of consumption reduction include waste reduction and consumption levels.

The dependent variable of likelihood to purchase sustainable products is a second order construct defined by three first order constructs (social, economic, and environmental importance). In addition, the mediator of the theoretical model is self-efficacy. Self-efficacy is proposed to mediate the relationship between the three independent constructs and likelihood to purchase sustainable products. Moreover, the theoretical model to be tested suggests a direct relationship to be tested between the three predictor variables and the ultimate dependent variable (see Appendix B).

Development of Research Hypotheses

Purchase behavior for environmentally friendly products has evolved from general concerns over pollution (Henion & Wilson, 1976) to focusing on more specific measures of the likelihood to purchase sustainable products (Bamberg & Moser, 2007; Schwartz, 1994). Ultimately, it is the responsibility of the current generation to preserve

the planet and not over consume natural resources for subsequent generations. A key way to accomplish this objective is through the modification of purchase behavior.

While the need to be more sustainable in purchase behavior is evident from past research (Cleveland, Kalamas, & Laroche, 2005; Ottman, Stafford, & Hartman, 2006), a disconnect takes place between actual and intended behavior (Wheale & Hinton, 2007). The predominant theories studying likelihood to purchase sustainable products are the theories of reasoned action and planned behavior (Hines et al., 1987). The foundations of these theories are a relationship between attitudes and behaviors, and environmental factors that influence the outcome of one's actions (Ajzen, 1991; Ajzen & Fishbein, 1977). Henry (2009) called for future research to investigate the likelihood to purchase sustainable products through the theoretical foundation of social cognitive theory (Bandura, 1977, 1986). There is also a need to address refinement in the extant literature to gain a better understanding of the likelihood to purchase sustainable products. In light of these developments, the primary objective of this study is to address the following major research question.

RQ: What factors influence the likelihood to purchase sustainable products?

How the Constructs are Measured

As indicated above, all the constructs used in the theoretical model are reflective. To test the hypotheses using the statistical method Partial Least Squares-Structural Equation Modeling, the values of the path coefficients between the items and constructs were evaluated after bootstrapping. Path coefficients with values greater than 1.96 indicate a 0.05 level of significance, while coefficients between 1.645 and 1.95 represent

a 0.10 level. Moreover, directional hypotheses greater than 0.98 one-tailed indicate a 0.05 level of significance.

Ecologically Conscious Consumers: Who They Are and What Motivates Their Behavior?

The first predictor variable used in this research is the ecologically conscious consumer. Past research has sought to identify the ecologically conscious consumer by testing various correlates. Past correlates include personal norms (Thøgersen, 1999), attitudes (Roozen & De Pelsmacker, 1998; Shrum, McCarty, & Lowrey, 1995), demographics (Anderson & Cunningham, 1972), psychographics (Wells, 1975), product attributes (Follows & Jobber, 2000; Pickett-Baker & Ozaki, 2008), perceived consumer effectiveness (Berger & Corbin, 1992; Ellen et al., 1991), and environmental concern (Roberts & Bacon, 1997). These correlates have been used with varying success to determine the ecologically conscious consumer.

One additional correlate that was used is self-reflection. The current study proposes that self-reflection is associated with the ecologically conscious consumer. The premise for using self-reflection is supported by its grounding in social cognitive theory and similarities to perceived consumer effectiveness, a key predictor of ecologically conscious consumer behavior (Roberts, 1996). Individuals use self-reflection to make sense of their experiences, self-beliefs, insights, and self-evaluation (Bandura, 1991b). The inclusion of self-reflection is a response to a call by Grant et al. (2002) to measure the potential predictor variable of the likelihood to purchase sustainable products. Therefore, ecologically conscious consumer is a second order reflective construct

comprised of four first order constructs: environmental concern, behavior, self-reflection, and perceived consumer effectiveness.

It should be noted that this study does not test the relationship between the ecologically conscious consumer and willingness-to-pay. Instead, the two constructs are used in this research as predictors of likelihood to purchase sustainable products. The literature reveals, however, that there is a correlation between these constructs (De Pelsmacker, Driesen, & Rayp, 2005; Laroche et al., 2001; Straughan & Roberts, 1999; Vlosky, Ozanne, & Fontenot, 1999) and future testing of their relationship may be warranted to gain a further understanding of their contribution to the theoretical model.

The current study tests the significance of the relationship between the ecologically conscious consumer and the likelihood to purchase sustainable products. The premise for this relationship, as indicated by the literature, is that the more positive the ecologically conscious consumer the greater the likelihood that they will purchase sustainable products.

Hypothesis 1: There is a positive relationship between the ecologically conscious consumer and the likelihood to purchase sustainable products.

Ecologically Conscious Consumer Behavior

Roberts (1996) indicates that determining the ecologically conscious consumer's consumer behavior is essential to grasp who purchases products that have a positive or negative impact on the environment. In support of testing the effect behavior has on the likelihood to purchase environmentally friendly products, Roberts (1996) found that behavior explained 46 percent of the variance. Therefore, behavior is included in this study as it has been shown to be a key component in determining who the ecologically

conscious consumer is. Specifically, it is proposed that the level of exhibited behavior has a direct impact on identifying individuals who are more likely to purchase sustainable products.

Hypothesis 2: The relationship between the ecologically conscious consumer and ecologically conscious consumer behavior is positive.

Psychographics

Psychographic and demographic variables have been used individually to characterize sustainable consumers and to predict their subsequent behavior (Firat, 2009; Tucker, Dolich, & Wilson, 1981; Wells, 1975). Initial attempts to identify ecological consumers took place in the 1960s using demographic variables (Berkowitz & Lutterman, 1968). Later research revealed that the level of ecologically conscious consumer behavior is directly related to purchase behavior (Wells, 1990). While the use of demographic and psychographic variables dominated much of the research investigating the ecological consumers, results using these correlates separately have not produced consistent findings.

A major breakthrough came when Roberts (1996) tested both demographic and psychographic correlates of ecologically conscious consumer behavior. The author's work combined five demographic variable – gender, age, income, education, and occupation – with three psychographic variables that accessed perceived consumer effectiveness, environmental concern and liberalism. Demographic correlates predicted only 6% of the variance, while psychographic correlates explained 45%. The findings supported earlier research indicating that demographics are not a reliable predictor of

ecologically conscious consumer behavior, while the addition of psychographics enhances the results (Anderson & Cunningham, 1972).

One of the best predictors of ecologically conscious consumer behavior is perceived consumer effectiveness (Roberts, 1996) first examined by Kinnear et al. (1974). Perceived consumer effectiveness is a construct similar to self-efficacy in which strong feelings toward being able to accomplish a goal will motivate an individual to act upon their desires. Two additional psychographic variables identified by Roberts (1996) are environmental concern and liberalism. For this study, liberalism was not measured as a component of the ecologically conscious consumer behavior scale since it was not a significant contributor in previous research. Therefore, environmental concern and perceived consumer effectiveness was utilized as they have been found to be significant in similar studies.

Hypotheses 3a: There is a positive relationship between the ecologically conscious consumer and perceived consumer effectiveness.

Hypotheses 3b: There is a positive relationship between the ecologically conscious consumer and environmental concern.

Self-Reflection

Individuals use self-reflection to understand their experiences, self-beliefs and insights, and to perform self-evaluation (Bandura, 1991a). Bandura (1986) suggested that self-regulation alters one's cognitions and behaviors through past experiences to benefit future actions. Self-reflection was measured using the Self-Reflection and Insight Scale developed by Grant et al. (2002). This scale is an extension of the Private Self-Consciousness Scale of Fenigstein, Scheier, and Buss (1975). The scale captures a more

accurate assessment of self-reflection by more precisely measuring positive and significant aspects of psychopathology through rumination versus constructive self-reflection. The self-reflection and insight components of the scale are independent of each other and this independence is based on the idea that individuals can self-reflect and gain insights that are not contingent upon each other (Grant et al., 2002).

Grant et al. (2002) suggest that future studies should further develop the scale by extending it to other research contexts. The addition of self-reflection scale in this study is an extension into marketing in the hope of determining who the ecological consumer is and extending our understanding of socio-cognitive and meta-cognitive processes that lead to individual change. In addition, Grant et al. (2002) revealed that in order for individuals to achieve goals and self-regulated demands, they must be cognitively flexible. The authors further explained that to achieve cognitive flexibility, one must be aware of options available, be adaptable, and possess high level of self-efficacy.

Hypothesis 4: There is a positive relationship between the ecologically conscious consumer and self-reflection.

Willingness-to-Pay on the Part of Consumers for Sustainable Products

Consumer concern for the environment is illustrated by their willingness to purchase ecologically friendly products (De Pelsmacker et al., 2005; Vlosky et al., 1999). Ecologically friendly products typically carry a premium price, so consumers must decide if their actions are justified in helping to conserve our planet by paying more for these goods.

Willingness-to-pay is the second predictor variable of the conceptual model and is based on research conducted by Laroche et al. (2001) that identified five variables including demographics, attitudes, values, environmental knowledge, and behavior.

Demographics and behaviors were reviewed in the previous section on ecologically conscious consumers. Eco-literacy was a variable used in previous research to test environmental knowledge (Laroche et al., 1996) but was found to produce mixed results. As a means to increase the predictability of environmental knowledge on willingness-to-pay this current study included eco-labeling (Anderson & Hansen, 2004; Thøgersen, 2000). Eco-labeling provides a means to test not only previous environmental knowledge, but to also provide information at the point of sale in hopes of gaining a better perspective of the likelihood to purchase sustainable products. The use of eco-labeling also has theoretical support from social cognitive theory through the use of symbolism to enhance the extraction of prior knowledge, gain new knowledge, and use cognitions to solve a problem.

Another variable that has only been researched on a limited basis in terms of influencing a consumer's willingness-to-pay for sustainable products is defaults. This study included defaults to assess their influence on a consumer's willingness-to-pay. Therefore, the independent variable of willingness-to-pay for sustainable products includes: defaults, attitudes, values, and environmental knowledge (eco-literacy and eco-labels).

Hypotheses 5: There is a positive relationship between willingness-to-pay for sustainable products and the likelihood to purchase sustainable products.

Defaults and Their Effect on Willingness-to-pay for Sustainable Products

Defaults are another variable that was included in willingness-to-pay. Defaults are alternatives that consumers receive when they choose not to opt out of, or request to change a program they are enrolled in (Brown & Krishna, 2004).

A study conducted by Johnson and Goldstein (2003) found that when organ donations were the default in Austria, 99 percent of the citizens accepted this option and did not opt-out. In comparison, only 12 percent of Germans when given a choice to opt-in to organ donations accepted this option. When consumers are not familiar or lack product knowledge, defaults are more influential (Sunstein & Thaler, 2003). Defaults have a positive effect on consumers saving them time, effort, and money. They are effortless in that they do not require a commitment to seek alternatives and act. In many cases the choice to use a different option may be cheaper, but the cost to opt-out is more expensive so consumers will not select this alternative. Thus, defaults have been found to strongly influence behavior (Pichert & Katsikopoulos, 2008). Pichert and Katsikopoulos (2008) conducted a study utilizing green electricity as the default to gray electricity as the cheaper alternative to opt into. The results revealed that when given the choice to opt-out of the more expensive default, green electricity to the less expensive gray electricity, consumers often stayed with green electricity.

A similar study conducted by Kaenzig, Heinzle, and Wüstenhagen (2012) to determine if consumers were willing-to-pay a price premium for green electricity over their current default brown electricity. The results indicated that consumers' greatest preference was for wind and the green power mix over other less sustainable choices. Willingness-to-pay for the same consumer preferences was also tested. Results revealed that respondents indicated a higher likelihood of willingness-to-pay for wind and green power mix.

Overall, the respondents prefer the wind and green power mix and are willing-to-pay for them, so Kaenzig et al. (2012) suggests that making them the default was a logical step. This suggestion is supported by Sunstein and Thaler (2003) who found that consumers are reluctant to switch from their default or search for alternatives. Therefore, by making the green power mix the default may help both the producers of electricity and efforts to be more sustainable. Hypothesis 6: There is a positive relationship between the use of defaults and willingness-to-pay for sustainable products.

Attitudes and Their Relationship Toward Willingness-to-pay for Sustainable Products

In the early 1970s, studies were conducted to examine consumer pro-environmental behaviors (Anderson & Cunningham, 1972; Antil & Bennett, 1979; Henion & Wilson, 1976). The initial focus was on the relationship between environmental knowledge and environmental attitudes, and whether they might be related to pro-environmental behavior. Attitudes are one's beliefs about an object that has the likelihood to lead to an intention to act upon these beliefs (Rokeach, 1968; Schwartz, 1992). Therefore, in order for sustainability to become more widely accepted, it would be necessary to change attitudes concerning sustainability (Chan, 1996). The shortcomings of this approach were quickly discovered when it was found that increased knowledge did not necessarily affect attitudes or pro-environmental behavior (Antil, 1984; Kollmuss & Agyeman, 2002).

The first significant meta-analysis on environmental behavior was performed by Hines et al. (1987). Hines et al. (1987) conclude that individuals with more positive attitudes would have positive intentions and a higher likelihood to report engaging in responsible environmental behaviors. Their findings also identified two types of attitudes: attitudes toward ecology and the environment as a whole, and attitudes toward taking environmental action. The authors also learned that the relationship between general attitudes and actions was weak, but when measuring specific pro-environmental actions, the relationship was stronger (McCarty & Shrum, 1994; Sherman, 1980).

In response to the call for specificity, Follows and Jobber (2000) tested a model measuring specific attitude-purchase behaviors toward environmental products. They identified three areas to be addressed to more accurately measure environmentally responsible purchase behavior: self-reporting bias (McCarty & Shrum, 1994; Roozen & De Pelsmacker, 1998), clear distinction between environmentally responsible intentions and behavior, and single item measures of purchase intentions. The results revealed that environmentally responsible purchase intention-behavior predicted 74% of the variance. The study confirmed the values-attitudes-intentions-behavior hierarchy and demonstrated that intentions have greater predictability of the likelihood to purchase sustainable products.

A study similar to the environmental behavior meta-analysis of Hines et al. (1987) was conducted by Bamberg and Moser (2007). Their study summarized 40 years of examining variables that affect environmentally responsible product purchase behavior. Their findings supported previous research identifying attitude and intentions as major predictors of the likelihood to purchase environmentally friendly products (Follows &

Jobber, 2000). In addition, the study contributed to the likelihood to purchase sustainable product research by introducing the constructs of moral feelings and self-efficacy. A primary finding of this study was that while self-efficacy was not strongly associated with the likelihood to engage in environmentally friendly purchase behavior, the relationship was significant, thus confirming a role in the current study.

Similar studies were also conducted to determine the attitudinal effect on intentions and subsequent purchase behavior. Alwitt and Berger (1993) investigated how attitude strength and valence impact environmental purchase intentions. The results revealed that valence alone could not be used to change consumer intentions, but attitudinal strengths could. Bamberg and Moser (2007) performed a meta-analysis using the following key words to determine the likelihood to purchase sustainable products: problem, attribution, social norm, guilt, perceived behavioral control, attitude, and moral norm. The results indicated that the most favorable predictors of environmentally friendly behavior were intention, attitude, moral norms, self-efficacy, moral obligations, and perceived behavioral control. In sum, while general attitudes have been found to be poor predictors of behavior, more specific measures have produced meaningful results. Therefore, specific attitudinal correlates should be a better predictor of likelihood to purchase sustainable products.

Hypothesis 7: There is a positive relationship between willingness-to-pay and attitudes.

Values: A Meaningful Predictor of Behavior

Values can be described as one's goals that act as guiding principles to shape behavior depending on the importance placed upon them (Schwartz, 1994). Once values are learned they become part of one's value system, and thus guide behavior (Rokeach,

1979). A comparison between values and attitudes finds that while values are more abstract, they are more stable than attitudes. The two are closely intertwined since attitudes are based on values. Therefore, values act as standards from which attitudes are adopted (Follows & Jobber, 2000). The relationship values have on attitudes and behaviors makes it important to discover the origins of their development as they relate to the independent variable willingness-to-pay.

An extensive review of the literature regarding the origins of values and their effect on attitudes began with the work of Kluckhohn (1951). He identified that while attitudes toward a specific object or situation can be numerous, values that guide actions, judgment, and end-states are few. In a similar study Rokeach (1968) conducted research regarding the relationship between values, attitudes, and behavior. He identified the functional and structural role that attitudes, values, and value systems play within an individual's total belief system. More specifically, he identified values play a more important role than attitudes in shaping behavior because values are more dynamic than attitudes in terms of cognitive, affective, and behavioral components.

The major contribution of this work was the creation of the Rokeach Value Survey (Rokeach, 1973) which has become the most widely used value inventory in consumer research (Munson & McQuarrie, 1988). In summary, the studies conducted by (Rokeach (1968), 1971)) offer evidence that changing values are a prerequisite for changing attitudes and behaviors through consumer dissonance.

Schwartz and Bilsky (1987) studied the effect values have on attitudes and behaviors as determined by an individual's value system instead of single values. Their research sought to develop a theory of universal types of values-biological needs, social

interaction, and demands of society to insure group welfare and survival-that would enable individuals to cognitively interpret their world.

Schwartz (1992) later extended the universal content of values in a two country survey (Schwartz & Bilsky, 1987) that included other refinements of the original work such as a new values instrument and extension of the universal values theory. In addition, the existing theory was modified to address the following areas: value content-tradition, stimulation, power, spirituality, definitions and content of enjoyment, maturity, pro-social, security, and the dynamic structure of value relations. Earlier works represented values as goals sought by the interests of individuals or society collectively (Schwartz & Bilsky, 1987). The final modification involved correcting empirical misrepresentation of instrumental and terminal values. The results of the research indicated that with the exception of spirituality, the remaining universal value types were distinctive. The overall contribution was advancing the work of Rokeach (1973) by testing values in different cultures, and by developing a more effective instrument to measure them (Schultz & Zelezny, 1999; Schwartz, 1994).

The relationship between values and environmental behavior. Values and their effect on environmental behavior have focused on specific orientations. The majority of the research conducted on values focuses on self, others, the world, and how nature benefits mankind. Values that concentrate on self-include egoistic (Schwartz, 1977) and egocentric (Merchant, 1992). Values concerned with others are social-altruistic (Schwartz, 1977). Values that are focused on the world in general include biospheric (Schwartz, 1977), ecocentric (Merchant, 1992) and biospheric-altruistic (Stern & Dietz, 1994). Finally, research on values concerned for nature as it benefits mankind have been

identified as anthropocentric (Merchant, 1992). Thus, past research has measured specific values variables to identify those that more accurately predict behaviors toward the likelihood to purchase sustainable products.

Hypothesis 8: There is a positive relationship between willingness-to-pay and values.

Environmental Knowledge: A Construct in Need of Further Refinement

Studies of the extent to which environmental knowledge predicts behavior have produced contradictory results (Chan, 2001; Kollmuss & Agyeman, 2002). A review of extant literature reveals some significant positive relationships between environmental knowledge and behavior (Hines et al., 1987; Hoch & Deighton, 1989; Kaiser, Wölfing, & Fuhrer, 1999), while other studies have found no relationship (Arbuthnot & Lingg, 1975; Schahn & Holzer, 1990). This inconsistency presents a unique opportunity to examine the impact that environmental knowledge has on the likelihood to purchase sustainable products.

Maloney and Ward (1973) devised one of the first scales to measure the relationship between verbal commitment, actual commitment, affect, and knowledge to gain insight into ecological psychology. The results revealed knowledge did not correlate with other subscales, affect correlated moderately with verbal commitment and actual commitment, and affect correlated for all groups. An additional finding indicated knowledge was not a good predictor of the relationship between humans and nature, and preserving the environment.

The popularity of the ecological scale (Maloney & Ward, 1973) led to refining and shortening it to provide a more practical and efficient instrument for continued research on ecological attitudes and knowledge (Maloney, Ward, & Braucht, 1975). The

findings of this study suggested directions for future research on knowledge and behavior.

In a similar study Schahn and Holzer (1990) added gender differences and environmental concern to predict environmental behavior using two scales would measure both heterogeneous behaviors and insights into cognitions of values and environmental concern. The study provided mixed results. Knowledge was a poor predictor of behavior (Amelang, Tepe, Vagt, & Wendt, 1977; Maloney & Ward, 1973), and if a relationship was present the correlation was small (Arbuthnot & Lingg, 1975; Hines et al., 1987; Kollmuss & Agyeman, 2002). The overall contribution of this research was the ability to measure concepts and topics of environmental concern without producing confounding results, and to gain a better understanding of the effects of environmental knowledge on attitudes and behavior.

In sum, the early work of Maloney and Ward (1973) made a contribution toward studying and understanding environmental knowledge, attitudes, and behavior on the part of social science researchers. It also developed a better understanding of the relationships between the constructs (Amelang et al., 1977; Arbuthnot & Lingg, 1975; Kaiser, Oerke, & Bogner, 2007; Smythe & Brook, 1980).

In an effort to improve the predictability of environmental knowledge, and ultimately willingness-to-pay, Laroche et al. (2001) tested a construct entitled eco-literacy to determine if it was related to environmental knowledge. Their study indicated eco-literacy was not a good predictor of willingness-to-pay and they called for further research to better understand the relationship of environmental knowledge and willingness-to-pay. Therefore, this study seeks to identify if the addition of eco-labels to

the construct of environmental knowledge strengthens the predictability of a consumer's willingness-to-pay for sustainable products.

Hypotheses 9: There is a positive relationship between willingness-to-pay and environmental knowledge.

Eco-literacy: A Specific Measure of One's Ecological Understanding

Eco-literacy measures a respondent's ability to identify ecologically significant symbols, and understand ecological concepts, as well as the extent to which they carry out ecological behaviors (Laroche et al., 1996). Eco-literacy gives researchers a more objective means to measure the effect that environmental knowledge has on behavior by identifying multiple criteria (Stutzman & Green, 1982). Thus, eco-literacy addresses various types of activities that specifically predict ecological behavior (Fisher, 1984).

Development of eco-literacy initially began with an investigation of the influence of culture on knowledge, attitudes, and behaviors (Laroche et al., 1996). The foundation of that study was consumer concerns for the environment and how purchase behavior impacted the ecological balance between man and Earth (Berger, 1993). To gain a deeper understanding of the causal relationships between eco-literacy, attitudes, pro-environmental behavior, and the moderating effect of culture, a structural model was tested. The results revealed that the only significant relationship was eco-literacy was a mediating behavior. Eco-literacy gives consumers knowledge about strategies believed to counter environmental degradation and environmental issues which then influences one's attitudes and intentions via belief systems. This view is similar to social cognitive theory in which one's belief system is shaped by the cognitions of their environment (Bandura, 1986). In the triadic reciprocity proposed by Bandura (1986) knowledge was

shown to affect behavior as well as shape environmental factors in one's life. In sum, while eco-literacy was a good predictor of behavior (Laroche et al., 1996), a follow-up study targeting consumers who would be willing to pay more for environmentally friendly products found eco-literacy was not a good predictor (Laroche et al., 2001). These findings indicated the need for more research to gain a deeper understanding of the effect eco-literacy has on consumers.

Building on the development of the construct of eco-literacy, Laroche et al. (2001) studied the effects of attitudes, values, demographics, behaviors, and eco-literacy on the consumer's choice to pay more for environmentally friendly products. Based on the findings Laroche et al. (2001) suggested that self-reported answers measuring consumers' willingness-to-pay may not be accurate, so studying respondents that actually paid higher prices might produce different results. But Alba and Hutchinson (2000) noted that measuring what people think they know may not be advisable since self-reported measures of consumer behavior have not always proven to be an accurate predictor of knowledge. Thus, while the results have been inconsistent they also suggest identifying other variables that may strengthen the findings to gain a better understanding of the relationship between eco-literacy and willingness-to-pay (Schahn & Holzer, 1990). Hypothesis 10: There is a positive relationship between environmental knowledge and eco-literacy.

Eco-labeling: An Enhancement Toward Strengthening Eco-literacy

The studies reviewed on eco-literacy have produced mixed results, but could eco-labeling be the missing variable that would strengthen the relationship between eco-literacy and willingness-to-pay? Perhaps a solution to overcoming a lack of consumer

prior knowledge is to provide the environmental information on the product labels. This strategy could give the consumer the environmental information needed to increase their likelihood to make an educated purchase decision by having available environmental knowledge at the point of sale.

Thøgersen (2000) devised a psychological model to empirically test when and why consumers utilized eco-labels in their purchase decisions, and to specifically predict the impact labels had on European consumers. The variables of the model included: motivation, pro-environmental attitude, perceived consumer effectiveness, belief in environmentally friendly buying, and trust. The findings indicate consumers who read eco-labels have higher levels of environmental concern, and purchase behavior is positively affected by higher levels of trust and eco-labeling availability. This study helped to determine which pro-environmental attitudes are functions of a consumer's beliefs in purchasing environmentally friendly products. Additionally, it is noted that the use of eco-labels was a function of the consumer's collective priority toward being environmentally friendly and buying sustainable products. Thøgersen (2000) suggested that knowledge gained on the part of consumers from eco-labels would help to increase their awareness of the environmental benefit products offer. Therefore, future research called for the need to test the availability of eco-labeled products and the effect they have on the likelihood to purchase these products.

In support of a call for future research testing the availability of eco-labeled products and the effect on sales, a study was carried out that tested sales of plywood certified by the Forest Stewardship Council versus uncertified plywood (Anderson & Hansen, 2004). The study had two objectives: determine if consumers are more likely to

buy eco-labeled plywood over uncertified plywood at the same price, and would they be willing to purchase the eco-labeled plywood at a two percent premium. The first treatment displayed the eco-labeled and uncertified plywood side-by-side at the same price. The presence of the Forest Stewardship logo as well as the text had a significant impact on sales versus just using a logo (Tang, Fryxell, & Chow, 2004). The second treatment was conducted in a similar manner, except the price for the eco-labeled plywood was two percent higher than the uncertified plywood. The results indicated that when price was the same the eco-labeled plywood sold at a higher rate than the uncertified but when the two percent premium was introduced the uncertified sold at a higher rate. The findings further indicated that when a two percent premium was imposed, price was found to be a better determinant of behavior than eco-labeled product benefits. Thus, more consumers are motivated by financial gains than exhibiting ecologically friendly purchase behavior, but some are willing to pay a premium and a two percent price premium is an acceptable percentage (Anderson & Hansen, 2004).

To review, while eco-literacy results were mixed, prior knowledge held by consumers was an important determinant of their decision making process. Perhaps eco-labeling could reduce the necessity for marketers to rely on past knowledge to stimulate the likelihood to purchase by providing product knowledge at the point of purchase. In addition, eco-labels could provide environmental information that would solve the dilemma of the mixed results reported by Laroche et al. (2001). Therefore, this study combines eco-literacy and eco-labels to strengthen the construct of environmental knowledge to determine if it positively increases the predictability of a consumer's willingness-to-pay for sustainable products.

Hypothesis 11a: There is a positive relationship between environmental knowledge and eco-labels.

Hypothesis 11b: The addition of eco-labels enhances the relationship between eco-literacy and environmental knowledge. That is, when eco-labels are present, eco-literacy has a higher correlation with environmental knowledge.

Sustainable Consumption: The practice of Recycling Frequency and Consumption Reduction

The term sustainable consumption addresses consuming goods at a rate that will not deplete raw materials necessary to experience a comfortable quality of life for present and future generations. For industrialized countries, sustainable consumption poses a problem because over consumption is a way of life. It is estimated that the average citizen needs 5.63 acres of land to sustain their existence. The average United States citizen requires 24 acres, while the average citizen from the United Kingdom requires 13 acres. In a comparison, the average citizen in Mozambique requires 1.15 acres (Schaefer & Crane, 2005). In market driven economies, like the United States, consumers have come to expect rapid product introductions, and thus short product life cycles representing a “throw-away” society (Cooper, 2005). Material goods are used to signify wealth, accomplishment, and social class (Oskamp, 2000). Therefore, the disconnect lies in an environmental need to reduce consumption and recycle products, while marketers emphasize the societal need to over consume in order to define status and live a comfortable lifestyle.

Sustainable consumption research has identified attributes that lead to particular behaviors, including: beliefs (Minton & Rose, 1997; Schlegelmilch, Bohlen, &

Diamantopoulos, 1996), norms (Thøgersen, 1998; Thøgersen & Ölander, 2002), and values (Lin & Huang, 2011; Rokeach, 1971; Schwartz, 1994; Stern & Dietz, 1994).

These areas of research have been addressed in previous sections of this study.

Therefore, we focused on sustainable consumption from the viewpoint of the need to recycle and reduce. The research reveals that recycle and reduction have a greater impact on likelihood to purchase than reuse (Barr et al., 2001; Oskamp, 2000). Reuse has been found to be a poor predictor of likelihood to purchase due to economic prosperity of industrialized countries and marketing (Albinsson, Wolf, & Kopf, 2010). There also needs to be an understanding of why and what motivates consumer consumption (Connolly & Prothero, 2003). The problem may lie in the fact that little empirical research has been conducted on sustainable consumption (Heiskanen & Pantzar, 1997). As suggested by Connolly and Prothero (2003), there may be confusion as to the meaning of sustainable consumption due to the lack of research, and thus contributing to the dilemma of how to measure it. This study empirically measures the independent variables and offer empirical evidence to gain a better understanding of its relationship to the likelihood to purchase sustainable products.

An extensive review of the literature conducted on sustainable consumption found one of the first papers addressing the need for criteria as a basis for developing a theory of responsible consumption was conducted by Fisk (1973). The premise of his research was that a theory addressing responsible consumption must include the need for business leaders to assess the ecological consequences of their managerial decisions, availability of finite resources, the impact of human consumption on the eco-system, Earth's carrying capacity (Bandura, 2002; Oskamp, 2000; Schaefer & Crane, 2005), ecological capital

consumption (Buchholtz, Amason, & Rutherford, 1999; Cooper, 2005), and global warming. To implement responsible consumption, Fisk (1973) suggested: a need for new attitudes toward consumption, social organizations to promote these attitudes, corporate and individual recycling, increased mass transit, consumer demand for post-consumer made products, and the need to recycle and reduce. Therefore, this study defines the constructs that compose sustainable consumption as including: recycling frequency and consumption reduction. The third order construct consumption reduction is comprised of two second order constructs: consumption levels and waste reduction. Consumption reduction is comprised of two first order constructs: consumption levels and waste reduction.

Hypotheses 12: There is a positive relationship between sustainable consumption and likelihood to purchase sustainable products.

Recycling Frequency: The Art of Preserving Resources for Future Generations Through Post-consumer Waste

The need for recycling on the part of consumers has been of great research importance because of the necessity to stop the depletion of natural resources by salvaging usable materials in products that have out lived their functionality. Recycling also reduces pollution, saves energy, alleviates the need to create landfills, and helps provide the resources to produce goods for future generations by limiting immediate natural resource depletion (Oskamp, 2000).

A study examining differences between recyclers and non-recyclers was conducted by Vining and Ebreo (1990). The study focused on knowledge of recycling issues, ranking the arguments for and against recycling, and demographics. The results

revealed that recyclers had greater knowledge of all programs, and they were more knowledgeable regarding the types of materials that could be recycled.

In a similar study, research was conducted identifying behaviors at drop-off recycling centers in Michigan (Sidique et al., 2010). Americans generate 254 million tons of solid waste each year, of which half is deposited into landfills. The main objective of the study was to understand the influence of socioeconomic, demographic, and behavioral factors that characterize recyclers who utilize a drop-of recycling center versus curbside recycling.

The results indicated that on average, recyclers visited the drop-off site 15 times in a year. Twenty-five percent indicated they had curb-side recycling available to them, but they utilized the drop-off sites. Demographics revealed that 74% had at least a bachelor degree, 64% had full-time employment, 70% were married, 26% had some type of environmental agency affiliation, and average annual income was \$77,935 per year. Additionally, recyclers did not believe recycling is difficult, time consuming, required extra storage, or attracted pests. Recyclers agreed that familial expectations, landfill and pollution reduction, conserving natural resources, location of the drop-off center, and being environmentally responsible as reasons to perform this behavior.

A review of the extant literature concerning drop-off recycling programs indicated that cost, convenience, environmental concern and knowledge, attitudes, social norms and family pressure, and socioeconomic status comparing recyclers and non-recyclers were commonly studied themes (Ebreo & Vining, 2001; Oskamp et al., 1991; Vining & Ebreo, 1990).

Hypothesis 13: There is a positive relationship between sustainable consumption and recycling frequency.

Consumption Reduction: The Nemesis of Industrialized Nations

The need for consumers to reduce their consumption habits is of the utmost importance if we are to conserve resources for future generations. This is especially true as China and India grow in prosperity (Hubacek et al., 2007). It is estimated that industrialized nations account for 20% of the world's population and consume more than underdeveloped countries (Schaefer & Crane, 2005). To sustain the current level of consumption in the future, it would take all the resources of Earth (Wackernagel & Rees, 1997). The result of over consumption is that natural resources are being depleted at a rate that future generations may not be able to produce goods because of scarcity. For example, it was estimated that peak oil flow was reached in 2010 (Campbell & Laherrère, 1998). Therefore, products that use oil as a means of manufacturing will be affected by rising prices and the elimination of product offerings as a result of the dwindling supply.

Reduction simply means that consumers must limit their consumption of products and minimize the amount of solid waste in order to sustain the environment. This will enable current generations to share and preserve the planet Earth. While this may seem simple, industrialized countries have been conditioned to over consume due to marketing and social status (Cooper, 2005) based on the use of goods and services (Hansen & Schrader, 1997; Schaefer & Crane, 2005). Therefore, the necessity for consumers to reduce the consumption of goods and limit waste will depend on both self-regulation and changing societal views that goods signify social status. A possible solution may be a combination of self-regulation and advertising to promote vicarious learning emphasizing

the need to reduce consumption to conserve the Earth and natural resources for future generations.

Hypotheses 14: There is a negative relationship between sustainable consumption and consumption reduction.

Waste reduction. A study investigating environmental consumerism was conducted by Ebreo et al. (1999). The overall objective of the research was to determine the respondents' future orientation, reasons for waste reduction, and behaviors. In addition, relationships between demographics and conservation behaviors were examined helping as effort to predict recycling and waste reduction behavior. Telephone interviews were completed in the Champaign-Urbana Illinois area using the twelve items of the Consideration of Future Consequences Scale (Strathman et al., 1994). Two sets of measures for and against waste reduction behavior were assessed by using a scale created by Ebreo et al. (1999). The results of the research reveal similar reasons that people engage or do not engage in waste reduction and recycling. The two top reasons for engaging in this behavior were monetary and environmental related. The bottom two reasons for not engaging in waste reduction behavior were lack of incentives and unimportance. Future consequences scores were related to altruism/internally motivated behavior, but not to economically/externally motivated behavior. Justification and future orientation was not found related to self-reported waste reduction, but rather to recycling behavior. This finding offers evidence that waste reduction and recycling are similar but different behaviors.

The implications of the research provide evidence that educating consumers of the benefits of waste reduction promotes positive behavior. Using consumer friendly eco-

labels worded to educate consumers at the point of purchase has been shown to promote this behavior (Tang et al., 2004). Future consequences were a better predictor of waste reduction behavior than lifestyle/social and economic/externally motivated behavior (Ebreo et al., 1999). From a social cognitive perspective, self-reflection is a means to plot future courses of action based on past experiences. Therefore, individuals reflect on ways to behave in a positive manner to reduce waste through cognitions of past experiences or by using eco-labels.

The work of Ebreo et al. (1999) provides a starting point to advance the theory of waste- reduction and the implications for preserving the environment. The finding that knowledge may be an impetus granting consumers the means to understand their purchase behavior has great implications for reducing the amount of waste that occupies landfills. Manufacturers can offer products that can be refilled (Oskamp, 2000), or limit the amount of product packaging (Porter & Van der Linde, 1995; Schwepker & Cornwell, 1991). Governmental agencies can also play a part through bottle return legislation that encourages reduction in waste through reuse (Kahhat et al., 2008). Knowledge, reflection, manufacturer education, and governmental support are several methods of encouraging responsible behaviors related to waste reduction and reduced landfill usage in the future.

In this study the relationship between consumption reduction and waste reduction is assessed. The literature suggests that consumers who reduce their negative impact on the environment reduces the level of waste generated and recycle more.

Hypothesis 15: There is a positive relationship between waste reduction and consumption reduction.

Consumption levels. The ability to reduce consumption on the part of industrialized nations seems almost impossible (Wackernagel & Rees, 1997). Consumers purchase and use goods for a variety of reasons including identification of social status, personality, and group affiliation. Research conducted on sustainable consumption has shown that consumers who are concerned for the environment recycle and consume green products, and these activities are believed to offset any issue of over consumption (Connolly & Prothero, 2003). A disconnect, however, lies with the inability to separate the differences between recycling what the consumer already has and consuming less (Heiskanen & Pantzar, 1997).

An extensive review of the consumption reduction literature by Cooper (2005) demonstrated that short product life spans, consumer desire to purchase the newest model, attitudes, and behaviors have created a “throw-away” society. Reisch (2001) explained that the problem with a throwaway society is that products are rapidly introduced and have short life cycles. This is evident in the technology product markets as innovation leads to faster introductions and higher rates of obsolescence (Kerr & Ryan, 2001). As long as consumption of rapidly introduced products is high there is no need for consumers to curtail their purchase behavior. Thus, without consumer self-control in regards to consumption this behavior will not change because of expectations to have the “latest and greatest” product (Røpke, 1999). Cooper (2005) suggested that resource throughput must be mandated to reduce the use of raw materials, energy, and waste. He also indicated that generating greater product longevity and improving maintenance would extend product life. To that end, four ideas were proposed to increase resource productivity. The four ideas include: reducing raw material use through prolonging

durable manufacturing, decreasing turnover rates, redesigning products to increase longevity, and reusing the whole finished products or parts of spent products.

A more realistic approach to reducing consumption was suggested by Cooper (2005) and termed the product life span and sustainable consumption model. The model showed that the longer a product's life span, the more sustainable it is because of reduced material and energy throughput. Thus, product durability predicts higher levels of sustainability. To increase the level of sustainable consumption and reduce our consumption levels, Cooper (2005) identified the need to think of products at all stages of life. This process is called life cycle thinking, or "cradle to grave" thinking. Life cycle thinking has three parts that include life cycle assessment, design for longevity, and product life. Life cycle assessment is a framework that assesses the environmental impact of a product at all phases of its life. Design for longevity seeks to manufacture products that are built to high levels of quality and have long life cycles. Product life cycle is a process that tracks the products through their lifetime to give manufacturers information they can use to increase durability (Simon, Bee, Moore, Pu, & Xie, 2001). The three suggestions proposed by Cooper (2005) offer a basis for consumers to reduce their consumption levels. In addition, Agrawal, Ferguson, Toktay, and Thomas (2012) propose to lease items instead of buying them to increase product life cycles. Leasing would eliminate the need for consumers to buy products that are used infrequently, thus utilizing natural resources in a more beneficial manner.

Reducing our depletion of natural resources is a very difficult proposition. Over consumption on the part of industrialized nations is robbing the resources of underdeveloped nations and future generations. Increased consumption is also escalating

the amount of pollution in the environment. Rising population, increasing prosperity in developing countries, particularly India and China, and rising global temperatures indicate that something must be done to reduce our current consumption patterns in order to survive as a planet. While reducing may seem difficult, it can have a positive impact of the social and environmental importance consumers place on their likelihood to purchase sustainable products. Therefore, industrialized nations need to encourage people to change their behaviors and attitudes toward consumption in order to preserve natural resources in the face of the emergence of China and India as economic rivals. While it will prove to be difficult, education and governmental intervention may be the only answers to addressing this issue.

Hypothesis 16: There is a positive relationship between consumption reduction and consumption levels.

The mediating effect of self-efficacy on the relationship between ecologically conscious consumer, willingness-to-pay, sustainable consumption, and likelihood to purchase sustainable products

Self-efficacy

Self-efficacy is at the heart of social cognitive theory. Self-efficacy beliefs are judgments concerning perceived abilities to organize and execute actions to achieve a goal (Bandura, 1977). Self-efficacy provides a basis for motivation, accomplishment, and individual well-being. In the theory of planned behavior (Ajzen, 1991) self-efficacy influenced perceived behavioral control and is comparable to social cognitive theory (Fishbein & Cappella, 2006). Thus, the predecessors to perceived behavioral control,

self-efficacy and social cognitive theory, are relevant concepts for predicting the likelihood to purchase sustainable products.

The use of self-efficacy as a mediator in this study is based on the premise that consumers may exhibit the need to be ecologically conscious, are willing to pay for sustainable products, and consume responsibly as demonstrated by their likelihood to purchase sustainable products. Therefore, if consumers feel that their efforts will impact their sustainable purchasing intentions, they will be more likely to carry out these actions.

The use of self-efficacy as a mediator in other fields is well documented. Self-efficacy has been used a mediator in research conducted on numerous topics, including health (Arnstein, Caudill, Mandle, Norris, & Beasley, 1999; Ott, Greening, Palardy, Holderby, & DeBell, 2000), natural disasters (Benight, Swift, Sanger, Smith, & Zeppelin, 1999), and even athletic performance (Feltz & Straub, 1984). While self-efficacy's use is well documented in various research arenas, its use in research identifying the likelihood to purchase products is almost non-existent. A review of the literature failed to find any articles that represented the relationship as a mediator for likelihood to purchase sustainable products. Choi and Kim (2005) suggested consumer self-efficacy is a potential intervening variable between collectivism and green buying behavior but they never formally test it as a mediator. Therefore, while self-efficacy's application to likelihood to purchase sustainable product research has not been fully recognized, this study tests its relevance as a mediator to determine the effect it has on the relationship between the predictor variables and the dependent variable.

Hypotheses 17: Self-efficacy will mediate the relationship between the ecologically conscious consumer, willingness-to-pay, and sustainable consumption with likelihood to purchase sustainable products.

The Dependent Variable: Likelihood to Purchase Sustainable Products

Following an extensive review of the literature, likelihood to purchase sustainable products was selected as the dependent variable because consumers may not have actually purchased a sustainable product, leading to an incorrect outcome measure (Hines et al., 1987; Schultz & Oskamp, 1996). In addition, likelihood to purchase and actual purchase behavior are separate correlates, they both are related to intentions to act (Ajzen, 1985). Research has shown that there is a reciprocal relationship between intentions to act and likelihood to perform the desired behavior (Chandon, Morwitz, & Reinartz, 2005; Godin, Conner, & Sheeran, 2005; Sherman, 1980).

Likelihood to purchase sustainable products is well documented in consumer behavior research (Laroche et al., 2001; Minton & Rose, 1997; Vlosky et al., 1999), but likelihood to purchase sustainable products has produced mixed results (Carrington, Neville, & Whitwell, 2010). When it was measured with specificity in terms of high and low involvement, however, it was found to be an accurate predictor of behavior (Infosino, 1986; Petty, Cacioppo, & Schumann, 1983). Moreover, likelihood to purchase versus actual purchase behavior has been shown to be a more reliable predictor of behavior because consumers may inaccurately report purchase behavior (Alba & Hutchinson, 2000). Research conducted by Wind and Lerner (1979) found that respondents answered likelihood to purchase questions at a higher percentage than their actual purchase behavior percentage, thus giving more robust results. Therefore, the use of the likelihood

to purchase sustainable products as the dependent variable should provide a good indication of consumer buying behavior.

This study utilizes likelihood to purchase as a second order construct defined by the first order constructs social, economic, and environmental importance. Social, economic, and environmental importance represent the underlying meaning of sustainability as indicated by (Brundtland, 1987). Thus, by measuring likelihood to purchase sustainable products based on the importance placed on the respondent's social, economic, and environmental importance, a more accurate outcome can be obtained.

Hypotheses 18a: There is a positive relationship between likelihood to purchase sustainable products and social importance.

Hypotheses 18b: There is a positive relationship between likelihood to purchase sustainable products and economic importance.

Hypotheses 18c: There is a positive relationship between likelihood to purchase sustainable products and environmental importance.

This study hopes to identify factors that influence the likelihood to purchase sustainable products. Prior research has suggested constructs that are likely to influence this behavior, while areas of future research suggest ways to gain a better understanding of the likelihood to purchase sustainable products. The theoretical underpinnings of this study focus on the personal, environmental, and economic factors that influence the likelihood to purchase sustainable products and the mediating effect self-efficacy has on this relationship.

The next chapter describes the methodology of this study, data analysis methods that was utilized, and the initial questionnaire design. In addition, survey collection

method, study measures, pilot testing procedures, and creation of the final survey after the use of exploratory factor analysis will be reviewed to provide an overview of criteria used to collect the data used for this research.

CHAPTER 3 METHODOLOGY

This study examines the relationships between the dependent variable, likelihood to purchase sustainable products, and three composite predictor variables derived from an extensive review of the extant literature. Most of the constructs for this study are derived from established scales used in previous research. It was necessary, however, to develop two constructs (sustainable consumption and likelihood to purchase sustainable products) that measure unique aspects of this study. More specifically, the three composite predictor variables are: the ecologically conscious consumer, willingness-to-pay, and sustainable consumption. The study also tests the mediating effect of self-efficacy between the three composite predictor variables and the dependent variable. Self-efficacy is a key element in social cognitive theory and a major element of the theoretical foundation for this study. The overall objective of the study is to examine factors that influence the likelihood for consumers to purchase sustainable products as suggested by Henry (2009).

Surveys: Means to Collect Data

Empirical research using surveys is a common method used to investigate likelihood to purchase sustainable products (Laroche et al., 2001; Roberts, 1996; Schlegelmilch et al., 1996). Survey data enables researchers to collect respondent information to empirically test their hypotheses. Therefore, this study collected data to test the hypotheses described in Chapter Two in order to determine factors that influence a consumer's likelihood to purchase sustainable products and advance theory

The survey was administered using Qualtrics software to respondents at a public community college in the Mid-Western United States. No monetary consideration will be offered to the respondents for completing the survey. The survey resulted in no harm to respondents, and no experiments or manipulations were involved in the data collection. The survey results were imported into SPSS software and reviewed for any missing data, outliers, lack of normality, and straight lining. A diverse sample of respondents provided information to facilitate better understanding of the purchase likelihood of sustainable products and services. The instrument used for this study is located in Appendix H.

Institutional Review Board Protocol

This study followed strict institutional review board protocol. The researchers have completed CITI training in order to conduct research that prevents harm to human subjects. Approval to conduct research for this study has been sought through the institutional review boards of Kennesaw State University and the Mid-West Community College, which is where the data was collected from employees. Following successful defense of the proposal, the survey was administered online via Qualtrics to collect data from the community college employees. As described in the institutional review board applications, data collection and storage, and respondent's identity is kept anonymous. Therefore, every effort has been taken to follow institutional review board guidelines for this research and to prevent harm to the participating human subjects (see Appendix C).

Sample: Description of the respondents

The sample for this study was drawn from full and part-time employees of a public community college in the mid-west. The sample excluded students as this has

been criticized in social science research (Cunningham, Anderson, & Murphy, 1974; Gordon, Slade, & Schmitt, 1986). This sample was selected because of the community college's diverse demographics and awareness of sustainability as communicated through a daily internal newsletter. The college reported that 31% of the employees open this daily newsletter. There should, therefore, be widespread awareness on the part of employees of the sustainable efforts being taken by the community college. The sustainable efforts being utilized include: establishing an Office of Sustainability in 2008, creating a sustainability course, and appointing a director to oversee the initiative. More recently, the community college designated all buildings under construction to be LEED certified, replaced all light bulbs with energy efficient characteristics, applied for energy credits for the light bulb replacements, and eliminated the use of the boiler system. The community college signed a 15 year agreement to purchase steam from an outside provider resulting in reduced carbon emissions and savings of \$850,000. In summary, the diversity of employees and sustainable initiatives of the community college should provide rich data to be used for this study (see Appendix I for Final Survey Sample Size Characteristics).

Data Analysis

The statistical method used to analyze the data for this study is partial least squares-structural equation modeling (PLS-SEM). PLS-SEM is a relatively new technique to analyze marketing data first appearing in the early 1980s (Bagozzi, 1994). The origins of the technique, however, can be traced to the first algorithm written by Wold (1975) and later improved by Lohmöller (1989). PLS-SEM is a method of executing structural equation modeling (SEM). Structural equation modeling is a second-

generation statistical technique that combines multiple regression and factor analysis, enabling researchers to simultaneously examine relationships between measured variables and latent (unobserved) variables, as well as between multiple latent variables (Hair, Hult, Ringle, & Sarstedt, 2014).

A similar statistical tool that is also part of structural equation modeling is covariance based-structural equation modeling (CB-SEM) (Hair, Black, Babin, & Anderson, 2010; Hair, Ringle, & Sarstedt, 2011b). CB-SEM was first introduced by Karl Jöreskog in 1973 and is a statistical tool that is recommended to be used when the research objective is to test and confirm (or not confirm) well-developed theory (Hair et al., 2014). CB-SEM has become a dominant statistical approach in marketing, but it is constrained by large models, measurement levels, sample size, model complexity, identification and factor indeterminacy (Chin, 1998; Fornell & Bookstein, 1982). As a result, PLS-SEM, which is not as limited by these constraints, has recently gained attention because of its ability to measure complex models with latent variables in the structural relationships (Wold, 1985).

PLS-SEM applications in marketing have increased in recent years as evidenced by its use in over 400 studies since 1980 (50 of these articles appeared in marketing journals in the most recent year–2011). Contributing factors to its increased popularity are advancements in statistical software and the ability to maximize explanatory power of multiple latent dependent variables (Hair et al., 2011b). When the objective of the research is to develop and assess theory, as well as predict dependent variable variance PLS-SEM is the more appropriate method (Hair et al., 2011b). In addition, PLS-SEM is able to work with a wider range of sample sizes, scale types (both metric and non-

metric), model complexity (larger number of variables and relationships), and constructs with fewer items. Finally, while the underlying calculations are similar to OLS regression, PLS-SEM is able to analyze models with multiple dependent variables whereas multiple regression can predict only a single metric dependent variable.

PLS-SEM fits well with the objectives and characteristics of this study. PLS-SEM works well with exploratory research and complex models, and facilitates results that are reliable and valid. It provides the ability to easily test the mediation effects proposed in the structural model. In summary, PLS-SEM gives this research a method of analysis that is well suited to its strengths in order to provide results that accurately reflect the theoretical model.

Study Measures

Reflective versus formative constructs of the theoretical model. Hair et al. (2014) describe constructs that comprise a measurement model as either reflective or formative. Reflective measurement models consist of constructs that are a representation of all the possible items available within the conceptual domain of the construct. More specifically, all the indicator items are caused by the same latent construct and are highly correlated with each other. Moreover, individual items are interchangeable with one another and single items can be excluded without changing the meaning of the construct. In contrast, formative measurement models consist of constructs that are represented by indicators that cause the construct. Unlike reflective measurement models, the indicators are not interchangeable. Therefore, the constructs capture all of the specific aspects of the domain of the construct.

Hair et al. (2014) provide guidelines to assist in the determination of whether a construct is reflective or formative. When the constructs for this study were evaluated, it was determined that the constructs in the theoretical model explain the indicators. The indicators represent consequences rather than causes and if the trait changes, all items change. In addition, the items are interchangeable with one another. Therefore, based on the criterion established by Hair et al. (2014), all the constructs are reflective (see Appendix J for Criteria to Distinguish Reflective Versus Formative Constructs).

Independent Variables

The three composite independent variables for the theoretical model are shown in Appendix B. These variables emerged from an extensive review of the literature associated with purchasing sustainable products. The three composite independent variables are: ecologically conscious consumers, willingness-to-pay, and sustainable consumption behavior. In addition, ecologically conscious consumers and sustainable consumption behavior was operationalized as second order reflective constructs, while willingness-to-pay is a second order formative construct. Hair et al. (2010) describe the characteristics of a reflective construct as including: items are caused by the construct, items are related conceptually and have a common cause, they are a representative sample of the potential items, collinearity is expected, there must be internal consistency, and there must be the presence of both internal and external validity. They describe characteristics of formative constructs to indicate: the construct are formed by the items, there is no required conceptual linkage, it must possess an exhaustive inventory of all possible items, collinearity is unlikely, there is no requirement for internal consistency, and only external construct validity is required. Correct identification of formative and

reflective constructs is essential to ensure the results are interpreted correctly and the conclusions are accurate (Hair et al., 2010). Moreover, Law and Wong (1999) indicate that incorrectly specifying formative-indicator constructs as reflective-indicator constructs can result in biasing effects on the estimates of the construct relationships. Therefore, proper distinction of the constructs is an essential requirement for producing accurate results.

Ecologically Conscious Consumers

As consumer concern for the environment intensifies, researchers must be able to recognize who the ecologically conscious consumer is in order to segment this market (Roberts, 1996). Extant research conducted on discovering the ecologically conscious consumer has been a widely researched topic. Various ways of classifying the ecologically conscious consumer include: demographics (Berkowitz & Lutterman, 1968), purchase behavior (Wells, 1990), and a combination of both demographics and psychographics (Roberts, 1996). This study measures the ecologically conscious consumer using preexisting scales originated by Roberts (1996) and Grant et al. (2002) (see Table 1 for a summary of the operationalizing of the ecologically conscious consumer).

Table 1: Summarizing the Operationalizing of Ecologically Conscious Consumer

Construct	Scale	Items in the Original Scale	Items used for this Research	Cronbach's Alpha from the Original Scale
Ecologically Conscious Consumer Behavior (ECCB) used as the Dependent Variable	Roberts, (1996) Ecologically Conscious Consumer Behavior	22 questions using a 5-point Likert-type format	14 questions using a 10-point Likert-type format	0.96
Self-Reflection (Lazarsfeld & Katz)	Grant et al., (2002) Self-Reflection and Insight Scale	20 questions using a 1-6 Likert-type format	15 questions using a 10-point Likert-type format	0.91 for Self-Reflection and 0.87 for Insight
Environmental Concern (EC)	Roberts, (1996) Environmental Concern Scale	12 questions using a Likert-type format	10 questions using a 10-point Likert-type format	0.84
Perceived Consumer Effectiveness (PCE)	Roberts, (1996) Perceived Consumer Effectiveness Scale	4 questions using a Likert-type format	8 questions using a 10-point Likert-type format	0.72

Ecologically conscious consumer behavior. This study examines ecologically conscious behavior using the ecologically conscious consumer behavior scale (Roberts, 1996). The scale obtains measures of consumers' attitudinal correlates with their environmentally conscious behavior. In addition, psychographics (consumers' perceived control and environmental concern) was collected to determine how the ecologically conscious consumer can be characterized. Other researchers have collected demographics as part of their research, but this study did not use demographics as it has been shown to be a poor predictor of behavior.

Psychographics. Two attitudinal correlates, perceived consumer effectiveness and environmental concern, was utilized to measure psychographics. Perceived consumer effectiveness measures a consumer's ability to impact environmental issues (Antil & Bennett, 1979). Research has shown that high levels of perceived consumer effectiveness lead to higher levels of socially responsible attitudes and behavior (Ellen et al., 1991; Tucker, 1980). Research conducted by Berger and Corbin (1992) found a positive relationship between perceived consumer effectiveness and ecologically conscious consumer behavior, but the authors noted that further research is needed to investigate this relationship. Therefore, the current study measured this relationship using the scales from Roberts (1996) to provide further insight as suggested by Berger and Corbin (1992).

The second psychographic construct examined in this study is environmental concern, which has been used in a variety of studies (Kinneer et al., 1974; Van Liere & Dunlap, 1978, 1980). This ecologically conscious consumer construct is included to evaluate the impact of the halo effect (Auger & Devinney, 2007) in which environmental concern is not translated into actual purchase behavior. In this study we investigate determinants of likelihood to purchase sustainable products by measuring consumers' level of environmental concern.

Self-reflection. Grant et al. (2002) suggest testing the effect of self-reflection and insight in research domains other than psychology. This study used the self-reflection construct to assess the extent to which it defines the ecologically conscious consumer. Self-reflection is used in social cognitive theory (Bandura, 1986) to describe the dynamic capabilities humans possess. Self-reflection enables consumers to reflect upon their ecological behavior based on observing others or using past experiences to guide their

actions. Therefore, the self-reflection and insight scale (Grant et al., 2002) was included in this study to determine if it predicts the ecologically conscious consumer.

Willingness-to-pay

Research shows that consumer concern for environmental issues is translated into willingness-to-pay for sustainable products (Vlosky et al., 1999). Sustainable products typically carry a premium, so consumers must be willing to accept this in their purchase behavior (De Pelsmacker et al., 2005). In addition, sustainable products typically have a longer life span so consumers need to understand that a premium price can be offset by long term savings over the course of the product's life (Cooper, 2005; Ottman et al., 2006).

The construct willingness-to-pay uses the research of Laroche et al. (2001) as a template. Laroche et al. (2001) tested the following predictor variables to determine a consumer's willingness-to-pay for sustainable products: values, attitudes, demographics, behaviors, and eco-literacy. In contrast, this study concentrates on attitudes, values, and eco-literacy. In addition, the first order construct of eco-labels was added to address the limited predictability of eco-literacy found by Laroche et al. (2001). This study added defaults as a first order construct in predicting willingness-to-pay. Defaults give consumers the opportunity to opt-out of a program in which they have been automatically enrolled (Pichert & Katsikopoulos, 2008). This study uses scales created by Laroche et al. (2001) to measure attitudes, values, and eco-literacy (environmental knowledge). In addition, scales were developed by the author to test defaults and eco-labels (see Table 2 for a summary of the operationalization of willingness-to-pay).

Table 2: Summarizing the Operationalization of Willingness-to-pay

Construct	Scale	Items Used in the Original Scale	Items Used for This Research	Cronbach's Alpha from the Original Scale
Defaults	Developed by the Author for this Research		12 questions using a 100-point Likert-type format	
Attitudes	LaRoche et al., (2001) Willingness-to-pay Scale	14 questions using a 9-point Likert-type format	13 questions using a 10-point Likert-type format	0.73
Values	LaRoche et al., (2001) Willingness-to-pay Scale	9 questions using a 9-point Likert-type format	10 questions using a 10-point Likert type format	0.70
Eco-Literacy	LaRoche et al., (2001) Willingness-to-pay Scale	11 questions using a 9-point Likert-type format	11 questions using a 10-point Likert-type format	
Eco-labels	Developed by the Author for this Research			

Defaults. Defaults are mandated choices imposed on consumers. In other words, consumers enrolled in a particular program must choose to opt out of it (Brown & Krishna, 2004). A review of the research on defaults shows that consumers may opt-out of the default if it takes a minimal effort to research alternatives and avoid service fees to do so (Pichert & Katsikopoulos, 2008). In a similar study, Johnson and Goldstein (2003) found that 99% of Austrian citizens did not opt-out of organ donations, while only 12% of German citizens chose to opt-in. Therefore, this study seeks to determine if consumers are willing to pay more for sustainable products as demonstrated by their opting in or out of the mandated default.

Attitudes. Attitudes are beliefs one has that have been shown to lead to likelihood to act based on the strength of the beliefs (Rokeach, 1968; Schwartz, 1992). Therefore, marketers need to find a means to influence consumer attitudes so that consumers will include sustainable products in their purchase behavior (Chan, 1999).

A review of the literature revealed that measuring general attitudes toward sustainable product purchase behavior produced inconsistent results (McCarty & Shrum, 2001). Reasons stated for these inconsistent results were self-reporting bias (Roozen & De Pelsmacker, 1998), establishing a clear distinction between intentions and behavior, and single measures of purchase intentions (Follows & Jobber, 2000). Therefore, in order for researchers to determine the impact attitudes have on a consumer's willingness-to-pay for sustainable products, attitudes must be measured with specificity (Bamberg & Moser, 2007; Follows & Jobber, 2000)

Values. Values are one's goals that shape their behavior based on their importance to the individual (Schwartz, 1994). Once values are learned and adopted they become part of one's value system (Rokeach, 1979). While values are more abstract than attitudes, values are more stable and thus shape one's attitudes (Follows & Jobber, 2000). Seminal research on values conducted by Lovejoy (1950) found that values, once internalized, guide action, help develop attitudes and become a basis for judging one's self and others.

A review of the extant literature reveals that values, like attitudes, produce robust results when measured with specificity (Schwartz, 1992). Values and their ability to influence environmental behavior have been well researched. Early research studying specific value orientations included: egoistic, social-altruistic, and biospheric (Stern,

Dietz, & Kalof, 1993), ecocentric and anthropocentric (Gagnon Thompson & Barton, 1994), and egocentric, anthropocentric, and ecocentric (Merchant, 1992). Contributing to these earlier works De Groot and Steg (2007) found that altruistic and biospheric values, personal norms and awareness of consequences, and environmental implications were positively correlated between respondents from five countries (Austria, Czech Republic, Italy, the Netherlands, and Sweden). In addition, the authors found that egoistic and altruistic and egoistic and biospheric were not correlated. The three value orientations were not as strongly correlated with awareness of consequences as they were with personal norms. Therefore, research conducted on values has progressed from studying general orientations to specific values in an attempt to determine the influence values have on consumer's behavioral responses toward environmental issues.

Eco-literacy. Eco-literacy is a construct developed and tested by Laroche et al. (1996). These researchers sought to measure a respondent's ability to identify ecologically significant symbols and understand ecological concepts, as well as the extent to which the ecologically significant symbols predict ecological behaviors. The development of eco-literacy emerged following extant research conducted on the relationship between environmental knowledge and purchase behavior that identified a weak correlation between the constructs (Maloney & Ward, 1973).

Initial results of the study conducted by Laroche et al. (1996) found that eco-literacy was a good predictor of environmentally friendly product purchase intentions. In a follow-up study to further test the effect eco-literacy has on environmental product purchase behavior, Laroche et al. (2001) found similar results as reported by Maloney and Ward (1973). More specifically, eco-literacy was a good predictor of intentions, but

not actual purchase behavior (Laroche et al., 2001). The current research answers a call by Laroche et al. (2001) to further test a consumer's environmental knowledge by adding eco-labels with eco-literacy to determine if labels increase the predictability of a willingness-to-pay for sustainable products.

Eco-labels. Eco-labels provide environmentally pertinent information for consumers on the product label or at the point-of-purchase. Research conducted by Thøgersen (2000) found that consumers who read eco-labels have higher levels of environmental concern and that purchase behavior is positively affected because of higher levels of trust and eco-labeling availability. A similar study was conducted to determine if the presence of the Forest Stewardship Council logo stamped on plywood versus unlabeled plywood would impact sales (Anderson & Hansen, 2004). The authors found that when price was identical, customers purchased more of the Forest Stewardship Council branded plywood. When a two percent premium was introduced, a larger amount of the unlabeled plywood sold. The results revealed that although a price premium negatively affected sales; a substantial amount of the Forest Stewardship Council plywood was still sold, thus indicating that a consumer's purchase behavior is representative of concern for the environment. In sum, while eco-literacy was found to be a poor predictor of a consumer's willingness-to-pay for sustainable products, eco-labels have been found to positively influence this relationship. The current study further tests this relationship, contributing to the literature and answering the Laroche et al. (2001) call for additional research.

Sustainable Consumption

Sustainable consumption refers to consuming goods at a rate that will not rapidly deplete the raw materials necessary to experience a comfortable quality of life for present and future generations. A review of the literature reveals that industrialized countries consume natural resources at a very high rate compared to developing countries (Schaefer & Crane, 2005). Material goods are used to display social status, wealth, and accomplishments (Oskamp, 2000). While sustainable consumption may seem easy to describe, extant research indicates that little empirical research has been conducted (Heiskanen & Pantzar, 1997) making it difficult to define and measure (Connolly & Prothero, 2003). Therefore, this current study measures sustainable consumption using the first order constructs of recycling frequency and consumption reduction. These two constructs are a part of research conducted on reduction, reuse, and recycling behavior (Barr et al., 2001; Oskamp, 2000). Previous research reveals that reuse was not a good predictor of sustainable consumption (Albinsson et al., 2010), thus it was not included in the current research model. In order to measure sustainable consumption, this study determines behaviors using scales developed for recycling frequency (Sidique et al., 2010), waste reduction (Strathman et al., 1994), and consumption levels (Cooper, 2005) (see Table 3 for a summary of the operationalizing of sustainable consumption).

Table 3: Summarizing the Operationalization of Sustainable Consumption

Construct	Scale	Items Used in the Original Scale	Items Used for this Research	Cronbach's Alpha for this Research	Other Items of Validity
Recycling Frequency	Sidique, Lupi, & Joshi, (2010) Experience, Knowledge,	18 questions using a 5-point Likert-type	15 questions using a 10-point Likert-type	0.96	KMO=0.841 Four factors explained 70.1% of the variance

	and Attitudes Towards Recycling Scale	format	format		
Waste Reduction	Strathman, Gleicher, Boninger, & Edwards, (1994) Consideration of Future Consequences Scale	12 items using a 6-point Likert-type format	13 items using a 10-point Likert-type format	Range of 0.80 to 0.86	
Consumption Levels	Based on Research Conducted by Cooper, (2005)		9 questions using a 10-point Likert-type format created by the author		

Recycling frequency. Recycling frequency has been shown to reduce pollution, save energy, alleviate the need to create landfills, and help limit immediate natural resource depletion (Oskamp, 2000). Research conducted by Vining and Ebreo (1990) reported recyclers had greater knowledge of environmental issues and materials that could be recycled. In a similar study conducted on drop-off site recycling behavior, Sidique et al. (2010) found that recyclers did not believe recycling is difficult, time consuming, required extra storage, or attracted pests. Moreover, Sidique et al. (2010) reveal that familial expectations, landfill and pollution reduction, conserving natural resources, location of the drop-off center, and being environmentally responsible were reasons to perform this behavior. Therefore, the current study seeks to identify factors that influence recycling and the effect that familial influence has on sustainable consumption.

Consumption reduction. Consumption reduction on the part of consumers is an essential part of being sustainable. However, research has indicated that it is nearly impossible to reshape consumer purchase behavior towards consuming less in industrialized nations (Wackernagel & Rees, 1997). As indicated earlier, goods are used by consumers to signify their wealth, social class, and accomplishments. Therefore, a conflict arises between how to reshape consumer thinking toward not using goods to define their identity as an approach to conserve natural resources (Cooper, 2005). In addition, other factors contributing toward the need to reduce consumption are increased consumer demand for goods in China and India (Hubacek et al., 2007), surpassing peak oil flow (Campbell & Laherrère, 1998), and global over population (Bandura, 2002). These factors will place a greater strain on the consumption of the world's natural resources, so ways to reduce consumption are important for preserving natural resources for the future (Van Liere & Dunlap, 1981). A review of the extant literature revealed that sustainable consumption is comprised of two different correlates, waste reduction and consumption levels. Therefore, this study focuses on measuring these concepts to assess consumption reduction.

Waste reduction. The need for Americans to reduce the amount of solid waste is evident since 254 million tons of solid waste are disposed of in the U.S. annually (Sidique et al., 2010). Research conducted by Ebreo et al. (1999) investigating waste reduction behavior found that monetary and environmental reasons were most important to respondents, while lack of incentives and perceived unimportance were the least. Moreover, a key finding in the study was that future consequences were a better predictor

of waste reduction behavior than lifestyle/social and economic/externally motivated behavior.

A further review of the literature revealed that in addition to consumer waste reduction behavior, manufacturers can contribute to reducing solid waste by using refillable containers (Oskamp, 2000) and reducing the amount of packaging on products (Porter & Van der Linde, 1996). In addition governmental agencies can offer incentives to encourage waste reduction behavior (Kahhat et al., 2008). Therefore, the need to reduce waste must be undertaken as part of a joint effort on the part of consumers, businesses, and governmental agencies to have an effect.

To measure waste reduction in the current study, the Consideration of Future Consequences Scale (Strathman et al., 1994) were used to obtain respondents perceived ability to reduce their generation of solid waste as a predictor of sustainable consumption behavior. This scale was utilized in a similar manner by Ebreo et al. (1999) with encouraging results, so it was also be used in this study.

Consumption levels. To live in a sustainable world, consumers, especially those in industrialized nations, must learn to change the way they consume goods and services (Wackernagel & Rees, 1997). A review of the literature reveals that rapid product introduction, attitudes, and behaviors have created a “throw-away society” (Cooper, 2005). In addition, industries with rapid product introductions lead to greater obsolescence as demonstrated by technological based products (Kerr & Ryan, 2001). Cooper (2005) suggested several ways to reduce consumption: durable manufacturing, increased product longevity, and remanufacturing of spent parts. He also suggested that

consumers need to consider leasing or renting products that have limited use in order to reduce natural resource consumption.

Industrialized nations are literally robbing less developed nations and future generations of natural resources that could be used to provide a better way of life. In addition, increased consumption contributes to greater amounts of pollution, global warming, and larger volumes of solid waste. Therefore, this study measures consumption levels by asking respondents to indicate their consumption behavior and reactions to ways to reduce consumption.

Self-Efficacy as a Mediator

Self-efficacy beliefs are judgments concerning perceived abilities to organize and execute actions to achieve a goal (Bandura, 1977). Self-efficacy provides a basis for motivation, accomplishment, and individual well-being. Moreover, self-efficacy is a key component of social cognitive theory which is the theoretical foundation for this study. In order to measure self-efficacy, a scale developed by Schwarzer and Jerusalem (1993) was utilized for this study (see Table 4 for a summary of the operationalizing of self-efficacy).

Table 4: Summary of the Operationalizing of Self-Efficacy

Construct	Scale	Items Used in the Original Scale	Items Used for this Research	Cronbach's Alpha for this Research
Self-Efficacy	Schwarzer & Jerusalem, (1979) The General Self-Efficacy Scale	30 items using a 5-point Likert-type format	10 items using a 10-point Likert-type format	Range from 0.76 to 0.90

The use of self-efficacy as a mediator is well documented in the literature. It has been used as a mediator in such studies related to health (Ott et al., 2000), natural disasters (Benight et al., 1999), and athletic performance (Feltz & Straub, 1984). The use of self-efficacy as a determinant of environmentally friendly behavior is well documented in the literature (Barr, 2007; Biel, 2003; Chan & Lau, 2002; Oliver & Lee, 2010). However, the use of self-efficacy as a mediator in relationships with likelihood to purchase sustainable products is rare, as evidenced by a review of the literature. Research conducted by Rice, Wongtada, and Leelakulthanit (1996) used self-efficacy as a moderator studying environmentally concerned behavior of Thai consumers and found a direct correlation between the level of self-efficacy and behavior. The current study contributes to the literature by using self-efficacy as a mediator to examine social cognitive theory and its importance in predicting the purchase of sustainable products.

The Dependent Variable: Likelihood to Purchase Sustainable Products

The dependent variable, likelihood to purchase sustainable products, is well documented in the marketing literature (Anderson & Cunningham, 1972; Minton & Rose, 1997; Vlosky et al., 1999). In addition, measuring likelihood to purchase versus actual purchase behavior has produced more robust results (Alba & Hutchinson, 2000; Wind & Lerner, 1979). Based on the results of the literature review, there is substantial evidence to support the use of likelihood to purchase as the dependent variable in the current study. To measure the social, economic, and environmental importance, the author created scales for each of these first-order constructs (see Table 5 for Operationalizing of Likelihood to Purchase Sustainable Products).

Table 5: Operationalizing of Likelihood to Purchase Sustainable Products.

Construct	Scale	Items Used for this Research
Likelihood to Purchase Sustainable Products-Social Importance	Scale Items designed by author for this Research	5 items using a 100-point Likert-type format
Likelihood to Purchase Sustainable Products-Economic Importance	Scale Items designed by author for this Research	6 items using a 100-point Likert-type format
Likelihood to Purchase Sustainable Products-Environmental Importance	Scale Items designed by author for this Research	5 items using a 100-point Likert-type format

This study measures likelihood to purchase sustainable products in terms of the influence social, economic, and environmental factors has on consumers. Therefore, the study will measure the possible effect of the relevant multiple first order constructs on the second order constructs (ecologically conscious consumer, willingness-to-pay, and sustainable consumption) (see Appendix B). The relationships between the three second order constructs (predictor variables) and the dependent variable (likelihood to purchase sustainable products), was tested using self-efficacy as a mediator in the relationship. The study contributes to the literature by providing clarification on the variables that influence a consumer's likelihood to purchase sustainable products.

Questionnaire Design and Development

Questionnaire involve a set of questions (or measures) used by respondents or interviewers to record answers (data). Moreover, questionnaires are a structured framework consisting of a set of questions and scales designed to generate primary data (Hair, Celsi, Money, Samouel, & Page, 2011a, pp. 247-248). The questionnaire for this study was developed using the five steps suggested by Hair et al. (2011a, p. 249) in Exhibit 10.1. These five steps include: initial considerations, clarifying concepts, determining question types, pretesting the questionnaire, and administering the questionnaire.

Initial Considerations

Before a questionnaire is developed there must be clarification as to what is being studied and expectations of the research. More specifically, the nature of the research problem and objectives must be clarified; research questions must be developed to meet the research objectives; the target population and sampling frame must be identified; the sampling approach, sample size, and expected response rate must be estimated; and finally, how the data was collected (Hair et al., 2011a).

Research conducted on likelihood to purchase sustainable products has produced mixed results (Carrington et al., 2010). A reoccurring phenomenon found in the literature is consumers saying they want to purchase sustainable products but not doing so at the time of purchase (Auger & Devinney, 2007; Wheale & Hinton, 2007). Therefore, further research is needed to reveal what factors contribute to likelihood to purchase sustainable products.

In summary, the initial considerations suggested by Hair et al. (2011a) have been utilized in this study. Constructs were developed after an extensive review of the extant

literature, scales were identified and reviewed to measure the relationships between constructs in the theoretical framework, a research question was posed to indicate the objectives of the study, and clear objectives were established to identify the nature of this research.

Clarifying Concepts

An extensive review of the extant literature identified over 5000 articles containing the key words social cognitive theory and sustainability, likelihood to purchase environmentally friendly products, and likelihood to purchase sustainable products. From this extensive review of the literature three antecedent variables and one mediator were identified that potentially influence likelihood to purchase sustainable products (see Appendix).

Clarifying concepts enables researchers to accurately assess the variables being measured as well as portray what the research is trying to accomplish (Jacoby, 1978; Peter, 1981). To accurately measure a variable, researchers must determine the attributes that define the construct, as well as accurately interpret the measures that are used to capture the meaning of the construct (Churchill, 1979). In short, researchers want to be confident that the questions accurately predict the concepts and behaviors, data represents the true values of their measures, random variability is kept to a minimum, question sensitivity captures real differences or changes, and all relevant dimensions of the topic are studied (Collins, 2003). Therefore, this study's extensive review of the literature was necessary to identify the proposed conceptual framework for assessing likelihood to purchase sustainable products.

Determining Question Types, Format, and Sequence

To complete the objectives of this study a questionnaire was designed based on both the adaptation of existing scales and the development of new ones. The use of existing and developed scales therefore provides the types of questions and formatting that obtained reliable and valid answers for the current study. In addition, the sequence of the questions followed the protocol recommended by (Hair et al., 2011a) to randomize the questionnaire to reduce common methods bias. Moreover, research questions are concise, conscious of sensitive subject matter, and use a predetermined effective delivery method. Collins (2003) suggested that researchers should not forget the role questionnaires have on the quality of the data. She also indicated researchers must check the questionnaire for misunderstandings, vague coverage of the concepts, inconsistent interpretations, and satisfying contextual effects. This study followed the suggested guidelines, as well as avoid wording that is localized to the Midwest, and be aware of subjects that involve sensitive subject matter.

The questionnaire consisted of primarily closed-ended questions with respondents answering on graphic ratings scales with varying response ranges. Closed-ended questions are used to seek specific answers, such as responses to rating scales and demographic information. While closed ended questions are more expensive to design, they offset the increased cost by pre-coding them, thus allowing for easier analysis (Hair et al., 2011a).

When structuring questions to be used in any research, care must be given to the way they are worded and presented. Hair et al. (2011a) indicate researchers should use simple words and avoid jargon, slang, and highly technical terminology. They also suggest that questions should also be brief, clearly worded and leading and double-

barreled questions should be avoided. In addition, attention must be paid to the order of the questions and the context effects and questions should be placed in a logical order arranged by topic. Early questions should be more general in nature, while later ones more specific. This arrangement of questions has been found to minimize position bias. Order bias occurs when early questions influence latter questions. A recommended method to correct this is by randomizing the sequence in which respondents are asked the questions. Context effect occurs when a question relative to other questions affects other responses. Therefore, researchers must be aware of not only how they word a question, but also the order in which it is placed in the questionnaire.

How questions are arranged in a questionnaire is also important to the quality of the data collection. Questionnaires should have a set of opening questions, a middle section, and a final section. The opening section is responsible for establishing rapport with the respondent, as well as gaining their attention and creating an interest in answering the questionnaire. Additional questions not contained in this study are screening or filtering questions and skipping questions. The middle section of the questionnaire contains research topic specific questions. As indicated earlier, questions are grouped in this section by topic, and start with general questions leading to specific ones. This technique is also referred to as the funnel approach. Finally, the end section asks for classification type questions. Demographic and socioeconomic questions are typically found in the end section because the respondent is comfortable with the questionnaire and typically provides more accurate answers (Hair et al., 2011a).

Questionnaire presentation, spacing and layout can potentially influence responses. Headings and directions must be clear to avoid confusion and inaccurate

responses (Dillman & Christian, 2005). Hair et al. (2011a) suggest that questionnaires contain a proper introduction and directions on how to answer questions. They must also contain transition statements between sections, details of where the respondent is to go next, and a description of how to answer the question. Layout and structure are very important when the researcher is administering it to participants in a self-completed manner, which was the approach of this study. In order for researchers to be sure the questionnaire is both accurate and produces consistent results, it is recommended that questionnaires be pretested on a representative sample of their target population before presenting them to the final sample (Hunt, Sparkman, & Wilcox, 1982). Therefore, Appendix G reveals the initial questionnaire used for the pilot test conducted for this on a representative sample of the population to which it intends to administer the final questionnaire (see Appendix H). The next section will describe how the pretest took place and a more in-depth explanation of the use of pretests in research.

Pilot Testing the Questionnaire

Pretesting is a necessary step in almost all situations when a researcher plans on administering a questionnaire (Hunt et al., 1982). Pretesting enables the researcher to administer the questionnaire to a representative sample of the target population to determine if the questions possess acceptable structure and clarity, and whether the wording is easily understood (Presser et al., 2004). In addition, through pretesting respondents complete the questionnaire to identify and eliminate potential administration mistakes, the length of the questionnaire can be assessed, and reliability of constructs can be examined. Therefore, pretesting is a dress rehearsal necessary for researchers seeking to obtain accurate measurements for the research they are conducting by eliminating

errors and being sure the role of the administrators of the questionnaire is clear (Presser et al., 2004).

Hair et al. (2011a) outline several factors that must be considered when performing a pretest. These factors begin with the recommendation that the pretest environment should be similar to the actual testing environment. In addition, probing questions should be utilized for each part of the questionnaire to check for scaling, wording, relevancy of the questions, and clarity. Moreover, any new research topic needs to be pretested, as well as changes in samples, geographical locations, and administering in different countries.

In this study a two-stage pretest of the questionnaire was completed. The initial stage was a qualitative pretest with 10 individuals with characteristics similar to the final respondents. These individuals were asked whether the instructions and questions are understandable in structure, sequence, and clarity and if the wording is clearly understood. When feedback was evaluated, appropriate changes were made to revise the questionnaire for the quantitative stage of the pretest. The results of this qualitative pretest are summarized in a later section.

The quantitative pretest was used to reduce the length of the questionnaire and examine reliability. Exploratory factor analysis was applied to identify redundant and weak questions. Where necessary, questions were deleted or revised to ensure acceptable reliability and control the length of the final survey questionnaire. The results of the quantitative pretest are summarized in a later section.

When quantitatively executing pretesting, sample size is important and is generally determined by the number of questions in the questionnaire. Hair et al. (2011a)

recommend that a minimum sample size of 150 be utilized for a quantitative pre-test when the questionnaire exceeds 100 questions. Thus, in the quantitative pretest, the questionnaire was administered to adjunct instructors from the Schools of Workforce Development and Arts and Sciences of the community college that is part of the target population of this study. The adjunct instructors were a good representation of the target population and are not included in emails that are sent to the full time employees. Thus, there is no risk of overlapping the pretest sample with the final sample. If the response rate is below 150, additional adjunct instructors from the School of Arts and Sciences from the same community college was surveyed until the target number of 150 is achieved.

Administering the Questionnaire

The questionnaires for the quantitative pretest and the final study were administered online using the Qualtrics software platform. The prevalence of surveys administered online has increased in recent years due to improvements in technology (Evans & Mathur, 2005). Online surveys have been found to produce equivalent results compared with mail surveys (Deutskens, de Ruyter, & Wetzels, 2006). In addition, online surveys benefit researchers through lower costs and faster response times as compared to mail surveys (Ilieva, Baron, & Healey, 2002). Therefore, an online approach was utilized for the benefits suggested above and for the ability to accurately target the selected sample for this study.

Sample Size and Statistical Power

There is a direct relationship between sample size, power, and the number of independent variables in a research study (Cohen, 1988). Small sample sizes with a

limited number of independent variables will more accurately predict statistical significance, whereas a large sample makes the statistical significance overly sensitive. In PLS-SEM power refers to predicting the statistical significance of the model coefficient (R^2) at a specific significance level (α) (Hair et al., 2010). The significance levels typically used in research are .05, but .1 and .01 are also used. The relationship between significance and statistical power reveals that lower levels of significance equate to lower statistical power (Cohen, 1992). In addition, (Hair et al., 2010) recommend a statistical power of .80, or predicting the (R^2) 80% of the time at a desired level of significance. Finally, the authors further describe the relationship between power and sample size as larger sample sizes increase statistical power. Therefore, researchers must determine the correct balance between sample size, power, and the number of independent variables to achieve a power of .80.

Using tables and the methodology developed by Cohen (1992) and refined by Hair et al. (2014) specifically for PLS-SEM, an analysis was conducted to determine the sample size needed for this study. This study used the following parameters in order to estimate the appropriate sample size based on 80% statistical power. The theoretical model specifies three predictor variables were used for the analysis with a maximum number of arrows pointing to a construct (willingness-to-pay) being four. In addition, the research assumes a 5% significance level when the minimum R^2 for the model is 0.1. Therefore, based on the research conducted by Hair et al. (2014, p. 21) a minimum useable sample size of 137 was sought for this study (see Appendix K).

Common Methods Effects (Variance and Bias)

Common method effects have the potential to produce bias in relationships tested based on empirical research. Conway and Lance (2010) suggest a distinction between method variance and common method bias. Method variance is the variance that occurs due to the systematic error variance caused by the method of measurement, while common methods bias is the inflation of a relationship by shared method variance. Therefore, while the terms common methods variance and bias are used interchangeably, they are distinct terms that are indicative of problems associated with accurately measuring the relationships between constructs.

While common methods effects are possible the extent of their impact is questionable. The extant research has indicated the need to address these concerns in order to produce results that accurately measure the relationships between the constructs being studied. Therefore, it is important to summarize the causes of common method effects in order to gain a richer understanding.

Causes of Common Methods Effects

Potential sources of common methods biases were identified by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) and include: the same source or rater of the predictor and criterion variables, the measurement items themselves, the context of the items being measured in the conceptual framework, and/or the context in which the measures are obtained. More specifically, common rater effects include: consistency motif, implicit theories, social desirability, leniency bias, acquiescence biases, mood states, and transient mood state. Item characteristic effects include: item social desirability, item demand characteristics, item ambiguity, common scale formats, common scale anchors, and positive and negative wording. Item context effects include:

item priming effects, item embeddedness, context-induced mood, scale length, and intermixing of items. Measurement context effects include: predictor and criterion variables measured at the same point in time, location, and using the same medium.

Addressing common method variance effects in this study. Two fundamental methods to control for common method effects are: statistical control of the effects of the method biases in data collection and minimizing common methods bias through survey design (Bagozzi, 1984; Podsakoff et al., 2003; Williams, Hartman, & Cavazotte, 2010). Historically, Harman's One Factor Test has been used to assess methods bias in research (Podsakoff & Organ, 1986).

The primary approach to control common method bias is through proper design of the study's procedures (Podsakoff et al., 2003). The following remedies can help control for common methods bias: obtain measures of the predictor and criterion variables from different sources, utilize temporal, psychological, or methodological separation of measures, protecting the respondent's anonymity and reducing evaluation apprehension, counterbalancing question order, and improving scale items. The nature of this study assessing likelihood to purchase sustainable products does not allow for collecting predictor and criterion variables from separate sources. However, this study utilized temporal, psychological, or methodological separation of measurements as suggested by Podsakoff et al. (2003) through the use of Likert scales, online survey delivery, and different rooms for the measurement of the predictor and criterion variables as employees have private offices. In addition, it also followed the recommendation of reducing common methods bias by protecting the respondent's anonymity and apprehension by ensuring them there are no wrong or right answers. Finally, this study followed the

recommendations of Podsakoff et al. (2003) by counterbalancing question order and improving the scale items by careful construction of items and using different scale endpoints (See Questionnaire Design and Development above).

In summary, this study controlled for common methods bias through proper design of the study's procedures and statistical controls. Reduction of common methods effects enables researchers to have more confidence that their results accurately measure the relationships of the constructs and reduce measurement errors. Therefore, this study utilized both procedural and statistical controls to reduce the level of common methods bias and seek to produce more accurate results.

Qualitative Assessment of the Questionnaire (Description of Process and Findings)

An additional means of obtaining accurate results is performing a qualitative assessment of the questionnaire. Hair et al. (2011a) recommend that questionnaires should be qualitatively pretested before distribution to the targeted sample in order to ensure the questionnaire is accurate and the responses are consistent. The authors offer guidelines that should be established to perform an effective qualitative pretest. These guidelines include using a small representative sample of the respondents that were administered the final revised questionnaire. The representative sample size should be a minimum of four to five, and is likely sufficient with less than twenty. The questionnaire was administered to 10 instructors at the Mid-Western community college that was used for the sample. It is important to note that the 10 instructors used were included in the final distribution of the questionnaire to reduce the potential of bias on their part.

Hair et al. (2011a) further suggest having the questionnaire evaluated by "experts" or individuals similar to the targeted sample. The experts utilized in the current study

included two marketing Ph.D. professors and two marketing doctoral candidates. The experts and ten instructors inspected the questionnaire for confusing wording, formatting issues, relevancy of the questions, and clarity of the instructions. Once the feedback was obtained, a few small revisions were made to the questionnaire, such as clarification of wording or simplification, and a pilot study was conducted using the adjunct instructors as described previously.

Results of the Feedback from the Instructors

Ten instructors from the Mid-Western community college used for the current study were given a pencil and paper version of the electronic questionnaire. They were asked to take the survey and make comments and suggestions concerning formatting, confusing words, clarity, and relevancy of the questions. Once their survey was completed, the researcher met with the instructors individually to discuss the questionnaire. Results of the individual meetings provided valuable insights to increase the questionnaire's accuracy. The primary discussion issues involved the Defaults section. Question 90 states "If green electricity were automatically sent to consumers in your area, and if you had to contact the electric utility to change to gray electricity, how likely would you be to switch?" Six of the 10 interviewed expressed confusion over the definition of green versus gray electricity. In addition, the wording in questions 92 and 95 used the term carbon credits. This term was confusing to some of the respondents, as was the term fair trade coffee. Other concerns included difficulty in understanding sentence structure, confusing wording, and a sense of repetitive questions pertaining to the same topic. Positive comments included the questionnaire increasing awareness of

environmental issues and the need to be more sustainable. Based on the feedback received, the questionnaire was revised and sent to the experts for their feedback.

Results of the Feedback from the Experts

As previously indicated Hair et al. (2011a) recommend “experts” review the questionnaire for clarity, formatting, and to ensure it is suitable for distribution as a pilot test to the study sample. A comparison of comments made by the 10 instructors versus the experts accentuates the need to follow these steps. More specifically, the expert’s comments and suggestions are based on their experience and knowledge of both marketing and conducting research which provided suggestions that were not considered by the instructors.

One of the first comments questioned the length of time stated to answer the questionnaire, which was 15-20 minutes. The questionnaire used for the pilot test contained 172 questions, so it was suggested that the time to take the questionnaire should be reevaluated. In addition, it was recommended that a timed survey be administered before the pilot test to check the actual time to complete the survey. Therefore, a timed session was administered and the indicated time to take the questionnaire was adjusted.

Questions concerning randomization were also raised. One expert was curious if Qualtrics could randomize the questionnaire? More specifically, it was questioned if the survey would be randomized by scales or questions? The study randomized the questionnaire by scales with attention to the order of the questions to reduce position and order bias as suggested by Hair et al. (2011a).

Other comments by the experts included the suggestion that wording of the benefits of taking the survey on the cover page may introduce bias and failed to contain a consent box. An additional comment related to the acronym LEED. It was suggested that LEED be defined so the respondents could answer the question based on their actual knowledge versus guessing what the term means.

Finally, it was suggested to ask a range versus a specific number for the questions that ask the respondent to provide a specific value. Based on the expert's comments, revisions were made to the questionnaire.

Quantitative Assessment of Questionnaire – Pilot Test

The questionnaire was pilot tested using adjunct faculty from the Mid-Western Community College targeted for the final survey. Adjunct faculty was used because they are a representative sample of the targeted group to be used for the final survey. In addition, adjunct faculty provided an opportunity to conduct a pilot test on a sample that would not be included in the final survey due to the fact that adjunct and full-time employees do not share the same email system. Therefore, bias was eliminated and resulted in more accurate measures to test the hypotheses.

Pilot Test Sample Size

The survey was launched two weeks prior to classes starting in hopes of giving adjuncts time to complete the survey. A reminder was sent after week one and week two. The final sample size used for the pilot test was 109. To execute an exploratory factor analysis (EFA) with this size sample the constructs were divided into three groups. This process enabled the researcher to maintain the ratio of questions to sample size needed to ensure accurate results. The mediator and dependent variables were also

submitted to an EFA (Hair et al., 2010). The process of dividing the independent variable constructs, as well as analyzing the mediator and dependent variables separately, meant the sample size was sufficient to be used for EFA.

Findings of an Exploratory Factor Analysis of Initial Questionnaire

An exploratory factor analysis was conducted using the pilot test data. The exploratory factor analysis was initially run using principal components, varimax rotation, and eigenvalues greater than one. The results were evaluated using the Kaiser-Meyer-Olkin (KMO), explained variance, rotated component matrix, commonalities, factor loadings, and Cronbach's Alpha.

The purpose of conducting an exploratory factor analysis was to refine, improve, and reduce the number of items in the questionnaire. This was accomplished by eliminating questions that had loadings less than .50, or that were cross-loaded. Moreover, the independent variables and loadings were analyzed separately from the mediator and dependent variables. Results of the exploratory factor analysis provided acceptable KMO measures, explained variance, rotated component matrices with limited cross-loadings, commonalities greater than .50, and Cronbach's Alpha scores $>.70$. In summary, the exploratory factor analysis provided a means to make the questionnaire more parsimonious, improve responses, and reduce respondent's lack of completion due to length (see Appendix L for the Exploratory Factor Analysis).

Description of final Questionnaire Based on Pilot Test

The initial questionnaire contained 172 items and took 30 minutes to complete. The final questionnaire contains 97 questions and took approximately 15 minutes to complete. The final survey gives this study a more accurate instrument in which to

measure the theoretical model based on the exploratory factor analysis of the pilot study's results. The final survey is parsimonious, so it should lend itself to higher response rates due to the reduction of the number of questions. Finally, the final survey's structure lends support to the proposed hypotheses and allow for this study's purpose to understand factors that influence the likelihood to purchase sustainable products (see Appendix H).

CHAPTER 4 RESULT OF THE FINAL SURVEY AND TESTING OF THE HYPOTHESES

The final survey was administered to full-time employees of the same Mid-Western Community College as the pilot test using the Qualtrics online survey platform. To achieve the desired statistical power of a 5% significance level and a minimum R^2 of 10%, 137 respondents were needed (see Appendix K). A total of 180 completed responses were obtained in the final survey within the first eight days. Because this exceeded the number of responses to achieve statistical power, data collection was terminated.

Final Survey Data Preparation

Data collected for the final study was imported from Qualtrics into SPSS format. The data was then evaluated for distribution characteristics (kurtosis and skewness), straight lining, outliers, and missing data (Hair et al., 2014). Straight-lining was evaluated based on the recommendations of Baumgartner and Steenkamp (2001), using statistical evaluation and visual inspection of the results. The results revealed the surveys exhibited no straight-lining or outliers, and there was no missing data (missing data was not permitted by the Qualtrics platform). However, one construct, Eco-Literacy, exhibited extreme skewness (over 95% of responses were incorrect) resulting in a lack of variability, and was therefore removed from the theoretical model as it could not be tested. In summary, the final analysis sample for this study consists of 180 valid and

useable responses which represented a 27% response rate (676 invitations sent/180 responses received = 27%) when data collection was terminated.

An Evolving Theoretical Model

A theoretical model was proposed in Chapter Two that reflected the preponderant evidence available from the extant literature (see Appendix B). Since the theory in this area is not well developed, the opportunity existed to reflect on and extend current knowledge and perceptions about sustainable purchasing patterns and factors likely to influence future behavior. The PLS-SEM method is appropriate for exploring and developing theory and as indicated earlier that was a primary reason the method was chosen for this research. In the initial stages of model testing two issues emerged. The first was that responses to the eco-literacy construct were highly skewed and exhibited insufficient variability for statistical testing.

A second issue that emerged was apparent high multicollinearity among the three sustainable constructs – Ecologically Conscious Consumer, Willingness-to-pay, and Sustainable Consumption. The initial sign of this was a negative relationship between the sustainable consumption and likelihood to purchase constructs, which was an illogical finding based on the research. Just as with multiple regression, high levels of multicollinearity between exogenous constructs are likely to distort structural relationship coefficients (Hair et al., 2014). To assess the actual level of collinearity among the constructs, the latent variables scores from the initial model were submitted to a bivariate correlation using SPSS software. A review of the results produced by this procedure showed that the Pearson correlations among the three exogenous constructs ranged from a low of .56 to a high of .63. In addition, it revealed that in fact the relationship between

sustainable consumption and endogenous construct likelihood to purchase was positive statistically significant and meaningful. Both of these findings indicate a suppressor effect is present and distorting the results. The suppressor effect and the restructuring of the eco-literacy construct necessitated a reformulation of the theoretical model that reflected not only the existing theory, but also the emergent methodological issues. Consideration of an alternative model also presented an opportunity to simplify the initial theoretical model, thus making it more parsimonious.

The initial theoretical model included an environmental knowledge construct consisting of two components – eco-literacy and eco-labels. The environmental knowledge construct was initially modeled as being positively associated with the willingness-to-pay construct. With the removal of the eco-literacy component, consideration had to be given to how to model the remaining eco-labels component of environmental knowledge. Previous research has examined a direct relationship between eco-labels and willingness-to-pay (Basu & Hicks, 2008; Loureiro & Lotade, 2005; Moon, Florkowski, Brückner, & Schonhof, 2002). Since this direct relationship represented an alternative path supported by the literature the change was made in the proposed theoretical model and eco-labels became a sub-component of the willingness-to-pay construct.

To address the high multicollinearity identified among the three sustainable consumption constructs, Hair et al. (2014) recommend combining the collinear constructs and creating a higher order construct. In examining this issue it was noted that the ecologically conscious consumer and sustainable consumption constructs have both been identified as antecedents of sustainable product purchase intentions (Balderjahn, 1988;

McDonald, Oates, Thyne, Alevizou, & McMorland, 2009; Sanne, 2002; Straughan & Roberts, 1999). As a result, the two constructs were combined to create a single Ecologically Conscious Consumer Construct. At the same time, willingness-to-pay represented a somewhat different aspect of sustainability purchase intentions (Gil, Gracia, & Sanchez, 2000; Ward, Clark, Jensen, Yen, & Russell, 2011), and it was retained as a separate antecedent. The result was an alternative theoretical model with a Sustainability Perceptions higher order construct consisting of the ecologically conscious consumer and willingness-to-pay. The alternative theoretical model also facilitated a more parsimonious representation of the proposed mediated relationship of self-efficacy on likelihood to purchase sustainable products (see Appendix D).

Realignment of the Hypotheses Based on the Alternative Model

The alternative theoretical model necessitated restatement of several hypotheses. The initial 11 hypotheses were retained in the new model. Hypotheses 12 and 13 examined the proposed relationships between the ecologically conscious consumer and willingness-to-pay as antecedents of the new higher order sustainability components construct. Hypotheses 14a and 14b represent the proposed mediating relationship of self-efficacy between the sustainability components construct and likelihood to purchase sustainable products. Finally, hypothesis 15 tests the direct relationship between the sustainability components construct and likelihood to purchase sustainable products. Appendix M shows the reformulated hypotheses are consistent with and compliment the original hypotheses and will achieve similar research goals. See Appendix M for a comparison of the hypotheses from the original and new model.

PLS-SEM Measurement Model

This overall goal of the study was to develop and test theory that might explain how selected factors influence the likelihood to purchase sustainable products. Structural Equation Modeling (SEM) is an ideal statistical method to achieve this goal. Two types of SEM can be used for this type of data analysis. Covariance-based-Structural Equation Modeling (CB-SEM) is primarily used to confirm (or reject) theory. CB-SEM confirms theory by determining how well the measurement model estimates the covariance matrix for the sample's data set. In contrast, PLS-SEM is used for developing theory in exploratory research. PLS-SEM is ideal for complex theoretical models and is more appropriate for social science data that is often non-normal. PLS-SEM confirms exploratory findings by maximizing the explained variance in the dependent variables and at the same time testing the hypotheses proposed in a theoretical model (Hair et al., 2014). Therefore, this exploratory study used PLS-SEM to analyze the final survey data.

Evaluating the Measurement Models

When evaluating measurement models, the first step is to identify whether the theoretical measurement models for the constructs are comprised of indicators that are reflective, formative, or a combination of both (Hair et al., 2014). The current study is composed of all reflective measures. Therefore, the measurement models will be evaluated based on internal consistency reliability and construct validity measures. More specifically, composite reliability (internal consistency), AVE (convergent validity), and the Fornell-Larcker criterion (discriminant validity) will be used to evaluate the latent construct measurement models.

Internal consistency reliability has traditionally been measured using Cronbach's Alpha. Cronbach's Alpha assumes that all indicators are equal when calculating

reliability (tau equivalence). In contrast, composite reliability assumes that individual indicators should be weighted differently, each based on its relative contribution as measured by their factor loading. Thus, composite reliability is a more precise measure of internal consistency reliability (Hair et al., 2014). Composite reliability scores between .60 and .70 are acceptable for exploratory research, while scores between .70 and .95 are satisfactory for established research. Values over .95 indicate the variables are redundant measures of the construct (Nunally & Bernstein, 1994).

Construct validity is assessed using two approaches. Convergent validity is evaluated based on the average variance explained (AVE). Hair et al. (2014) suggest standardized outer loadings be a minimum of .708 and the overall construct account for a minimum of 50% of the variance in the indicators. Moreover, outer loadings between .40 and .70 should be considered for removal. In contrast, discriminant validity determines how distinct each construct is from all other constructs. The Fornell- Larcker criterion (Fornell & Larcker, 1981) requires that the square root of the each construct's AVE should be greater than its highest correlation with any other construct (Hair et al., 2014). Established guidelines for assessing convergent and discriminant validity will be applied in this research.

Measurement model assessment. The measurement models were assessed based on the output from the SmartPLS 2.0 software (Ringle, Wende, & Will, 2005). The initial measurement models consisted of 75 measured indicator variables. Outer loading scores were evaluated using the guidelines suggested by Hair et al. (2014) and 56 indicator variables were retained in the final model all with loadings greater than 0.70. All constructs in the structural model exhibited convergent validity well above 0.50 and

discriminant validity. The initial constructs and their indicators as well as the final number of indicators are shown in Table 6. Additional details of other measurement model characteristics are provided in subsequent paragraphs.

Table 6: Constructs and Indicators – Initial and Final Number

<i>Exogenous Constructs</i>	Construct Names	# of Indicators	
		Initial	Final
<i>ECC</i>	Ecologically Conscious Consumer	HOC	
<i>SF</i>	Self-Reflection	5	3
<i>ECCB</i>	Ecological Conscious Consumer Behavior	5	5
<i>EC</i>	Environmental Concern	5	5
<i>PCE</i>	Perceived Consumer Effectiveness	5	3
<i>RFREQ</i>	Recycling Frequency	8	7
<i>WRED</i>	Waste Reduction	5	3
<i>CLEV</i>	Consumption Levels	5	2
<i>WTP</i>	Willingness-to-pay	HOC	
<i>DEF</i>	Defaults	5	4
<i>ATT</i>	Attitudes	6	3
<i>VAL</i>	Values	5	3
<i>ECOLAB</i>	Eco-labels	6	5
<i>Mediating Constructs</i>			
<i>SUS P</i>	Sustainability Perceptions	HOC	
<i>SE</i>	Self-Efficacy	5	4
<i>Endogenous Construct</i>			
<i>LTP</i>	Likelihood-to-purchase	HOC	
<i>LTPSOC</i>	LTP Social Importance	3	3
<i>LTPEC</i>	LTP Economic Importance	4	3
<i>LTPENV</i>	LTP Environmental Importance	3	3
<i>Total Indicators</i>		75	56

Note: HOC indicates Higher Order Construct

The reliability of all constructs was assessed using the composite reliability method. Composite reliability and AVEs are reported in Table 7. The results reveal that all constructs exhibit reliability well above the minimum of 0.70.

Table 7: Convergent Validity and Reliability

Constructs	AVE	Composite Reliability
Ecologically Conscious Consumer	Higher Order Construct	
Self-Reflection	0.81	0.93
Ecologically Conscious Consumer Behavior	0.62	0.89
Environmental Concern	0.70	0.92
Perceived Consumer Effectiveness	0.66	0.86
Recycling Frequency	0.78	0.96
Waste Reduction	0.69	0.87
Consumption Levels	0.70	0.82
Willingness-to-Pay	Higher Order Construct	
Defaults	0.69	0.90
Attitudes	0.59	0.81
Values	0.61	0.82
Eco-Labels	0.66	0.91
Likelihood to Purchase	Higher Order Construct	
Economic	0.63	0.84
Environmental	0.61	0.82
Social	0.66	0.85
Self-Efficacy	0.68	0.89

Following the assessment of reliability, the next step is to evaluate convergent validity. Convergent validity is a measure of the extent to which the measured indicators converge to represent a specific construct (Hair et al., 2014). Convergent validity is calculated based on the average variance extracted (AVE) for all items associated with a specific construct. Specifically, it is the sum of the squared loadings for a specific construct divided by the number of indicators for that construct (Chin, 2010). Hair et al. (2014) recommend that an AVE greater than .50 is an indication of convergent validity. Examination of the constructs revealed that all met the .50 requirement and thus exhibited convergent validity (see Table 7).

Once composite reliability and convergent validity were established, the next step was to assess discriminant validity. Discriminant validity shows how distinct each

construct is from all other constructs in the model, and is an indication of the extent to which each construct measures a separate concept (Segars, 1997). The most conservative method to determine discriminant validity for reflective constructs is the Fornell-Larcker criterion (Hair et al., 2014), which compares each construct's AVE with the shared variance between all other latent variables in the measurement model. According to Hair et al. (2014, p. 105), the square root of each construct's AVE should be greater than its highest correlation with any other construct. Results of the Fornell-Larcker analysis reveal that all constructs display discriminant validity. Table 8 summarizes the results of the Fornell-Larcker analysis.

Table 8: Fornell-Larcker Analysis – Assessment of Discriminant Validity

Fornell-Larcker Criterion	ATT	C LEV	DEF	EC	ECCB	ECO LABELS	LTP EC	LTP ENV	LTP SOC	PCE	RFREQ	SE	SF	VAL	WRED
ATT	0.81														
C LEV	0.07	0.83													
DEF	0.54	-0.02	0.90												
EC	0.71	0.00	0.58	0.92											
ECCB	0.39	0.00	0.65	0.56	0.89										
ECO LABELS	0.53	-0.02	0.68	0.65	0.74	0.81									
LTP EC	0.46	-0.14	0.54	0.43	0.54	0.67	0.84								
LTP ENV	0.40	-0.05	0.67	0.48	0.68	0.69	0.66	0.82							
LTP SOC	0.44	-0.03	0.62	0.55	0.63	0.65	0.55	0.71	0.85						
PCE	0.52	0.04	0.46	0.65	0.51	0.62	0.42	0.51	0.55	0.86					
R FREQ	0.53	0.00	0.49	0.67	0.49	0.65	0.44	0.48	0.49	0.71	0.96				
SE	0.07	-0.08	0.06	0.09	0.13	0.12	0.11	0.06	0.08	0.14	0.19	0.89			
SF	0.25	-0.03	0.20	0.23	0.02	0.06	0.14	0.16	0.13	0.00	0.03	-0.28	0.93		
VAL	0.44	-0.12	0.55	0.45	0.64	0.65	0.58	0.66	0.55	0.46	0.48	0.00	0.07	0.78	
WRED	0.28	0.26	0.35	0.30	0.37	0.35	0.23	0.26	0.29	0.47	0.26	0.07	-0.05	0.23	0.87

Examination of model relationships. The next step is to examine the theoretical model relationships. There are two aspects of this analysis: examination of the path loadings for the higher order constructs and assessment of the structural path coefficients of the inner model. We will first examine the four higher order constructs – the Ecologically Conscious Consumer (ECC), Willingness-to-Pay (WTP), Sustainability Perceptions (SUS P), and Likelihood to Purchase LTP). The ECC and WTP constructs are exogenous and the SUS P and LTP constructs are endogenous. Table 9 shows the

theoretical model relationships and their path loadings and coefficients, and their levels of significance. The statistically significant path loadings can be interpreted in terms of the contribution of the lower order constructs to the predictive ability of the two higher order exogenous constructs. For the higher order endogenous constructs the statistically significant loadings can be viewed as meaningful components of likelihood to purchase.

Table 9: Theoretical Model Relationships

Relationships	Path Loadings and Coefficients	T-Statistics
Ecologically Conscious Consumer	Path Loadings	
SFR→ECC	0.12	1.18
ECCB→ECC	0.73	18.60
EC→ECC	0.86	29.25
PCE→ECC	0.83	25.06
RFREQ→ECC	0.89	40.15
WRED→ECC	0.46	5.53
CLEV→ECC	0.04	0.40
Willingness-to-Pay		
DEF→WTP	0.84	43.18
ATT→WTP	0.72	15.92
VAL→WTP	0.76	18.15
ECO-LAB→WTP	0.91	67.53
Likelihood to Purchase		
LTP→SOC	0.87	46.09
LTP→EC	0.83	29.40
LTP→ENV	0.90	65.95
Inner Model Structural Relationships	Path Coefficients	
ECC→SUS Perceptions	0.60	33.36
WTP→SUS Perceptions	0.45	21.48
SUS Perceptions→SE	0.14	1.35
SE→LTP	-0.01	0.10
SUS Perceptions→LTP	0.79	25.87
Critical T-Values for a two-tailed test are 1.96 (significance level=.05**) and 2.58 (significance level=.01***).		

Bootstrapping was used to estimate the t-values of the path loadings and structural relationships in the model (Hinkley, 1988). The bootstrapping procedure used was based on 5,000 samples and 180 cases (number of useable surveys) as recommended by Hair et

al. (2014). For the results it can be noted that the two higher order exogenous constructs are composed of several important predictive components. For the ecologically conscious consumer (ECC), five of the seven first order constructs contribute to the predictive ability of the higher order ecologically conscious consumer construct based on their statistical significance (two-tailed). The five are ECCB, EC, PCE, RFREQ, and WRED. Two first order constructs are not significant – SFR and CLEV. Thus, five of the first order constructs can be considered meaningful characteristics of the ECC construct. The other exogenous construct is WTP. All four of the first order WTP constructs are meaningful and statistically significant, and can thus be considered as contributing to the predictive ability of the willingness-to-pay higher order construct.

The third higher order construct is SUS P (sustainable perceptions). This construct is endogenous and is proposed as a mediator. Two structural paths lead to this construct – ECC and WTP. Both paths are statistically significant and meaningful. Thus, both constructs predict the SUS P construct, which is also a theoretical predictor of both self-efficacy and likelihood to purchase. Specifics of these relationships are detailed in the following paragraphs.

The fourth higher order construct is the endogenous variable likelihood to purchase sustainable products (LTP). It is made up of three first order constructs – social, economic, and environmental. All three first order constructs are significant and comparable in size (loadings) so the model is predicting each type of likelihood to purchase approximately equally.

We now turn to an assessment of the inner model structural relationships. Three of the path coefficients are meaningful and significant. The three meaningful structural

coefficients are $ECC \rightarrow SUS P$ (0.60), $WTP \rightarrow SUS P$ (0.45), and $SUS P \rightarrow LTP$ (0.79).

The ECC and WTP constructs are modeled as antecedents of the Sustainability Perceptions construct. Based on the size of the coefficients it can be concluded that ECC is a somewhat stronger predictor of sustainability perceptions, but willingness-to-pay is also meaningful. Thus, both are important predictors of the sustainability perceptions construct. The structural coefficient for the $SUS P \rightarrow LTP$ relationship is also significant and meaningful. In contrast, neither of the structural coefficients for the $SUS P \rightarrow SE$ and $SE \rightarrow LTP$ relationships are significant or meaningful.

Results of the Hypotheses Tests

A total of 15 hypotheses were proposed in this research. Three were rejected and 12 were accepted. The details of the hypotheses tests are shown in Table 10 and discussed in the following paragraphs.

Table 10: Results of the Hypotheses Tests

Hypothesis Number	Hypotheses	T Statistics	Accept/Reject & Significance
H1	$SFR \rightarrow ECC$	1.18	Reject
H2	$ECCB \rightarrow ECC$	18.60	Accept***
H3	$EC \rightarrow ECC$	29.25	Accept***
H4	$PCE \rightarrow ECC$	25.06	Accept***
H5	$RFREQ \rightarrow ECC$	40.15	Accept***
H6	$WRED \rightarrow ECC$	5.53	Accept***
H7	$CLEV \rightarrow ECC$	0.40	Reject
H8	$DEF \rightarrow WTP$	43.18	Accept***
H9	$ATT \rightarrow WTP$	15.92	Accept***
H10	$VAL \rightarrow WTP$	18.15	Accept***
H11	$ECOLAB \rightarrow WTP$	67.53	Accept***
H12	$ECC \rightarrow SUS P$	33.36	Accept***
H13	$WTP \rightarrow SUS P$	21.48	Accept***
H14a	$SUS P \rightarrow SE$	1.35	Reject
H14b	$SE \rightarrow LTP$	0.10	Reject
H15	$SUS P \rightarrow LTP$	25.87	Accept***
	$LTP \rightarrow LTPSOC$	46.09	

	LTP→LTPEC	29.40	
	LTP→LTPENV	65.95	
Critical T-Values for a two-tailed test are 1.96 (significance level=.05**) and 2.58 (significance level=.01***). A one-tailed value of 0.98 = significance level = .05. A one-tailed value of 0.98=significance level=.05			

The test of hypothesis 1 revealed that self-reflection is positively related to the ecologically conscious consumer, but not significant using a two-tailed test. The relationship between self-reflection and likelihood to purchase sustainable products research has not been studied in previous research. Self-reflection is a core theme of social cognitive theory (Bandura, 1986) which is one component of the theoretical contribution of this research. For this reason, a decision was made to also examine this relationship with a one-tailed test. This is possible because the hypothesis is directional. The results then showed a significant positive relationship (one-tailed significance level @ 0.05 = .98). This finding suggests a limited contribution and a possible new research area since previous extant literature has not examined this relationship.

The test of hypothesis 2 revealed a positive relationship between ecologically conscious consumer behavior and the ecologically conscious consumer (ECCB→ECC). These findings are similar to past research identifying a positive relationship between the ecological consumer and likelihood to purchase (Roberts & Bacon, 1997), and provide support that current behavior is related to the profile of the ecologically conscious consumer.

Testing of hypotheses 3 and 4 revealed a positive relationship between the psychographic variables of environmental concern and perceived consumer effectiveness and the ecologically conscious consumer (EC & PCE→ECC). The findings were similar to Roberts (1996) in which perceived consumer effectiveness and environmental concern

accounted for 56% of the variance identifying factors that influence ecologically conscious consumer behavior. Psychographics also were a better predictor of the ecologically conscious consumer than demographics. Thus, psychographics appear to be a promising factor in predicting likelihood to purchase sustainable products.

The tests of hypothesis 5 and 6 revealed a positive relationship between recycling frequency, waste reduction, and the ecologically conscious consumer (RFREQ→ECC & WRED→ECC). Oskamp (2000) found recycling provided many benefits to the environment including reduced pollution and reduction in natural resource consumption. Sidique et al. (2010) found consumers' desire to be environmentally responsible was a major contributor to recycling frequency. Similarly, Ebreo et al. (1999) found the top reasons consumers recycle were monetary purposes and environmental concern, while the bottom two were lack of incentives and perceived lack of importance. Governmental regulations establishing deposits on goods could increase the incentive to recycle thus reducing consumption (Kahhat et al., 2008). In addition, manufacturers could increase the availability of refillable products which likely would reduce container consumption (Porter & Van der Linde, 1995). The positive relationship between recycling frequency and the ecologically conscious consumer is consistent with past research and supports efforts to encourage increased recycling. In addition, the findings indicate that consumers recognize waste reduction will lead to consumption reduction.

Hypothesis 7 which proposed that reduced consumption levels would be related to the ecologically conscious consumer (CLEV→ECC) was rejected. The need to have the "latest and greatest" product represents a major threat to reducing consumption levels (Røpke, 1999). Cooper (2005) suggests that approaches involving increased product

durability, longevity and quality would help to decrease both consumption levels and consumption reduction. Unfortunately, a review of the extant literature suggests that consumers feel recycling offsets the need to reduce consumption (Heiskanen & Pantzar, 1997). The findings indicate limited awareness on the part of consumers about this relationship, but to be effective consumers must self-regulate the amount of goods and services they consume. Both Shrivastava (1995) and Wackernagel and Rees (1997) found that consumers in developed countries are resistant toward controlling their consumption of goods and services, while corporations encourage high levels of consumption. The lack of support for this hypothesis is grounded in the extant literature and therefore not surprising.

A positive relationship was identified between defaults and willingness-to-pay (Hypothesis 8 = DEF→WTP). Examination of defaults in the current study is a new contribution to the field. Very few studies have looked at the relationship between defaults and both willingness-to-pay and likelihood to purchase sustainable products. Pichert and Katsikopoulos (2008) found that consumers were less likely to opt-out of paying for green electricity for the cheaper alternative coal generated electricity. Similar results were found by Sunstein and Thaler (2003) showing consumers are less likely to opt out or search for alternatives to the programs/services that are implemented as the default. Therefore, further research should be undertaken on the use of defaults as a means increasing both willingness-to-pay and likelihood to purchase sustainable products.

The test of hypothesis 9 revealed a positive relationship between attitudes and willingness-to-pay (ATT→WTP), which is consistent with previous research. A meta-analysis conducted by Hines et al. (1987) found a direct correlation between attitudes and

willingness-to-pay as did a study by Follows and Jobber (2000), which also concluded that attitudes must be measured with specificity to provide robust results. Thus, attitudes appear to be a meaningful predictor of willingness-to-pay and ultimately likelihood to purchase sustainable products.

The results of testing hypothesis 10 revealed a positive relationship exists between values and willingness-to-pay (VAL→WTP). This finding is consistent with the extant literature, including research conducted by Pickett-Baker and Ozaki (2008) that found measuring specific value orientations is a better predictor of pro-environmental behavior. Similar studies by Van Liere and Dunlap (1978) and Thøgersen and Ölander (2002) also found specific value measures were a better predictor of pro-environmental behavior. In this study values were measured using a scale developed by Laroche et al. (2001). Thus, the findings are consistent with the previous research.

Hypothesis 11 examined the relationship between eco-labels and willingness-to-pay (ECOLAB→WTP). Laroche et al. (2001) examined factors likely to influence willingness-to-pay and introduced the term “eco-literacy.” Eco-literacy referred to a consumer’s ability to identify terms, symbols, and concepts that demonstrate their level of environmental knowledge. They called for future research to identify ways to strengthen the construct of environmental knowledge. This study added eco-labels as a component of eco-literacy in an effort to strengthen the environmental knowledge construct (Laroche et al., 2001; Thøgersen, 2000). The eco-literacy construct was eliminated due to lack of variability, but the addition of eco-labels the relationship between environmental knowledge and willingness-to-pay could still be examined. The

results showed a positive relationship between eco-labels and willingness-to-pay. These findings suggest that eco-labels is a promising area for future research.

The test of hypothesis 12 identified a significant positive relationship between the ecologically conscious consumer and sustainability components (ECC→SUST COMP). This is consistent with research conducted by Mostafa (2007) that concluded consumers with higher levels of ecological concern are more likely to purchase sustainable products. Similar results were also noted by Peattie (2001a), when he found a positive relationship between environmental concern and sustainability intentions. Therefore, the results of testing hypothesis 12 are consistent with the extant literature and provide additional theoretical support for this relationship.

The results of testing hypothesis 13 supported the proposed positive relationship between willingness-to-pay and sustainability components (WTP→SUST COMP). Similar results have been found in several studies (Aguilar & Vlosky, 2007; Vlosky et al., 1999). Previous research also revealed that while consumers are willing to pay there is a ceiling on how much of a premium they are willing to pay for sustainable products. Anderson and Hansen (2004) found consumers would pay up to a two percent premium. This research found respondents would pay a considerably higher premium – on average a nine percent premium would be paid for sustainable products. While an exact premium consumers will pay for a sustainable product varies by study, it appears there is a positive correlation between consumer's willingness-to-pay and their likelihood to purchase sustainable products. This suggests that future research should further explore the specifics of premiums consumers are willing to pay for sustainable products, particularly by product category.

Hypotheses 14a and 14b were rejected (mediated effect of SE). Neither of the relationships between SUS P→SE and SE and LTP (likelihood to purchase) was significant. Thus, self-efficacy did not mediate the relationship between sustainability perceptions and likelihood to purchase sustainable products. Therefore, self-efficacy does not mediate the relationship between the three predictors and LTP. The proposed relationship of self-efficacy as a mediator in likelihood to purchase sustainable product research has not previously been researched.

The results testing of hypothesis 15 revealed a significant positive, direct relationship between the sustainability components construct and likelihood to purchase sustainable products (SUS P→LTP). These findings are similar to those reported by both Choi and Kim (2005) and Hughner, McDonagh, Prothero, Shultz Ii, and Stanton (2007). The significant positive relationship identified between sustainability perceptions and likelihood to purchase provides additional support as well as extends the possibilities for further research in this area. Appendix E reveals a summary of the new model showing hypothesis numbers, T-Statistics, and accept/reject of the hypothesis.

Goodness of Fit Criteria of the Predictive Model

The remaining criteria for assessing the model are the coefficient of determination (R^2) and blindfolding (Q^2). R^2 is the amount of variance predicted in the endogenous construct. The coefficient represents the exogenous latent variables' combined effect on the endogenous latent variable (Hair et al., 2014). Blindfolding is an additional assessment to determine a model's predictive relevance for the endogenous construct. The R^2 and Q^2 are shown in Table 11 for the single endogenous construct – Likelihood to Pay (LTP).

Table 11: Goodness of Fit Criteria

Endogenous Construct	R²	Q²
Likelihood to Purchase (LTP)	63%	0.2734

The R² ranges from 0 to 1, with higher levels indicating a greater degree of predictive accuracy. A rule of thumb to evaluate R² values is 0.75, 0.50, and 0.25 can be considered substantial, moderate, and weak (Hair et al., 2011a; Henseler, Ringle, & Sinkovics, 2009). It is important to note, however, that while this general rule is appropriate for research in marketing researcher should always interpret the R² in the context of the study at hand.

Another means to assess PLS-SEM predictive ability is blindfolding, also referred to as the Q². While R² is considered an in-sample prediction technique, Q² is considered an out-of sample prediction (Rigdon, 2014; Sarstedt, Ringle, Henseler, & Hair, 2014). A rule of thumb to interpret Q² values is that 0.35, 0.15, and 0.02 indicate the exogenous constructs exhibit large, medium, and small predictive ability, respectively. Note that there are two approaches to calculating Q² (cross-validated redundancy and cross-validated communality). Hair et al. (2014) indicate cross-validated redundancy is the best approach as it includes estimates from both the structural model and the measurement model.

Examination of the endogenous construct's predictive power shows that likelihood to purchasing sustainable products, the primary outcome measure of the model, has a moderately-substantial R² of 0.63, which is considered very good for this exploratory research (Hair et al., 2010; Laroche et al., 2001). Similarly, the Q² is 0.2734

indicating a medium predictive relevance for the model. Both of these criteria support the overall acceptable predictive ability for the theoretical model.

CHAPTER 5 CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

The Objectives of the Research as Supported by the Findings

The study's overall purpose was to develop a more comprehensive understanding of the factors likely to influence consumption of sustainable products and services. A theoretical model was proposed based on a review of the extant literature and in subsequent chapters the research design, methodology and results were reported, including an alternative theoretical model that evolved and was tested. In the following paragraphs the conclusions and observations that emerged from the research are organized and summarized based on the specific objectives of the study. The limitations and possible future research alternatives are also summarized.

Objective One: To better understand and define how the ecologically conscious consumer is related to self-reflection, ecologically conscious consumer behavior, environmental concern, perceived consumer effectiveness, and recycling frequency. Self-reflection appears to be related to sustainability perceptions, but additional study is needed. Still, the addition of the self-reflection construct is an initial contribution and responds to a call by Grant et al. (2002) to test the concept in areas of research outside of psychology. Examination of the other four antecedent constructs provides support for and extends previous research on constructs associated with sustainability perceptions. The results indicate that four of the constructs are important predictors of the ecologically conscious consumer, as well as, sustainability perceptions.

Objective Two: To extend the work of Laroche et al. (2001) by determining if eco-labels augment environmental knowledge and ultimately enhance the predictability of willingness-to-pay. This research reveals an overall lack of ecological literacy by the sample. If this sample is representative of other individuals in the U.S. then a lot of effort is needed to make people aware of pressing environmental issues. One promising area associated with willingness-to-pay that emerged from this research was the significant positive relationship between eco-labels and willingness-to-pay. Therefore, the additional understanding of the role of eco-labels that emerged from this research answered the call by Laroche et al. (2001) to explore how environmental knowledge may be related to willingness-to-pay.

Objective Three: To conduct further research on how sustainable consumption is related to recycling frequency, waste reduction, and consumption levels. The results provide evidence in support of the hypothesis that a positive relationship exists between waste reduction, recycling frequency and the ecologically conscious consumer, but not consumption levels. This finding is similar to a finding by Connolly and Prothero (2003), and provides further support for the need to educate individuals about the need to expand sustainable consumption behaviors.

Objective Four: To augment previous research by including the social cognitive theory (Henry, 2009) concept of self-efficacy as a mediating variable. Social cognitive theory was explored in response to Henry (2009) who suggested its' possible applicability to sustainable research. The results indicated that self-efficacy does not mediate the relationship between sustainability perceptions and likelihood to purchase sustainable products. Two possible reasons for this finding are proposed. First, positive

perceptions of self-efficacy are more likely to emerge when an individual is knowledgeable about the related areas of interest (Bandura & Schunk, 1981). The respondent's knowledge of sustainability was very low in this study, as evidenced by the very low level of correct responses to the eco-literacy questions. This may have influenced their responses to the self-efficacy scale, and therefore the lack of mediation. A second reason for the lack of mediation may have been that self-efficacy was measured using a general scale of self-efficacy beliefs (Schwarzer & Jerusalem, 1993). As a follow up on this result, a further review of the extant literature revealed that self-efficacy measures are generally more accurate when they are specific to the research being conducted. Gist (1987) suggested that self-efficacy measures must be tailored to the domain being studied. In addition, research conducted by Compeau and Higgins (1995) revealed that a more specifically tailored measure of self-efficacy enhances the quality of the assessment and supports the goals of the research. Therefore, the results found may be attributed to using a general measure of self-efficacy beliefs and not one more closely related to likelihood to purchase sustainable products. This research represents the first time the influence of self-efficacy on likelihood to purchase sustainable products has been examined, and hopefully will provide guidance to researchers on how to improve future investigation in this area.

Objective Five: To test the theoretical model and gain insights into the factors influencing likelihood to purchase sustainable products. Overall, sustainability perceptions are strong predictors of likelihood to purchase sustainable products, explaining 63% of the variance. More specifically, the ecologically conscious consumer is the strongest predictor of sustainability perceptions, and ultimately likelihood to

purchase. With regard to specifics of the willingness-to-pay construct, the newly explored and confirmed relationship between defaults and willingness-to-pay exhibited the highest influence (.91 & .84), respectively, values and attitudes are also strong influences. Consumer receptiveness to the use of eco-labels and defaults are important findings for corporations and governments in encouraging sustainable consumption. But values and attitudes are also very important influences, and must also be considered in developing strategies to encourage sustainable consumption.

Objective Six: To propose strategies for government and industry to encourage additional utilization of sustainable products and services. While the results suggested that consumers may feel limited in their ability to effectively pursue sustainable initiatives, the finding suggest several approaches to increase the likelihood of sustainable product purchasing, the most important of which are summarized in the next section.

Managerial Implications

Past research has shown a direct correlation between high levels of environmental concern and greater likelihood to purchase sustainable products (Pickett-Baker & Ozaki, 2008; Tanner & Wölfiging Kast, 2003). The presence of significant relationships between the ecologically conscious consumer and recycling frequency, environmental concern, and perceived consumer effectiveness in the current study indicates related themes should be emphasized in marketing message strategies. These messages hopefully would encourage the purchase of sustainable products by identifying consumers who exhibit higher levels of ecological concern.

Defaults that automatically enroll consumers in products and services that support sustainability should be used more extensively. Research conducted by Sunstein

and Thaler (2003) found that consumers typically will not opt-out of a default and consumers are reluctant to search for alternatives. A similar finding emerged in this research as defaults produced the second highest path relationship associated with willingness-to-pay. Thus, if companies offer sustainable goods and services as the default, additional benefits should arise from more long term use of sustainable products.

The use of eco-labels should include information describing ways the product or service contributes to sustainability. Companies likely could increase sales of their sustainable products and services by indicating on the label or advertisement the sustainable impact of purchasing their products. Recent examples of this type of message strategy include fair-trade coffee, eliminating child labor, and free-range poultry.

The endogenous construct likelihood to purchase sustainable products includes three major components: social, economic, and environmental importance. All three are highly associated likelihood to purchase. Therefore, companies can use messages directed toward all three motives for purchasing in an effort to increase sales of sustainable goods and services.

Companies could also extend savings realized through marketing sustainable products to consumers by, for example, not charging a premium to purchase sustainable products. In the housing industry, many sustainable products are becoming standardized and do not carry a premium over traditional products. More specifically, low volatile organic compound paints and caulks are standard and do not carry a premium. Formaldehyde free products that do not produce dangerous gas are another example of a product not charging a premium. If companies would advertise the sustainable benefits

of these products without instituting a premium, they likely would gain an advantage in the marketplace.

The results indicate that consumers place a greater emphasis on recycling than on reducing their consumption. Companies must find ways to use products that can be recycled or refilled, and possibly provide an incentive for the product's return (e.g., charging a deposit) in order to promote sustainable efforts.

Finally, marketers should continue to identify how a product's use limits its negative impact on society and the environment, while supporting the profitability of the firms that produce sustainable goods and services. This triple bottom line approach is key to the practice of sustainable business practices which has been found to give firms a competitive advantage (Elkington, 1998; Raar, 2002).

Limitations and Future Research

The aggressive agenda of this research involves limitations but many opportunities for future research. The results of testing the theoretical model provide numerous insights into the factors that positively influence the likelihood to purchase sustainable products, but there is a long way to go to obtain a comprehensive understanding of this area.

First, the study's sample population was from the Midwestern section of the United States. Therefore, the generalizability of the findings to other regions of the United States is limited, as are the global implications. Future research should include respondents from various parts of the United States to see if their responses are similar.

Second, the sample included full-time employees of a Midwestern community college. While the employees were exposed to the sustainability efforts of the college

and society in general, a limitation may include potential contradictory attitudes and behaviors (e.g., green washing toward the benefits inherent with sustainability. Green washing is a term that describes the false representation of the environmental claims of a product by manufacturers that translates in skepticism on the part of consumers.

Respondent's answers to the survey may have been influenced by green washing and reflected in their response. This was demonstrated by emails received by respondents wanting to voice their opposing opinions regarding the nature of this study. Future research could include a sample of younger individuals as they will likely benefit more directly from sustainable efforts and may offer a different perspective into the likelihood to purchase sustainable products.

Third, the research demonstrated that self-efficacy does not mediate the relationship between sustainability perceptions and likelihood to purchase sustainable products. A limitation of the current study was the use of a general scale measuring self-efficacy beliefs. Future research could extend current scales and specifically include measures of self-efficacy beliefs toward sustainability.

Fourth, the eco-literacy construct could not be tested due to the inability of respondents to correctly answer the questions. Future research could test this construct with a more generalized set of questions pertaining to sustainability. Another option would be to design an experiment that examines how eco-literacy knowledge might influence likelihood to purchase.

Finally, the research could be extended to a cross section of countries worldwide to gain a global perspective of factors that influence likelihood to purchase sustainable products. The thoughts and behaviors from this global sample would provide additional

perspectives into the level of sustainability worldwide and likelihood of purchasing sustainable products by geographic region.

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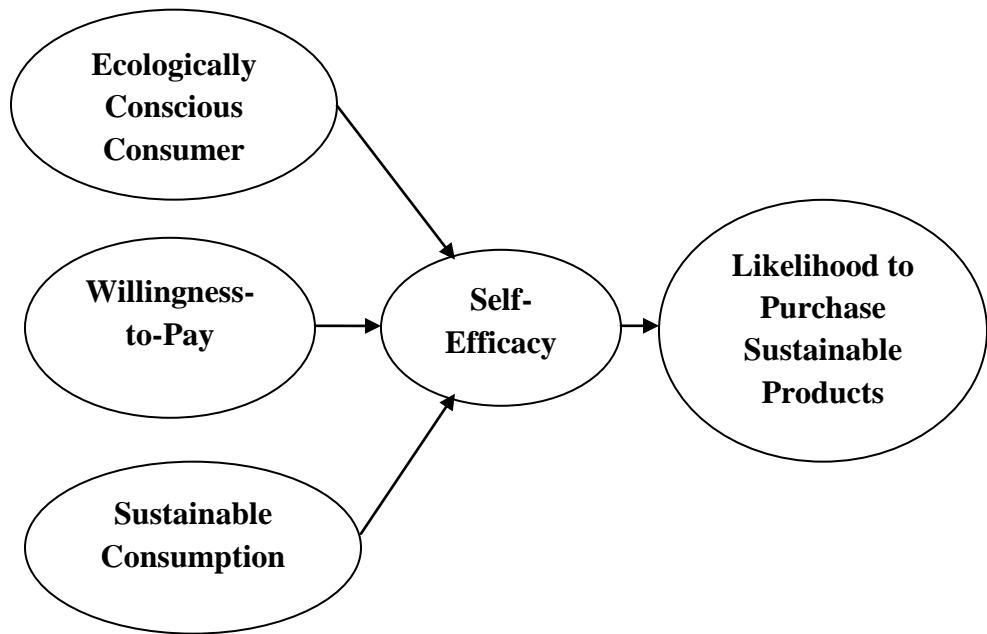
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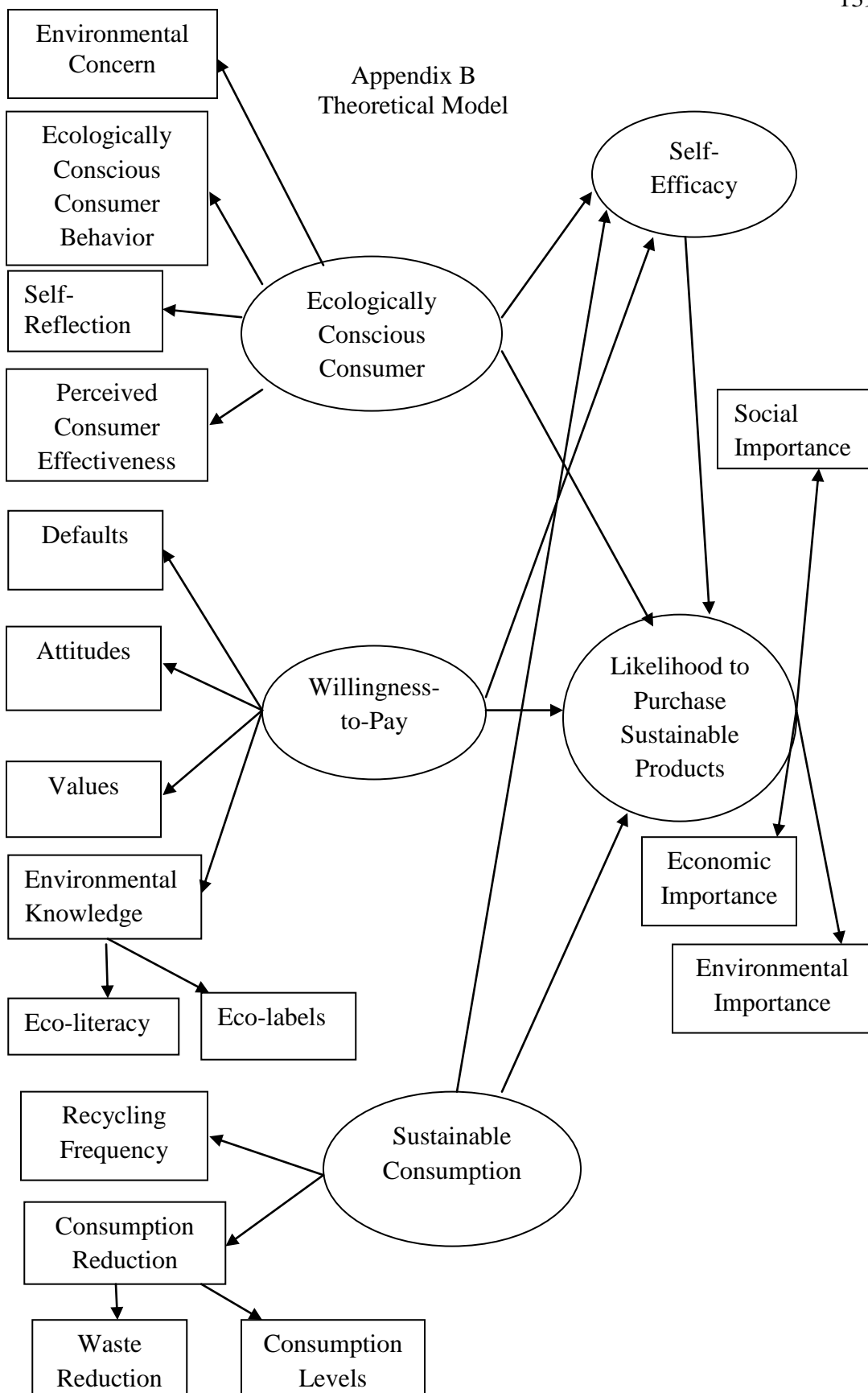
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APPENDIX

Appendix A
Conceptual Framework



Appendix B
Theoretical Model



Appendix C
Institutional Review Board Letters of Approval



June 27, 2013

Keith Ferguson
Construction Adjunct Instructor
Grand Rapids Community College
143 Bostwick Ave NE
Grand Rapids, MI 49503

Dear Mr. Ferguson:

TITLE OF PROPOSAL: An Investigation of Sustainable Product Purchase Behavior: A Social Cognitive Perspective of Consumer Actions

This letter is to officially notify you of the approval of your request by the Institutional Review Board (IRB) at Grand Rapids Community College. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study. Your proposal has been classified as "Exempt."

You are responsible for immediately informing the Institutional Review Board of any changes to your protocol, or of any previously unforeseen risks to the research participants.

This approval is good from June 27, 2013 to June 27, 2014. If you wish to continue your research after this date, you must complete and submit an updated protocol

Please let me know if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Donna Kragt". The signature is fluid and cursive.

Donna Kragt
Dean of Institutional Research & Planning
Chair of the IRB



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VISION • As a college of distinction, GRCC inspires students to meet the needs of the community and the world.

MISSION • GRCC is an open access college that prepares individuals to attain their goals and contribute to the community.

6/22/2013

Keith Ferguson, Student
KSU Department of Marketing & Professional Sales

RE: Your application dated 6/17/2013, Study #13-416: An Investigation of Sustainable Product Purchase Behavior: A Social Cognitive Perspective of Consumer Actions

Dear Mr. Ferguson:

I have reviewed your application for the new study listed above. This study qualifies as exempt from continuing review under DHHS (OHRP) Title 45 CFR Part 46.101(b)(Schein & Books24x7) - educational tests, surveys, interviews, public observations. The consent procedures described are in effect. You are free to conduct your study.

Please note that all proposed revisions to an exempt study require IRB review prior to implementation to ensure that the study continues to fall within an exempted category of research. A copy of revised documents with a description of planned changes should be submitted to irb@kennesaw.edu for review and approval by the IRB.

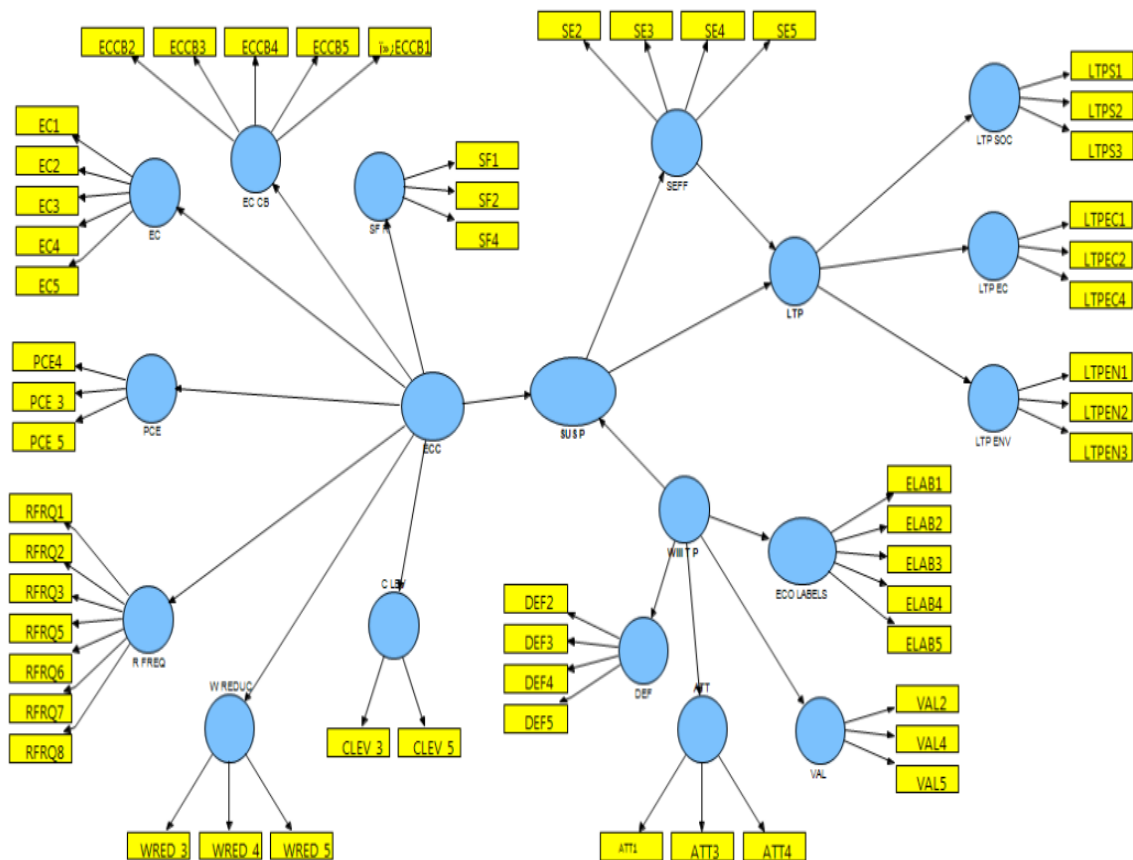
Thank you for keeping the board informed of your activities. Contact the IRB at irb@kennesaw.edu or at (678) 797-2268 if you have any questions or require further information.

Sincerely,

Christine Ziegler, Ph.D.
Institutional Review Board Chair

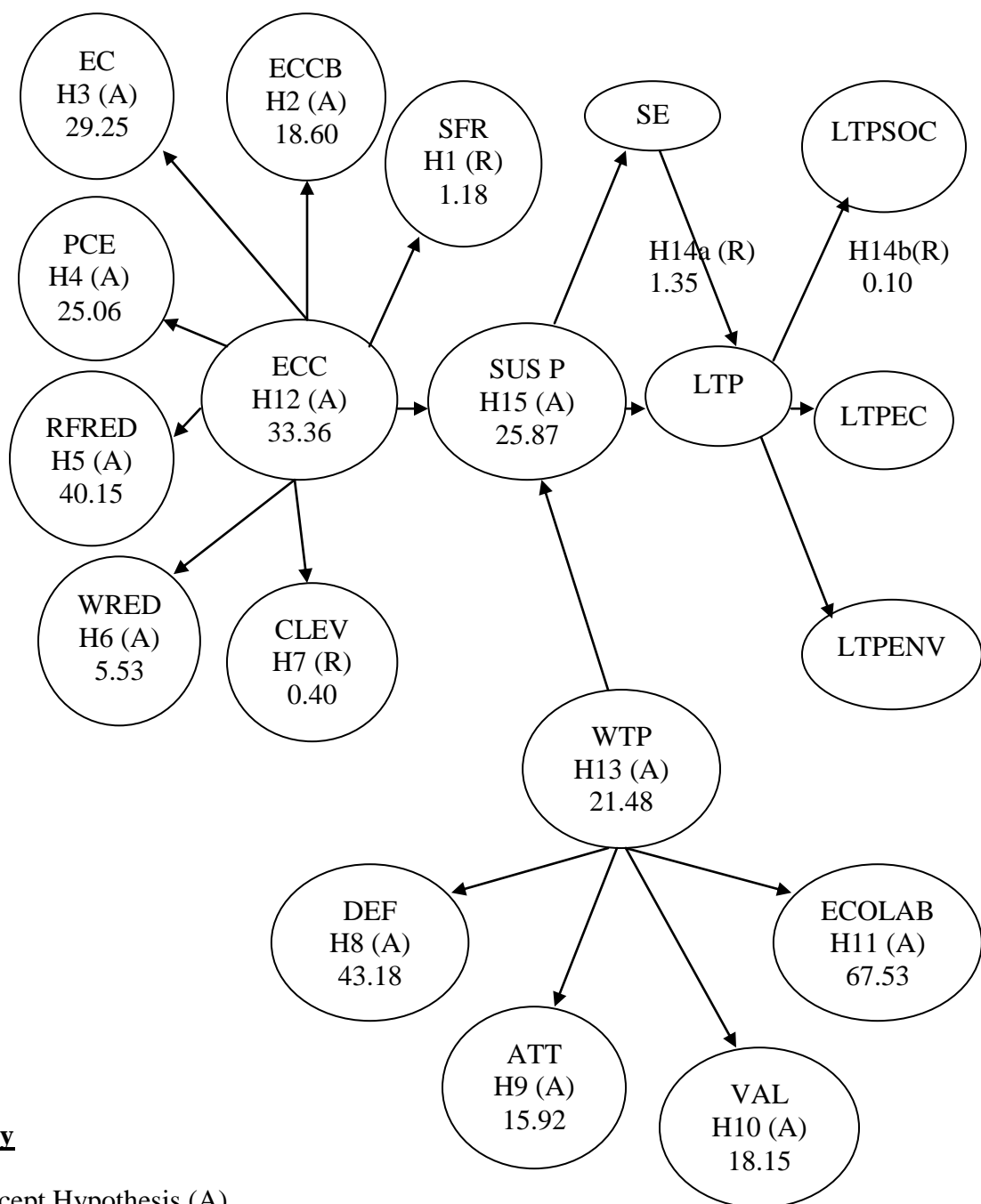
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Appendix D Alternative Theoretical Model



Appendix E

T Statistics for Path Loadings and Coefficients and Hypothesis Testing of the New Model

**Key**

Accept Hypothesis (A)

Reject Hypothesis (R)

Appendix F
Summary of Key Literature on Likelihood to Purchase Sustainable Products
Review Articles Impacting Key Research Topics of this Study

	Author	Research Objectives	Methodology	Relevant Proposals/Findings
REVIEW ARTICLES	(Bandura, 1986)	Identify how social learning takes place, and suggest that the level of one's self-efficacy will influence performing the learned behavior at a future time.	Examined relationship between social, environmental, and behaviors factors that influence social learning.	<ul style="list-style-type: none"> • Social Cognitive Theory has produced significant results. • The use of Social Cognitive Theory in this study is a contribution to the literature.
	(Roberts, 1996)	Examine demographic and attitudinal correlates of the subset that perform ecologically conscious consumer behavior.	Survey using the ecologically conscious consumer behavior scale. 3 independent variables and six demographic variables. Dependent variable was ecologically conscious consumer behavior.	<ul style="list-style-type: none"> • Demographics alone explained 6% of the variance, but when psychographics was added an additional 46% was explained. • Perceived consumer effectiveness is the most significant variable explaining ecologically conscious consumer behavior.
	(Grant et al., 2002)	Develop a more reliable instrument that could examine levels of self-reflection and insight.	Tested items that reflect both self-reflection and insight.	<ul style="list-style-type: none"> •The first paper to examine self-reflection and insight as independent. •A two component analysis revealed two factors explained 56% of the total variance. •Self-reflection should be positively correlated with levels of insight.
	(Laroche et al., 2001)	Identify a profile of consumers who will pay more for environmentally friendly products, and elaborate on marketing strategies once these consumers are identified	Independent variables were attitudes, values, behaviors, demographics, and environmental knowledge. Dependent variable was willingness-to-pay for environmentally friendly products.	<ul style="list-style-type: none"> •Attitudes and values are a good predictor of willingness-to-pay. •Behaviors and demographics were not good measures of willingness-to-pay. •Environmental knowledge is a good predictor of behavior but not willingness-to-pay. It was suggested for future research to identify addition correlates to strengthen this construct.

(Pichert & Katsikopoulos, 2008)	Investigate the influence that defaults have on consumer's choice for green electricity.	Conducted four studies on selection of green electricity using defaults.	<ul style="list-style-type: none"> •In all situations green electricity was selected as the consumer's choice, even when the default was gray electricity.
(Thøgersen, 2000)	Develop a psychological model explaining when and why consumers pay attention to environmental labels in purchase decisions, including eco-labels.	A cross-national survey by the European Consortium for Comparative Social Surveys collected in 1993.	<ul style="list-style-type: none"> •Consumers noticed eco-labels more when they were concerned for the environment. •Consumer trust in the label's claim influenced their purchase behavior. •Eco-labels are a supplement to environmental awareness and self-confidence enhancing information and knowledge.
(Cooper, 2005)	Determine factors that contribute to a "throwaway" society and ways to reduce consumption.	Theoretical paper	<ul style="list-style-type: none"> •Short product life spans, consumer desire for the latest models, and attitudes and behaviors contribute to the "throwaway" society. •Resource throughput must be mandated to reduce the use of raw materials, energy, and waste. •Greater product longevity and durability, and improving maintenance will reduce consumption. •Product life-cycle thinking must be emphasized.

Articles Directly Related to Key Research Topics of this Study

	Author	Research Objectives	Methodology	Relevant Proposals/Findings
DIRECTLY RELATED	(Anderson & Cunningham, 1972)	Classify socially conscious consumers and evaluate how demographics and socio-psychological variables affect their level of social consciousness. Examine market segmentation and criteria to gauge the probable effectiveness of alternative marketing strategies.	Mail survey; independent variables were six demographic and six socio-psychological characteristics. Dependent variable was the Social Responsibility Scale (Berkowitz & Lutterman, 1968).	<ul style="list-style-type: none"> • The demographic variables and socio-psychological variables were able to differentiate between the high and low socially responsible consumers. • Markets can be segmented by using social consciousness of consumers
	(Kinnear et al., 1974)	Extended the work of Anderson & Cunningham (Anderson & Cunningham, 1972) using the Social Responsibility Scale (Berkowitz & Lutterman, 1968) by adding behavioral and attitudinal measures to determine socially conscious purchasing patterns.	Mail survey in Ontario using an improved instrument over Anderson and Cunningham (1972) Social Responsibility Scale. 20 independent variables comprising both socioeconomic and personality measures. Dependent variable is ecological concern	<ul style="list-style-type: none"> • 10 predictor variables explained 28% of the variance • Personality is a better predictor than socio-economic variables. • Higher levels of perceived consumer effectiveness were related to higher levels of ecological concern.

(Anderson & Hansen, 2004)	Determine if eco-labels influence purchase behavior at various price points	Experiment comparing Forest Stewardship Council plywood versus unlabeled plywood at the same price for one manipulation, then a 2% price increase for the second manipulation.	<ul style="list-style-type: none"> •When the plywood was priced equal, the Forest Stewardship Council type sold at a high rate than the unbranded. •When price was equal the unbranded plywood sold at a higher rate than the Forest Stewardship Council plywood.
(Follows & Jobber, 2000)	Develop a model to predict purchase of a specific type of environmentally responsible product	Eight hypotheses were tested. Data was collected on 9 attitudinal items from Schwartz (Schwartz, 1992).	<ul style="list-style-type: none"> •The model predicted 74% of the variance indicating that environmentally responsible purchase behavior led to environmentally friendly purchase behavior. •Positive environmental attitudes were a result of motivation to promote and enhance the welfare of others and maintaining social norms and personal stability.
(Bamberg & Moser, 2007)	To update the work of (Hines et al., 1987) and perform a meta-analysis using eight psycho-social determinants of environmentally friendly behavior.	Meta-analysis conducted utilizing an Internet search for relevant articles using keywords and inspecting table of contents of 36 key journals.	<ul style="list-style-type: none"> •There is a high temporal stability between psycho-social variables and environmentally friendly behavior. •Awareness and knowledge of environmental problems is an important determinant of environmentally friendly behavior. •Environmentally friendly behavior is a combination of self-interest and pro-social motives.
(Stern et al., 1993)	Determine if environmentalism is altruistic and shaped by egoistic, social-altruistic, and biospheric values.	To determine relationship between environmental concern, gender beliefs, three proposed values, political actions, willingness-to-pay, and behavior intentions,	<ul style="list-style-type: none"> •All three value orientations were related to political action. •Willingness-to-pay predicted egoistic values. •Created future opportunity for researchers to measure the relationship using values and environmental concern.
(Gagnon Thompson & Barton, 1994)	Determine if there were distinctions between ecocentric and anthropocentric values.	Data collected in two studies to assess relationships between ecocentric and anthropocentric values and environmental issues.	<ul style="list-style-type: none"> •Ecocentric values are related to conserving behaviors and to apathy toward the environment. •Anthropocentric values were not related to environmental conservation.

(Stern & Dietz, 1994)	Measure the relationship between environmental beliefs, attitudes, behavioral intentions, and value orientations.	Survey using established scales by (Schwartz, 1992) and (Rokeach, 1968), and two additional value orientations assessing ecological values.	<ul style="list-style-type: none"> •Value orientations are a result of socialization individuals experience as they mature. •Values act as filters for information •Egocentric and biospheric value orientations are a reliable predictors of behavior.
(Schultz & Zelezny, 1999)	Extend previous research by testing the relationship between values and environmental attitudes using U.S. and Latin American countries.	Examined values and attitudes using the New Environmental Paradigm (Van Liere & Dunlap, 1978), ecocentrism-anthropocentrism scale (Gagnon Thompson & Barton, 1994), gender, religious views, and the Schwartz Value Inventory (Schwartz, 1992).	<ul style="list-style-type: none"> •The U.S. sample scored lower than the Latin America sample regarding the New Environmental Paradigm scale items (Van Liere & Dunlap, 1978). •Self-transcendence values were positively related with the New Environmental Paradigm and ecocentrism. • Power was negatively related to the New Environmental Paradigm and ecocentrism, but positively related to anthropocentrism.
(De Groot & Steg, 2007)	Determine if egoistic, social-altruistic and biospheric value orientations are universal between countries, personal norm, and consequences.	Survey of five European countries.	<ul style="list-style-type: none"> •Altruistic and biospheric values are positively correlated while egoistic and altruistic, and egoistic and biospheric were not. •The three value orientations were strongly correlated with personal norms. •The distinction between the three value orientations and countries is a valid means to examine environmentally relevant behavior.
(Maloney & Ward, 1973)	To test a new instrument measuring the relationship between verbal and actual commitment, affect, and knowledge.	Survey of two chapters of the Sierra Club of Los Angeles, college and non-educated college adults.	<ul style="list-style-type: none"> •Sierra Club sample scored higher than the college educated adults. •Knowledge did not correlate with any of the other subscales. •Affect had a moderately high correlation with verbal commitment for all groups. •Knowledge is not a good predictor of behavior.

(Schahn & Holzer, 1990)	Examine the relationship between environmental knowledge, attitudes and behavior, gender differences and environmental concern.	German survey that measured both heterogeneous behaviors and insights into their cognitions of values and environmental concern.	<ul style="list-style-type: none"> •Knowledge was a poor predictor of behavior. •Males have higher concrete knowledge and environmental attitudes than females. •Females have higher values than males.
(Vining & Ebreo, 1990)	To examine differences between recyclers and non-recyclers.	Survey to determine knowledge regarding recycling programs, recycling, and demographics.	<ul style="list-style-type: none"> •Recyclers had greater knowledge than non-recyclers of recycling programs, and items that could be recycled. •Non-recyclers believed that economic incentive and rewards were the most important reasons to recycle.
(Sidique et al., 2010)	Determine what influence socioeconomic, demographic, behavioral factors, and distance driven have on drop-off site recycling habits.	Survey of participants visiting a drop-off recycling center in Michigan.	<ul style="list-style-type: none"> •Recyclers on average visit a recycling center 15 times per year. 25% of the respondents indicated they have curb-side recycling available. •Recyclers did not believe recycling was difficult, time consuming, required extra storage, or attracted pests. •Family expectations, landfill and pollution reduction, conserving natural resources, location of drop-off centers, and being environmentally responsible were major reasons for their behavior.
(Ebreo et al., 1999)	Determine respondents' future orientation, reasons for waste reduction, behaviors, demographics, and conservation behaviors to predict recycling and waste reduction behavior.	Qualitative interviews using the Consideration of Future Consequences scale (Strathman et al., 1994), and two sets of measures for and against waste reduction behavior.	<ul style="list-style-type: none"> •Waste reduction and recycling are similar but separate behaviors. •The top two reasons reported to engage in waste reduction and recycling were monetary and environmentally related, while the bottom two were lack of incentives and unimportance. •Future consequences predicted greater levels of altruistic/internally motivated behavior.

Tangential Articles Related to the Key Research Findings for this Study

	Author	Research Objectives	Methodology	Relevant Proposals/Findings
TANGENTIAL	(Brooker, 1976)	Overcome criticism of instruments used in past research to measure the socially conscious consumer by developing an instrument modeled after Maslow's Self-actualization personality type	Interviews in Chicago. Independent variables were demographics, purchase behavior, and personality types. Dependent variables included purchasing phosphate-free detergent and lead-free gasoline.	<ul style="list-style-type: none"> • Respondents who demonstrated more self-actualizing traits were also more socially conscious.
	(Tucker, 1980)	Explore relationship between constructs of internal and external control, and multiple attitudinal and behavioral measures of environmental responsibility.	Data collected from females in State College, Pennsylvania area. Independent variables included: Internal-external control controls, social responsibility, social class, age, and income. Dependent variable was environmental responsibility.	<ul style="list-style-type: none"> • Mean differences between internal-external control scores and high and low environmental responsibility groups were significant. • High environmentally responsible group demonstrated a greater propensity toward the welfare of others than did the low environmentally responsibility group.

(Kaenzig et al., 2012)	Analyze consumer preferences for attributes of electrical products, compare preferences to the average electrical default mix, determine the preferred produced energy sources, and discuss implications for government, marketers, and utility producers.	Experiment to determine which specific attributes of electrical products were favorable to consumers.	<ul style="list-style-type: none"> •Wind and Green electrical mix were preferred most. •Consumers preferred a 24 month price guarantee, and a one month cancellation period. •Monthly cost and electrical mix were the most important attributes for consumers.
(Hines et al., 1987)	Meta-analysis was conducted to identify behaviors most responsible for environmental behavior, determine the strengths between these behaviors, and formulate a model representing these relationships.	Reviewed 128 articles involving 15 variables associated with environmental behavior.	<ul style="list-style-type: none"> •There is a positive correlation between pro-environmental attitudes and behavior. More specifically attitudes toward ecology and the environment were the most prevalent.
(Van Liere & Dunlap, 1978)	Determine extent to which the public accepts a New Environmental Paradigm and develop an instrument to measure it.	Survey of Washington State residents and state-wide environmental organization.	<ul style="list-style-type: none"> •The New Environmental Paradigm was widely accepted by both groups surveyed. •The New Environmental Paradigm gave researchers a new means to measure attitudes that affect the likelihood to purchase environmentally friendly products.

(Balderjahn, 1988)	Determine effect that attitudes play on environmental behaviors.	Survey of attitudinal, demographics, socioeconomic, and personality.	<ul style="list-style-type: none"> •Results revealed attitudes and personality had no relationship with home insulation.
(Alwitt & Berger, 1993)	Examine affect that attitudes and valence have on likelihood to purchase sustainable products.	Survey of strength of valence and intent as moderators.	<ul style="list-style-type: none"> •Valence alone could not change purchase intentions. •Purchase intention was related to conviction and attitude accessibility.
(Rokeach, 1968)	Identify relationship between values, attitudes, and behavior.	Longitudinal study to determine change in values and attitudes toward freedom and equality using posttests at three weeks, and three to five months.	<ul style="list-style-type: none"> •Participants were asked at the end of the study their level of satisfaction of their ranking of values. The level of satisfaction was found to be related to discrepancy between their values. •The Rokeach Value Scale was developed
(Vinson, Scott, & Lamont, 1977)	Test effect of consumer values orientation as a means to segment markets.	Experiment to identify demographics, global and consumption values, auto attributes, appeal of 10 consumer goods, and importance of 15 social issues.	<ul style="list-style-type: none"> •Consumer values preferences improve market segmentation. •Consumer values also increase awareness of product attributes and stimulate behavior.
(Homer & Kahle, 1988)	Empirically test the influence that internal and external dimension of values has on attitudes and behaviors.	Tested relationship between internal and external dimensions using List of Values and demographics.	<ul style="list-style-type: none"> •Internal and External dimensions of values uniquely shape attitudes and behaviors. •Familial values have a positive influence on shaping attitudes and behaviors.

(Schwartz, 1992)	Improve previous research conducted by Schwartz & Bilsky (Schwartz & Bilsky, 1987) to determine if social experience affects value priorities, if these value priorities shape one's behavior and choices, and what are the cause and effect of cross-cultural values.	Survey of school teachers and students in 20 different countries.	<ul style="list-style-type: none"> •Identified 10 motivationally distinct value types among cultures used to form value priorities. •Value types and single values are equivalent between the 20 countries surveyed.
(Schwepker & Cornwell, 1991)	Develop a profile of the ecologically concerned consumer and determine characteristics that shape their purchase intentions toward reducing solid waste.	U.S. sample replicating research conducted by Balderjahn (1988) to determine the ecological concerned consumer.	<ul style="list-style-type: none"> •Attitudes toward littering were the most important variable discriminating between high and low purchase intention groups. •Consumer attitudes and purchase intentions indicate an awareness of the solid waste problem in the U.S. •Knowledge of the solid waste problem influenced the purchase intentions and attitudes of consumers.
(Mainieri, Barnett, Valdero, Unipan, & Oskamp, 1997)	Investigate variables that predicts green buying behavior.	Mail survey of middle class households in Los Angeles, California.	<ul style="list-style-type: none"> •Consumer beliefs had the greatest influence on purchase behavior. •Positive pro-environmental beliefs were associated with pro-environmental attitudes which predicted purchase behavior.
(Fisk, 1973)	Call for developing theory addressing responsible consumption	Research was theoretical.	<ul style="list-style-type: none"> •Consumers need to develop new attitudes toward consumption, and then social organizations need to promote these attitudes. •Areas that need to be addressed include corporate and individual recycling, mass transit, consumer demand for products made from post-consumer contents, and proper handling of nuclear waste. •Economic prosperity of China and India was revealed to have an impact on the depletion of natural resources. •The two most importance aspects of responsible consumption is recycling and reducing.

Appendix G
Initial Questionnaire used for the Pilot Test

The following is a sample of the questionnaire as it appears in Qualtrics®.

Doctor of Business Administration Dissertation
Keith E. Ferguson
Kennesaw State University
Coles College of Business
1000 Chastain Road, BB 255
Kennesaw, GA 30144

This study examines purchasing patterns for sustainable products and services. Your opinions will help us to better understand consumer purchasing patterns so businesses can better serve their customers.

To participate in the study you must be 18+ years of age. Completing the study will take about 15 to 20 minutes. There is no risk to you by participating in this survey. The researcher will not have knowledge of you and your identity is completely anonymous.

If you have any questions you can contact me at 616-558-6481 or at kferguso@grcc.edu

Your participation in the study is voluntary. Your answers will not be tied to you in any way. Responses will be reported only by grouping answers. You can stop answering questions at any time without penalty. By completing this survey, you are agreeing to participate in this research project. Please check the box to indicate you give your consent to using the information provided for this research.

THIS PAGE MAY BE PRINTED AND KEPT BY EACH PARTICIPANT

Research at Kennesaw State University that involves human participants is carried out under the oversight of an Institutional Review Board. Questions or problems regarding these activities should be addressed to the Institutional Review Board, Kennesaw State University, 1000 Chastain Road, #0112, Kennesaw, GA 30144-5591, (678) 797-2268.

Thank you for taking the time to complete this survey. All answers are confidential and your identity is completely anonymous. It is important that you answer all questions completely and accurately.

PLEASE CLICK ON THE FOLLOWING TO BEGIN:

Instrument Used for this Study

Research Note:

Below are examples of scales items that will be used in this study. The survey will be administered online using Qualtrics®. Therefore, the scale items and the constructs they are measuring are listed as a representation of the online survey which will have a different format. Also, the questions are organized by constructs to facilitate understanding their intention in the research. When administered, the questions will be randomly sequenced and the scale ranges will vary to reduce common methods bias. In summary, the current study has taken steps toward controlling for common methods bias (Podsakoff et al., 2003) through proper survey design (Hair et al., 2011a).

Scale items. For each question below indicate the extent to which you agree or disagree with each of the statements. Place a number between 0-10 in the space provided to reflect your level of agreement. For example, if you “strongly disagree” place a 0 in the blank space. If you “strongly agree” place a 10 in the space. Use the numbers 2 to 9 if your level of agreement falls somewhere between.

Ecologically Conscious Consumer Behavior-Roberts (1996).

1. I make a conscious effort to limit my use of products that are made from scarce resources._____
2. I purchase products that contribute the least to pollution._____
3. I choose to not purchase environmentally harmful products._____
4. I tend to not buy household products that harm the environment._____
5. I make every effort to buy paper products made from recycled paper._____
6. I have purchased products because they cause less pollution._____
7. Whenever possible, I buy products packaged in reusable containers._____
8. I make a conscious effort to buy products that create few pollutants when used as directed._____
9. When I have a choice between two equal products, I always purchase the one less harmful to the environment._____
10. I buy toilet paper made from recycled paper._____
11. I have switched products for ecological reasons._____

12. I buy paper towel made from recycled paper._____

Psychographics-Roberts (1996).

13. The individual consumer has little control over pollution._____

14. When I buy products, I try to consider how my use of them will affect others._____

15. Since one person cannot have any effect upon natural resource depletion, it does not make a difference what I do._____

16. Each consumer's behavior can have a positive effect on society by purchasing products sold by socially responsible companies._____

17. Purchasing sustainable products (products that account for social, economic, and environmental importance) can help preserve natural resources for future generations._____

18. Purchasing sustainable products has little effect on global warming._____

Environmental Concern-Roberts (1996).

19. Animals exist primarily to be used by humans._____

20. We are approaching the limit in the number of people the earth can support._____

21. Since one person cannot have any effect upon pollution, it doesn't matter what I do._____

22. Humans need to adapt to the natural environment because they can remake it to suit their need to be socially responsible._____

23. There are limits to growth for our industrialized society

24. The balance of nature is very delicate._____

25. When humans interfere with nature, it often produces disastrous consequences._____

26. Humans must live in harmony with nature in order to survive._____

27. Mankind is abusing the environment._____

28. Humans have the right to modify the natural environment to suit their needs (i.e., diverting water from the Great Lakes to the Southwest)._____

29. Mankind was created to rule over the rest of nature._____

Self-reflection-Grant et al., (2002).

30. I do not think very often about the things that influence my life._____
31. I am not really interested in analyzing my behavior._____
32. I am usually aware of my thoughts._____
33. I am often confused about the way that I really feel about things._____
34. It is important for me to evaluate the things I do._____
35. I usually have a clear idea about why I have behaved in a certain way._____
36. I am very interested in examining what I think about._____
37. I rarely spend time in self-reflection._____
38. I am often aware that I am having feelings, but I often do not know what they are._____
39. I frequently examine my feelings._____
40. My behavior often puzzles me._____
41. It is important for me to try to understand what my feelings mean._____
42. I do not really think about why I behave in the way I do._____
43. Thinking about my thoughts makes me confused._____
44. I have a definite need to understand the way that my mind works._____
45. I frequently take time to reflect on my thoughts._____
46. Often I find it difficult to make sense of the way I feel about things._____
47. It is important to me to be able to understand how my thoughts develop._____
48. I often think about the way I feel about things._____
49. I usually know why I feel the way I do._____

Attitudes-LaRoche et al., (2001).

50. There should be tougher anti-pollution laws, even if such laws might mean a decrease in our standard of living._____
51. Values in American society have been a basic cause of the present environmental problems._____

52. Drinking municipal water is quite safe._____
53. The air I breathe is polluted._____
54. Most of our lakes, ponds, and rivers are safe to swim in._____
55. Consumer product packaging is a major contributor to solid waste._____
56. My behavior makes no difference in the fight against pollution._____
57. It is not up to the consumer to be interested in how the products they use affect the environment._____
58. Leaving the television on when no one is watching is no big deal since electricity is so cheap._____
59. It is ridiculous to have to pay for returnable containers._____
60. I would be willing to spend an extra \$10 per week in order to buy less environmentally harmful products._____
61. Recycling is too much trouble._____
62. I would accept paying 10% more taxes to pay for an environmental cleanup program._____

Values-LaRoche et al., (2001).

63. I would buy disposable diapers._____
64. I sometimes use Styrofoam cups._____
65. I often purchase products that contain post-consumer recycled ingredients._____
66. I like to purchase water in plastic bottles._____
67. I use rechargeable batteries whenever possible._____
68. I often purchase organically grown fruits._____
69. I prefer to use environmentally friendly cleaning supplies._____
70. I support fair trade coffee._____
71. Organic meats are worth the extra money._____

Eco-literacy-LaRoche et al., (2001).

72. The three R's for environmental behavior are? Please check the correct answer.

Reduce, restore, and reuse_____

Recycle, reallocate, and reduce_____

Reuse, redistribute, and recycle_____

Reuse, reduce, and recycle_____

73. What does the following symbol represent? Please select the correct answer.

Environmentally safe_____

Recycle_____

Eco-awareness_____

Product was not made with children labor_____



74. What does this symbol represent? Please select from the choices below.

For sustainable consumption_____

Forest stewardship council_____

Forever sustainable county_____

Furthering sustainable cooperation_____



75. Which of the following gases is considered a greenhouse gas? Check all that apply.

Carbon monoxide_____

Radon_____

Ozone_____

Methane_____

76. Global warming is caused by which of the following? Check the one that is most important to global warming.

A depletion of ozone_____

Carbon in the atmosphere_____

Natural occurrences_____

There is no explanation_____

77. To the best of your knowledge, what is the single cause that contributes the most to air pollution on this planet?

Cigarette smoke _____

Automobiles _____

Power stations _____

78. What percentage of residential waste can be recycled in the United States?

1-20% _____

21-40% _____

41-60% _____

61-80% _____

81-100% _____

79. Which one of these is the simplest way to reduce a car's fuel consumption?

Use high octane fuel _____

Keep tires soft _____

Drive faster _____

Drive slower _____

80. Which type of animal is a major contributor to greenhouse gas?

Cows _____

Termites _____

Sheep _____

Horses _____

81. What is the average temperature increase in the last one hundred years?

.75 F _____

1.0F _____

1.25 F _____

1.33F_____

82. What is the average temperature increase since 1979?

.9F_____

1.06F_____

1.18F_____

1.26F_____

Eco-labels.

83. I believe that environmental information on product labels is important._____

84. I believe the environmental information on product labels._____

85. Eco-labels influence my buying behavior._____

86. If an eco-labeled product was more expensive than a non-labeled product I would purchase it._____

87. I typically read environmentally friendly claims on eco-labeled products._____

88. I like eco-labels because they reduce my need for previous knowledge about a product's environmental friendliness._____

88. I like eco-labels because they reduce my need for environmental knowledge when considering a sustainable product by supplying environmental knowledge at the point of purchase._____

89. What percentage premium would you be willing to pay for products that contain Eco-labels?_____

Defaults.

Scale items. For each question below indicate the extent to which you agree or disagree with each of the statements. Place a number between 0-10 in the space provided to reflect your level of agreement. For example, if you "strongly disagree" place a 0 in the blank space. If you "strongly agree" place a 10 in the space. Use the numbers 2 to 9 if your level of agreement falls somewhere between. Added per recommendation from an expert

90. If green electricity (electricity created by solar, wind, or hydro) were automatically sent to consumers in your area, and if you had to contact the electric utility to change to

gray electricity (electricity produced by burning coal), how likely would you be to switch from green to gray electricity._____

91. How likely would you be to allow social media websites, such as Facebook, to share your personal information in exchange for having an account._____

92. How likely would you be to donate to preserving the rainforest to offset the pollution generated from traveling by airplane._____

93. I would not be likely to request additional information regarding environmental issues if it was offered to me._____

94. If green natural gas collected from landfills was provided to customers in your area, and you had to contact the utility company to change to natural gas collected from the Earth, how likely would you be to switch._____

95. I would be more likely to contact the “National Do Not Call Register” to remove my name from lists used by telemarketers._____

96. If you attended an event and were automatically charged a fee that was to be used to preserve the rainforest to offset the pollution created by traveling to the event, how likely would you be to check the box to not pay the fee?_____

97. If you had a social media account and your information was available to anyone, how likely would you be to change the settings to block the provider from sharing your information?_____

98. If you were provided gray electricity and found out you could get green electricity for a monthly service fee, how likely would you be to call the utility provider and switch._____

99. How likely would you be to call a company offering free environmentally friendly products in exchange for providing feedback regarding how satisfied you were with the products._____

100. If you were provided a free 90 day trial offer to receive organic food, how likely would you be to continue receiving the organic food at a premium price versus non-organic food._____

Recycling Frequency-Sidique et. al., (2010).

101. I am more likely to purchase products that can be recycled._____

102. I am familiar with the types of materials accepted for recycling in the recycling facilities in my area._____

103. Recycling is a major way to reduce pollution._____
104. Recycling is a major way to reduce wasteful use of landfills._____
105. Recycling is important to conserve natural resources._____
106. Recycling improves environmental quality._____
107. My family expects me to recycle household materials._____
108. My friends expect me to recycle household materials._____
109. I learned how to recycle from my parents._____
110. I believe my recycling activities will help reduce pollution._____
111. I believe that my recycling activities will help reduce wasteful use of landfills._____
112. I believe my recycling activities will help conserve natural resources._____
113. I believe my recycling activities will help improve environmental quality._____
114. I feel good about myself when I recycle._____

Waste Reduction-Strathman, A., Gleicher, F., Boninger, D.S., & Edwards, C.S. (1994).

115. I consider how things might be in the future, and try to influence those things with my day-to-day behavior._____
116. I often engage in a particular behavior in order to achieve outcomes that may not occur for many years._____
117. I only act to satisfy immediate concerns, figuring the future will take care of itself._____
118. My behavior is only influenced by the immediate outcomes of my actions (i.e., outcomes within a matter of days or weeks)._____
119. My convenience is a big factor in the decisions I make._____
120. I am willing to sacrifice my immediate happiness in order to achieve future outcomes._____
121. I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years._____

122. I think it is more important to take actions with important distant consequences than those with less-important immediate consequences._____

123. I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level._____

124. I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time._____

125. I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date._____

126. Since my day-to-day work has specific outcomes, it is more important to me than behavior that has distant outcomes._____

Consumption Levels-Cooper (2005).

127. I feel routine maintenance for an automobile is important so the owner can drive it as long as possible._____

128. I will pay more for a product that will have a longer life._____

129. I frequently purchase the “latest and greatest” products when they are available._____

130. Using mass transit is important to conserve natural resource use._____

131. What others think of the car I drive is important to me._____

132. I look forward to being able to upgrade to a new cell phone._____

133. I turn down the heat in the winter to reduce my energy usage._____

134. I frequently turn off lights in my home to save energy._____

Self-Efficacy-General Scale.

135. When I make plans, I am certain I can make them work._____

136. If I can't do a job the first time, I keep trying until I can._____

137. When I have something unpleasant to do, I stick with it until I finish it._____

138. When I decide to do something, I go right to work on it._____

139. Failure makes me try harder._____

140. I am the type of person that can rely on myself to achieve my goals._____

141. When I set goals for myself, I often achieve them. _____
142. If something looks too complicated, I look forward to figuring it out. _____
143. When unexpected problems occur, I handle them well. _____
144. I feel secure about my ability to do things. _____

Likelihood to Purchase-Social.

145. I purchase products that contribute a portion of the profits to special causes. _____
146. It is highly probable I will tell others the reasons why purchasing products that can be recycled is better for society. _____
147. My willingness to purchase products with no chlorofluorocarbons is motivated by helping future generations. _____
148. I typically purchase products with reusable containers because I know how I use products affects others. _____

Likelihood to Purchase-Economic.

149. I am willing to pay a premium for fair trade coffee. _____
150. I am likely to purchase a compact fluorescent light bulb versus an incandescent light bulb because it saves me money through reduced energy bills. _____
151. I typically consider the savings I will incur over the life span of an energy efficient product. _____
152. I am more likely to shop local. _____
153. I am likely to purchase products from companies that are sustainable. _____
154. I am willing to pay a premium for products that can be recycled. _____

Likelihood to Purchase-Environmental.

155. I am likely to purchase paper towels made from recycled paper. _____
156. It is likely that my next vehicle purchase will be a low emissions model because it pollutes less. _____
157. I would purchase carbon credits to off-set trips I take by airplane. _____
158. I prefer not to drink bottled water because it is a major contributor to waste. _____

159. I am likely to vacation close to home to reduce pollution. _____

Sustainability Efforts at Grand Rapids Community College (GRCC)

160. To what extent are you aware of the sustainability efforts/programs at GRCC. _____

161. To what degree are you aware of the Office of Sustainability at GRCC. _____

162. To what extent are you aware that the renovations to Cook Hall are Leadership in Energy & Environmental Design (Leedy & Smith) Certified. _____

163. To what extent were you aware that GRCC offered an Introduction to Sustainability course. _____

164. To what extent are you aware that GRCC signed a 15 year agreement to purchase steam from an outside vendor. _____

Demographics.

165. What is your gender: Male _____ Female _____

166. What is your age in years. _____

167. Education – Highest level attained – choose only one category

Less than high school _____

High school graduate _____

Some college _____

College graduate (Bachelor's degree) _____

College graduate plus (Master's degree or more) _____

168. Ethnicity – choose only one category

American Indian or Alaska Native _____

Asian _____

Black or African American _____

Native Hawaiian or Other Pacific Islander _____

White _____

Hispanic or Latino _____

Other _____

169. Current marital status:

Married _____ Single _____ Divorced & Single _____

170. Number of children you have _____

171. Annual household income

20,000-49,999 _____

50,000-79,999 _____

80,000-109,999 _____

110,000-139,999 _____

140,000-169,999 _____

170,000+ _____

172. About how many years old is the primary vehicle you drive? _____

Appendix H
Final Questionnaire

Cover Page

Doctor of Business Administration Dissertation
Keith E. Ferguson
Kennesaw State University
Coles College of Business
1000 Chastain Road, BB 225
Kennesaw, GA. 30144

Dear Colleagues:

My name is Keith Ferguson. I am full-time faculty at GRCC teaching Green Construction Remodeling and overload in the Business Department. I am working on my Doctorate in Business Administration degree from Kennesaw State University. I am in the process of collecting data to complete my research and would like to ask your help in doing so. If you could take a few moments to fill out this survey it would be greatly appreciated.

This study examines purchasing patterns for sustainable products and services. Your opinions will help me to better understand consumer behavior so businesses can serve their customers more efficiently.

To participate in the study you must be 18+ years of age. Completing the survey will take about 15-20 minutes. There is no risk to you by participating in this survey. As part of taking this online survey, the software platform (Qualtrics) will collect your IP address, but they will not be used for this study and the researchers have no access to them. This research will not have knowledge of the respondents and your identity is completely anonymous. If you have any questions you can contact me at 616-558-6481 or at kferguso@grcc.edu.

Your participation is voluntary. Your answers will not be tied to you in any way. Responses will be reported only by grouping answers. You can stop answering questions at any time without penalty. By completing this survey, you are agreeing to participate in this research project. Please check to indicate you give consent to using the information provided for this research. _____

This page may be printed and kept by each participant.

Research at Kennesaw State University and Grand Rapids Community College that involves human participants is carried out under the oversight of an Institutional Review Board. Questions or problems regarding these activities should be address to:

Institutional Review Board
Kennesaw State University
1000 Chastain Road #0112

Kennesaw, GA. 30144-5591
(678) 797-2268

Institutional Review Board
Grand Rapids Community College
143 Bostwick Avenue N.E.
Grand Rapids, MI. 49503
(616) 234-4040

Thank you for taking the time to complete this survey. All answers are confidential and your identity is completely anonymous. It is important that you answer completely and accurately.

Scale items. For each question below please indicate the extent to which you agree or disagree with each of the statements. A 0-10 scale will be used to reflect your level of agreement. In order to represent your level of agreement, slide the icon or left click your cursor on the horizontal line to represent your level agreement or disagreement. For example, if you “**strongly disagree**” indicate a 0 for the question, or if you “**strongly agree**” indicate a 10. If your level of agreement is between 0 and 10, select a point on the line somewhere in between.

Ecologically Conscious Consumer

1. I choose to not purchase environmentally harmful products. _____
2. I tend to not buy household products that harm the environment. _____
3. I make every effort to buy paper products made from recycled paper. _____
4. I have purchased products because they cause less pollution. _____
5. I sometimes switch products for ecological reasons. _____

Environmental Concern

6. The balance of nature is very delicate. _____
7. There are limits to growth for our industrialized society. _____
8. When humans interfere with nature, it often produces disastrous consequences. _____
9. Humans must live in harmony with nature in order to survive. _____
10. Mankind is abusing the environment. _____

Self-Reflection

11. I frequently take time to reflect on my thoughts. _____
12. Often I find it difficult to make sense of the way I feel about things. _____
13. It is important to me to be able to understand how my thoughts develop. _____
14. I often think about the way I feel about things. _____
15. Thinking about my thoughts makes me confused. _____

16. My behavior often puzzles me. _____

Attitudes

17. Values in American society have been a basic cause of the present environmental problems. _____

18. Drinking municipal water is quite safe. _____

19. The air I breathe is polluted. _____

20. Consumer product packaging is a major contributor to solid waste. _____

21. It is not up to the consumer to be interested in how the products they use affect the environment. _____

22. Recycling is too much trouble. _____

Self-Efficacy

23. When I make plans, I am certain I can make them work. _____

24. If I can't do the job the first time, I keep trying until I can. _____

25. Failure makes me try harder. _____

26. When I set goals for myself, I often achieve them. _____

27. When I have something unpleasant to do, I stick with it until I finish it. _____

Scale items. For each question below please indicate the extent to which you never or always purchase or use the listed products. A 0-10 scale will be used to reflect your level of use. In order to represent your level of use, slide the icon or left click your cursor on the horizontal line to represent your level of never or always use the products. For example, if you “**never**” would buy or use indicate a 0 for the question, or if you would “**always**” indicate a 10. If your level of agreement is between 0 and 10, select a point on the line somewhere in between.

Values

28. I sometimes use Styrofoam cups. _____

29. I often purchase products that contain post-consumer recycled ingredients. _____

30. I use rechargeable batteries whenever possible. _____

31. I prefer to use environmentally friendly cleaning supplies. _____

32. I support fair trade coffee. _____

Scale items: For the following questions, please select the response that best answers the following questions.

Eco-Literacy

33. The three R's for environmental behavior are? Please check the correct answer.

a. Reduce, restore, and reuse _____

b. Recycle, reallocate, and reduce _____

- c. Reuse, redistribute, and recycle _____
- d. Reuse, reduce, and recycle _____
34. What does the following symbol represent? Please select the correct answer.
-
- a. Environmentally safe _____
- b. Recycle _____
- c. Eco-awareness _____
- d. Product was not made with children labor _____
35. What does this symbol represent? Please select from the choices below.
-
- a. For sustainable consumption _____
- b. Forest stewardship council _____
- c. Forever sustainable county _____
- d. Furthering sustainable cooperation _____
36. Which of the following gases is considered a greenhouse gas? Check all that apply.
- a. Carbon monoxide _____
- b. Radon _____
- c. Ozone _____
- d. Methane _____
37. Global warming is caused by which of the following? Check the one that is most important to global warming.
- a. A depletion of ozone _____
- b. Carbon in the atmosphere _____
- c. Natural occurrences _____
- d. There is no explanation _____
38. To the best of your knowledge, what is the single cause that contributes the most to air pollution on this planet?
- a. Cigarette smoke _____
- b. Automobiles _____
- c. Power stations _____
39. What percentage of residential waste can be recycled in the United States?
- a. 1-20% _____
- b. 21-40% _____
- c. 41-60% _____
- d. 61-80% _____
- e. 81-100% _____
40. Which one of these is the simplest way to reduce a car's fuel consumption?
- a. Use high octane fuel _____
- b. Keep tires soft _____
- c. Drive faster _____

- d. Drive slower_____
41. Which type of animal is a major contributor to greenhouse gas?
- Cows_____
 - Termites_____
 - Sheep_____
 - Horses_____
42. What is the average temperature increase in the last one hundred years?
- .75 F_____
 - 1.0F_____
 - 1.25 F_____
 - 1.33F_____
43. What is the average temperature increase since 1979?
- .9F_____
 - 1.06F_____
 - 1.18F_____
 - 1.26F_____

Scale items. For each question below please indicate the extent to which you agree or disagree with each of the statements. A 0-10 scale will be used to reflect your level of agreement. In order to represent your level of agreement, slide the icon or left click your cursor on the horizontal line to represent your level agreement or disagreement. For example, if you “**strongly disagree**” indicate a 0 for the question, or if you “**strongly agree**” indicate a 10. If your level of agreement is between 0 and 10, select a point on the line somewhere in between.

Eco-Labels

44. I believe that environmental information on product labels is important._____
45. I believe the environmental information on product labels._____
46. Eco-labels influence my buying behavior._____
47. If an eco-labeled product was more expensive than a non-labeled product I would purchase it._____
48. I typically read environmentally friendly claims on eco-labeled products._____

Scale items. For each question below indicate the extent to which you are not likely or very likely to act on the statements proposal. A 0-100 scale will be used to reflect your level of likelihood. In order to represent your level of likelihood, slide the icon or left click your cursor on the horizontal line to represent your level of likelihood. For example, if you are “**not likely**” place a 0 in the blank space. If you are “**very likely**” place a 100 in the space. If your level of agreement is between 0 and 100, select a point on the line somewhere in between.

Defaults

49. How likely would you be to allow social media websites, such as Facebook, to share your personal information in exchange for having an account._____
50. How likely would you be to donate to preserving the rain forest to offset the pollution generated from traveling by airplane._____
51. How likely would you be to request additional information regarding environmental issues if it was offered to me._____
52. If you were provided gray electricity and found out you could get green electricity for a monthly service fee, how likely would you be to call the utility provider and switch._____
53. If you were provided a free 90 day trial offer to receive organic food, how likely would you be to continue to receive the organic food at a premium price versus non-organic food._____

Scale items. For each question below please indicate the extent to which you agree or disagree with each of the statements. A 0-10 scale will be used to reflect your level of agreement. In order to represent your level of agreement, slide the icon or left click your cursor on the horizontal line to represent your level agreement or disagreement. For example, if you “**strongly disagree**” indicate a 0 for the question, or if you “**strongly agree**” indicate a 10. If your level of agreement is between 0 and 10, select a point on the line somewhere in between.

Recycling Frequency

54. Recycling improves environmental quality._____
55. I believe my recycling activities will help improve environmental quality._____
56. Recycling is important to conserve natural resources._____
57. I believe my recycling activities will help reduce pollution._____
58. I believe my recycling activities will help conserve natural resources._____
59. I believe that my recycling activities will help reduce wasteful use of landfills._____

Scale items. For each question below indicate the extent to which you are extremely uncharacteristic to extremely characteristic with each of the statements. A 0-10 scale will be used to reflect your level characteristic level. In order to represent your characteristic level, slide the icon or left click your cursor on the horizontal line to represent your characteristic level. For example, if you are “**extremely uncharacteristic**” place a 0 in the blank space. If you are “**extremely characteristic**” place a 10 in the space. If your characteristic level is between 0 and 10, select a point on the line somewhere in between.

Waste Reduction

60. My convenience is a big factor in the decisions I make._____
61. I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level._____
62. I think it is more important to take actions with important distant consequences than those with less-important immediate consequences._____

63. I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time. _____
64. I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date. _____

Scale items. For each question below please indicate the extent to which you agree or disagree with each of the statements. A 0-10 scale will be used to reflect your level of agreement. In order to represent your level of agreement, slide the icon or left click your cursor on the horizontal line to represent your level agreement or disagreement. For example, if you “**strongly disagree**” indicate a 0 for the question, or if you “**strongly agree**” indicate a 10. If your level of agreement is between 0 and 10, select a point on the line somewhere in between.

Consumption Levels

65. I feel routine maintenance for an automobile is important so the owner can drive it as long as possible. _____
66. I will pay more for a product that will have a longer life. _____
67. I frequently purchase the “latest and greatest” products when they are available. _____
68. What others think of the car I drive is important to me. _____
69. I look forward to being able to upgrade to a new cell phone. _____

Psychographics

70. The individual consumer has little control over pollution. _____
71. There are limits to growth beyond which our industrialized society cannot expand. _____
72. Since one person cannot have any effect upon natural resource depletion, it does not make a difference what I do. _____
73. Purchasing sustainable products (products that account for social, economic, and environmental importance) can help preserve natural resources for future generations. _____
74. Purchasing sustainable products has little effect on global warming. _____

Scale items. For each question below indicate the extent to which you not likely to extremely likely to perform each of the statements. A 0-100 scale will be used to reflect your level of likelihood. In order to represent your level of likelihood, slide the icon or left click your cursor on the horizontal line to represent your level of likelihood. For example, if you are “**not likely**” place a 0 in the blank space. If you are “**extremely likely**” place a 100 in the space. If your level of agreement is between 0 and 100, select a point on the line somewhere in between.

Likelihood to Purchase Sustainable Products-Social Importance

75. I am more likely to purchase products that contribute a portion of the profits to special causes. _____
76. My likelihood to purchase products with no chlorofluorocarbons is motivated by helping future generations. _____
77. I am likely to purchase products with reusable containers because I know how I use products affects others. _____

Likelihood to Purchase Sustainable Products-Economic

78. I am likely to purchase a compact fluorescent light bulb versus an incandescent light bulb because it saves me money through reduced energy bills. _____
79. I am likely to consider the savings I will incur over the life span of an energy efficient product. _____
80. I am more likely to shop local. _____
81. I am likely to pay a premium for products that can be recycled. _____

Likelihood to Purchase Sustainable Products-Environmental

82. I am likely to purchase paper towels made from recycled paper. _____
83. I am likely to contribute to causes that preserve the environment. _____
84. I am likely to vacation close to home to reduce pollution. _____

Scale items. For each question below indicate the extent to which you are not aware to fully aware of each of the statements. Place a number between 0-10 in the space provided to reflect your level of awareness. For example, if you are “**not aware**” place a 0 in the blank space. If you are “**fully aware**” place a 10 in the space. Use the numbers 2 to 9 if your level of awareness falls somewhere between.

Sustainability Efforts at GRCC

85. To what extent are you aware of the sustainability efforts/programs at GRCC. _____
86. To what degree are you aware of the Office of Sustainability at GRCC. _____
87. To what extent are you aware that the renovations to Cook Hall are Leadership in Energy & Environmental Design (Leedy & Smith) Certified. _____
88. To what extent were you aware that GRCC offered an Introduction to Sustainability course. _____
89. To what extent are you aware that GRCC signed a 15 year agreement to purchase steam from an outside vendor. _____

Scale items. For each question below please indicate the extent to which you agree or disagree with each of the statements. A 0-10 scale will be used to reflect your level of agreement. In order to represent your level of agreement, slide the icon or left click your cursor on the horizontal line to represent your level agreement or disagreement. For example, if you “**strongly disagree**” indicate a 0 for the question, or if you “**strongly**

agree” indicate a 10. If your level of agreement is between 0 and 10, select a point on the line somewhere in between.

Demographics

90. What is your gender: Male_____ Female_____
91. What is your age in years._____
92. Education – Highest level attained – choose only one category
- a. Less than high school_____
 - b. High school graduate_____
 - c. Some college_____
 - d. College graduate (Bachelor’s degree)_____
 - e. College graduate plus (Master’s degree or more)_____
93. Ethnicity – choose only one category
- a. American Indian or Alaska Native_____
 - b. Asian_____
 - c. Black or African American_____
 - d. Native Hawaiian or Other Pacific Islander_____
 - e. White_____
 - f. Hispanic or Latino_____
 - g. Other_____
94. Current marital status:
- a. Married_____ Single_____ Divorced & Single_____
95. Number of children you have living at home_____
96. Annual household income
- a. 20,000-49,999_____
 - b. 50,000-79,999_____
 - c. 80,000-109,999_____
 - d. 110,000-139,999_____
 - e. 140,000-169,999_____
 - f. 170,000+_____
97. About how many years old is the primary vehicle you drive?_____

Appendix I
Final Survey Sample Size Characteristics

Number of Employees by Employee Group

Employee Group	Total
Campus Police	14
CEBA	82
ESP	97
Faculty	256
Meet & Confer	227
Grand Total	676

Highest Education Level

Education Level	Total
2-Yr College	54
Bachelor's	134
Doctorate	46
HS Grad	10
Master's	261
MD,DDS,JD	2
Not Indicated	157
Some Coll.	12
Grand Total	676

Age Ranges

Age Ranges	Total
20-25	13
26-30	41
31-35	70
36-40	64
41-45	105
46-50	117
51-55	102
56-60	122
61-65	34
66-70	4
71-75	2
76-80	1
81-85	1
Grand Total	676

Compensation Ranges

Compensation Ranges	Total
20000-30000	13
31000-40000	130
41000-50000	121
51000-60000	103
61000-70000	73
71000-80000	45
81000-90000	128
91000-100000	12
101000-120000	36
121000-130000	9
131000-140000	4
141000-150000	1
171000-180000	1

Gender Percentage

Gender	Total
Female	53.4%
Male	46.6%
Grand Total	100%

Ethnicity Percentage

Ethnic Group	Total
Am. Indian	0.30%
Asian	1.04%
Black	12.72%
Hispanic	5.62%
White	80.33%
Grand Total	100.00%

Appendix J
Criteria to Distinguish Reflective Versus Formative Constructs (Hair et al., 2014)

Criterion	Decision
Causal priority between the indicator and the construct?	<ul style="list-style-type: none"> • From the construct to the indicators-reflective • From the indicators to the construct-formative
Is the construct a trait, explaining the indicators, or rather a combination of the indicators?	<ul style="list-style-type: none"> • If a trait-reflective • If a combination-formative
Do the indicators represent causes or consequences of the construct?	<ul style="list-style-type: none"> • Causes-reflective • Consequences-formative
Is it necessarily true that if the assessment of the trait changes, all items will change in a similar manner?	<ul style="list-style-type: none"> • If yes-reflective • If no-formative
Are the items mutually interchangeable?	<ul style="list-style-type: none"> • If yes-reflective • If no-formative

Appendix K
Sample Size Requirements: PLS-SEM
(Hair et al., 2014, p. 21)

Exhibit 1.7 Sample Size Recommendation in PLS-SEM

Maximum Number of Arrows Pointing at a Construct	Significance Level											
	1%				5%				10%			
	Minimum R ²				Minimum R ²				Minimum R ²			
	0.10	0.20	0.50	0.75	0.10	0.25	0.50	0.75	0.10	0.25	0.50	0.75
2	158	75	47	38	110	52	33	26	88	41	26	21
3	176	84	53	42	124	59	38	30	100	48	30	25
4	191	91	58	46	137	65	42	33	111	53	34	27
5	205	98	62	50	147	70	45	36	120	58	37	30
6	217	103	66	53	157	75	48	39	128	62	40	32
7	228	109	69	56	166	80	51	41	136	66	42	35
8	238	114	73	59	174	84	54	44	143	69	45	37
9	247	119	76	62	181	88	57	46	150	73	47	39
10	256	123	79	64	189	91	59	48	156	76	49	41

Source: Cohen, J. A power primer. *Psychological Bulletin*, 112, 155–159.

Appendix L
Exploratory Factor Analysis (EFA)
EFA Analysis Chart

Construct: Ecologically Conscious Consumer	Items retained after EFA (See Appendix G for the questions that correspond to the items retained)
<p>Ecologically Conscious Consumer Behavior(ECCB)</p> <ol style="list-style-type: none"> 1. ECCB 1 2. ECCB 2 3. ECCB 3 4. ECCB 4 5. ECCB 5 6. ECCB 6 7. ECCB 7 8. ECCB 8 9. ECCB 9 10. ECCB 10 11. ECCB 11 12. ECCB 12 13. ECCB 13 14. ECCB 14 	<p>Ecologically Conscious Consumer Behavior (ECCB)</p> <ol style="list-style-type: none"> 1. ECCB 4 2. ECCB 5 3. ECCB 6 4. ECCB 7 5. ECCB 12
<p>Environmental Concern (EC)</p> <ol style="list-style-type: none"> 1. EC 1 2. EC 2 3. EC 3 4. EC 4 5. EC 5 6. EC 6 7. EC 7 8. EC 8 9. EC 9 10. EC 10 	<p>Environmental Concern (EC)</p> <ol style="list-style-type: none"> 1. EC 4 2. EC 5 3. EC 6 4. EC 7 5. EC 8
<p>Self-Reflection (Lazarsfeld & Katz)</p> <ol style="list-style-type: none"> 1. SF 1 2. SF 2 3. SF 3 4. SF 4 5. SF 5 6. SF 6 7. SF 7 8. SF 8 	<p>Self-Reflection (Lazarsfeld & Katz)</p> <ol style="list-style-type: none"> 1. SF 11 2. SF 14 3. SF 16 4. SF 17 5. SF 18 6. SF 19

<ul style="list-style-type: none"> 9. SF 9 10. SF 10 11. SF 11 12. SF 12 13. SF 13 14. SF 14 15. SF 15 16. SF 16 17. SF 17 18. SF 18 19. SF 19 20. SF 20 	
<p>Psychographics-Perceived Consumer Effectiveness (PSYCH)</p> <ul style="list-style-type: none"> 1. PSYCH 1 2. PSYCH 2 3. PSYCH 3 4. PSYCH 4 5. PSYCH 5 6. PSYCH 6 7. PSYCH 7 8. PSYCH 8 	<p>Psychographics (PSYCH)</p> <ul style="list-style-type: none"> 1. PSYCH 1 2. PSYCH 2 3. PSYCH 5 4. PSYCH 7 5. PSYCH 8
<p>Construct: Sustainable Consumption</p>	
<p>Recycling Frequency (RFREQ)</p> <ul style="list-style-type: none"> 1. RFREQ 1 2. RFREQ 2 3. RFREQ 3 4. RFREQ 4 5. RFREQ 5 6. RFREQ 6 7. RFREQ 7 8. RFREQ 8 9. RFREQ 9 10. RFREQ 10 11. RFREQ 11 12. RFREQ 12 13. RFREQ 13 14. RFREQ 14 15. RFREQ 15 	<p>Recycling Frequency (RFREQ)</p> <ul style="list-style-type: none"> 1. RFREQ 5 2. RFREQ 6 3. RFREQ 7 4. RFREQ 9 5. RFREQ 10 6. RFREQ 11 7. RFREQ 12 8. RFREQ 13
<p>Consumption Reduction is measured by</p>	

<p>Waste Reduction and Consumption Levels</p> <p>Waste Reduction (WRED)</p> <ol style="list-style-type: none"> 1. WRED 1 2. WRED 2 3. WRED 3 4. WRED 4 5. WRED 5 6. WRED 6 7. WRED 7 8. WRED 8 9. WRED 9 10. WRED 10 11. WRED 11 12. WRED 12 13. WRED 13 	<p>Waste reduction (WRED)</p> <ol style="list-style-type: none"> 1. WRED 5 2. WRED 8 3. WRED 9 4. WRED 10 5. WRED 11
<p>Consumption Levels (CONLEV)</p> <ol style="list-style-type: none"> 1. CONLEV 1 2. CONLEV 2 3. CONLEV 3 4. CONLEV 4 5. CONLEV 5 6. CONLEV 6 7. CONLEV 7 8. CONLEV 8 9. CONLEV 9 	<p>Consumption Levels (CONLEV)</p> <ol style="list-style-type: none"> 1. CONLEV 1 2. CONLEV 2 3. CONLEV 3 4. CONLEV 5 5. CONLEV 6
<p>Construct: Willingness-to-Pay</p>	
<p>Defaults (DEF)</p> <ol style="list-style-type: none"> 1. DEF 1 2. DEF 2 3. DEF 3 4. DEF 4 5. DEF 5 6. DEF 6 7. DEF 7 8. DEF 8 9. DEF 9 10. DEF 10 11. DEF 11 12. DEF 12 	<p>Defaults (DEF)</p> <ol style="list-style-type: none"> 1. DEF 2 2. DEF 3 3. DEF 4 4. DEF 9 5. DEF 11

<p>Attitudes (ATT)</p> <ol style="list-style-type: none"> 1. ATT 1 2. ATT 2 3. ATT 3 4. ATT 4 5. ATT 5 6. ATT 6 7. ATT 7 8. ATT 8 9. ATT 9 10. ATT 10 11. ATT 11 12. ATT 12 13. ATT 13 	<p>Attitudes (ATT)</p> <ol style="list-style-type: none"> 1. ATT 2 2. ATT 3 3. ATT 4 4. ATT 6 5. ATT 8 6. ATT 12
<p>Values (VAL)</p> <ol style="list-style-type: none"> 1. VAL 1 2. VAL 2 3. VAL 3 4. VAL 4 5. VAL 5 6. VAL 6 7. VAL 7 8. VAL 8 9. VAL 9 10. VAL 10 	<p>Values (VAL)</p> <ol style="list-style-type: none"> 1. VAL 2 2. VAL 3 3. VAL 5 4. VAL 7 5. VAL 8
<p>Environmental Knowledge is measured by Eco-literacy and Eco-labels</p> <p>Eco-literacy-measured using Laroche, (2001) multiple choice questions, so no EFA run.</p> <p>Eco-labels (ELAB)</p> <ol style="list-style-type: none"> 1. ELAB 1 2. ELAB 2 3. ELAB 3 4. ELAB 4 5. ELAB 5 6. ELAB 6 7. ELAB 7 8. ELAB 8 	<p>Eco-labels (ELAB)</p> <ol style="list-style-type: none"> 1. ELAB 1 2. ELAB 2 3. ELAB 3 4. ELAB 4 5. ELAB 5

<p>Self-efficacy (SE)</p> <ol style="list-style-type: none"> 1. SE 1 2. SE 2 3. SE 3 4. SE 4 5. SE 5 6. SE 6 7. SE 7 8. SE 8 9. SE 9 10. SE 10 	<p>Self-efficacy (SE)</p> <ol style="list-style-type: none"> 1. SE 1 2. SE 2 3. SE 3 4. SE 5 5. SE 7
<p>Likelihood to Purchase Sustainable Products is comprised of social, economic, and environmental components</p> <p>Social (LIKSOC)</p> <ol style="list-style-type: none"> 1. LIKSOC 1 2. LIKSOC 2 3. LIKSOC 3 4. LIKSOC 4 5. LIKSOC 5 <p>Economic (LIKECON)</p> <ol style="list-style-type: none"> 1. LIKECON 1 2. LIKECON 2 3. LIKECON 3 4. LIKECON 4 5. LIKECON5 6. LIKECON6 <p>Environmental (LIKENV)</p> <ol style="list-style-type: none"> 1. LIKENV 1 2. LIKENV 2 3. LIKENV 3 4. LIKENV 4 5. LIKENV 5 	<p>Social (LIKSOC)</p> <ol style="list-style-type: none"> 1. LIKSOC 1 2. LIKSOC 2 3. LIKSOC 3 4. LIKSOC 4 <p>Economic (LIKECON)</p> <ol style="list-style-type: none"> 1. LIKECON 2 2. LIKECON 4 3. LIKECON 6 <p>Environmental (LIKENV)</p> <ol style="list-style-type: none"> 1. LIKENV 2 2. LIKENV 3 3. LIKENV 5

Notes:

1. Many of the dependent variable items had cross-loadings, but the communalities were $>.50$, therefore they were retained.
2. Independent variables EFA analysis was conducted separately.
3. Any cross-loaded variables were checked and have communalities $>.50$

Table Summarizing the EFA for the Constructs of the Theoretical Model

Construct	Initial KMO	Initial Variance Explained	Final KMO	Final Variance Explained	# of Factors
Ecologically Conscious Consumer	.74	55.5%	.72	65.9%	5
Willingness-to-pay	.73	45.7%	.83	57.8%	4
Sustainable Consumption	.77	58.7%	.80	65.0%	4
Self-Efficacy	.81	43.4%	.84	46.7%	1
Likelihood to Purchase Sustainable Products	.84	69.6%	.86	74.5%	4

EFA Conclusion

The EFA provided this study with a list of questions to be used for the final questionnaire. The questions from each construct that satisfied the criteria used in the EFA were considered. The target was to include five to six questions per construct. The questions with the highest loadings were retained to be used. In summary, the questions retained from the EFA will provide the current study with a rich data set in order to test the hypotheses.

Appendix M
Comparison of the Hypotheses from the Original and Revised Structural Models

Original Hypothesis	Revised Model Hypothesis
H1: There is a positive relationship between the ecologically conscious consumer and the likelihood to purchase sustainable products.	H12: There is a positive relationship between the ecologically conscious consumer and sustainability perceptions.
H2: The relationship between the ecologically conscious consumer and ecologically conscious consumer behavior is positive.	H2: The relationship between the ecologically conscious consumer and ecologically conscious consumer behavior is positive.
<p>H3a: There is a positive relationship between the ecologically conscious consumer and perceived consumer effectiveness.</p> <p>H3b: There is a positive relationship between the ecologically conscious consumer and environmental concern.</p>	<p>H3: There is a positive relationship between perceived consumer effectiveness and the ecologically conscious consumer.</p> <p>H4: There is a positive relationship between environmental concern and the ecologically conscious consumer.</p>
H4: There is a positive relationship between the ecologically conscious consumer and self-reflection.	H1: There is a positive relationship between self-reflection and the ecologically conscious consumer.
H5: There is a positive relationship between willingness-to-pay for sustainable products and the likelihood to purchase sustainable products.	H13: There is a positive relationship between willingness-to-pay and sustainability perceptions.

H6: There is a positive relationship between the use of defaults and willingness-to-pay for sustainable products.	H8: There is a positive relationship between defaults and willingness-to-pay.
H7: There is a positive relationship between willingness-to-pay and attitudes.	H9: There is a positive relationship between attitudes and willingness-to-pay.
H8: There is a positive relationship between willingness-to-pay and values.	H10: There is a positive relationship between values and willingness-to-pay.
H9: There is a positive relationship between willingness-to-pay and environmental knowledge.	Eco-literacy construct was deleted so this hypothesis was removed.
H10: There is a positive relationship between environmental knowledge and eco-literacy.	Eco-literacy construct was deleted so this hypothesis was removed.
H11a: There is a positive relationship between environmental knowledge and eco-labels. H11b: The addition of eco-labels enhances the relationship between eco-literacy and environmental knowledge. That is, when eco-labels are present, eco-literacy has a higher correlation with environmental knowledge.	H11: There is a positive relationship between eco-labels and willingness-to-pay. Eco-literacy construct was deleted so this hypothesis was removed.
H12: There is a positive relationship between sustainable consumption and likelihood to purchase	Multicollinearity was causing a suppressor effect between the sustainable consumption and willingness to pay

sustainable products.	constructs. It was then made a component of the ecologically conscious consumer construct based of theoretical support.
H13: There is a positive relationship between sustainable consumption and recycling frequency.	H5: There is a positive relationship between recycling frequency and the ecologically conscious consumer.
H14: There is a negative relationship between sustainable consumption and consumption reduction.	Multicollinearity was causing a suppressor effect between the sustainable consumption and willingness to pay constructs. It was then made a component of the ecologically conscious consumer construct based of theoretical support.
H15: There is a positive relationship between waste reduction and consumption reduction.	H6: There is a positive relationship between waste reduction and the ecologically conscious consumer.
H16: There is a positive relationship between consumption reduction and consumption levels.	H7: There is a positive relationship between consumption levels and the ecologically conscious consumer.
H17: Self-efficacy will mediate the relationship between the ecologically conscious consumer, willingness-to-pay, and sustainable consumption with likelihood to purchase sustainable products.	<p>H14a: There is a positive relationship between sustainability perceptions and self-efficacy.</p> <p>H14b: There is a positive relationship between sustainability perceptions and likelihood-to-pay for sustainable products.</p> <p>H15: Self-efficacy will mediate the relationship</p>

	between sustainability perceptions and likelihood to purchase sustainable products.
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