THE FRUGAL AND THE ENVIRONMENTALLY CONCERNED: WHO ARE THEY, WHAT DO THEY DO, AND HOW DO YOU INFLUENCE THEM?

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CHAPTER I

INTRODUCTION

Being frugal does not mean being cheap! It means being economical and avoiding waste.

Catherine Pulsifer

We could have saved the Earth but we were too damned cheap. Kurt Vonnegut, Jr.

Two important consumer segments for marketers to consider are the environmentally concerned (EC) and the frugal (Fujii 2006; Mintel International Group Ltd. 2006). EC consumers have received much attention in the past (Ellen et al. 1991; Kilbourne and Pickett 2008), and their needs have influenced the firm through topics such as green marketing (Schlegelmilch et al. 1996) and sustainability (Olander and Thogersen 1995). Research on the frugal consumer is more sparse (Lastovicka et al. 1999), yet recent changes in the United States' economy may be reawakening an interest in frugality. Many communities are watching their second-hand and used goods businesses see increased sales (Simpson 2009), and in a remarkable turn of fortune, Americans seem to be saving more of their income as consumers switch their behaviors from spending to saving (Rankin and Leary 2009). In this dissertation, I investigate the characteristics of the frugal and the EC consumer. In addition, I employ an experimental methodology to assess the persuasive efforts of divergent communications on the two segments.

Interestingly, both consumer lifestyles played a prominent role in the 2008 Presidential elections where the economy, energy, and the environment were among the important issues discussed by the candidates, and these issues are not new to the American or world forum. For example, EC has been an important facet of business and politics in the United States for more than 100 years. President Teddy Roosevelt was an early champion of environmental stewardship and conservation (Brulle 1996). His environmental palmares included the creation of Yellowstone National Park and sponsoring the formation of the US Forrest Service under Gifford Pinchot. Two more recent events continued the development of EC (Dunlap and Van Liere 1978). The first was Rachel Carson's book Silent Spring published in 1962 and the second was the inaugural Earth Day celebrated in 1970. Both of these events moved the environmental movement from the fringe of national debate into the mainstream of the American and world cultures. As such, the market which serves the EC consumer has grown, now estimated to be $200 billion in 2006, with future growth expected (Mintel International Group Ltd. 2006).

On the other hand, Frugality has been an important part of the marketplace for centuries and is common to many of the world's religions (Lastovicka et al. 1999). Witkowski (1989) suggests that frugality is a major facet of life in the United States with rich historical and cultural roots. For example, Massachusetts and Pennsylvania adopted sumptuary laws (taxes on extravagant living) during the Colonial period because political and civic leaders were concerned about the excessive and materialistic lifestyles being imported from Europe. In addition, Colonial leaders preached the "Puritan work ethic" of discipline, hard work, and sacrifice. Today, social and cultural organizations such as

the Boy Scouts promote thrift and frugality as features of good character and citizenship (Bernthal et al. 2005; De Young 1986).

Yet during times of economic prosperity and expansion, frugality and thrift are not fashionable or mainstream promoted concepts. It seems that when the economy is strong, frugality fades. However, during times of recession or depression, or during times of national crisis, such as a war or famine, frugality gains recognition as both a prevention and a remedy (Witkowski 2003). As such, Todd and Lawson (2003) describe frugality as a fashion idea that is cyclical: it comes in and out of style. Today, many consumers are adopting frugal habits due to concerns over the general economy, including jobs, energy, and food prices. Firms are responding by offering products to meet those needs. Some For example, consumer electronics manufacturers and homebuilders are adding basic no-frills products to their product lines to attract those interested in simpler, smaller, and more efficient products (Lawton 2008; Lin 2008).

Environmental Concern and Frugality as a Personality Trait.

Guber (2003) proposes that EC is a personality trait indicated by attitudes toward specific environmental problems (e.g. air pollution or wildlife protection), support for government spending on environmental protection, knowledge about environmental issues, preference for environmental policy, and self-reported participation in environmentally responsible activities like recycling or energy conservation. In contrast, Lastovicka et al. (1999) define frugality as a lifestyle trait reflecting disciplined acquisition and resourcefulness in product and service use. While these definitions describe two different segments, we see that frugal and EC consumers are also similar in many ways (Fujii 2006; Lastovicka et al. 1999). For example, EC and frugal consumers

share many of the same behaviors, such as recycling (Leonard-Barton and Rogers 1980), reduced energy consumption (Fujii 2006), and reduced material consumption (Kilbourne and Pickett 2008). Although they share these behaviors, their motivations to perform these behaviors seem to diverge. EC consumers suggest that they choose to recycle because it is important to preserve and maintain the world's resources, while frugal consumers suggest that they recycle it helps preserve and maintain one's financial resources (Fujii 2006). Therefore, it seems that while the behaviors of EC and frugal consumers are similar, the incentives for their behaviors differ. I propose that an examination of their similarities and differences is necessary to develop a more thorough understanding of these two consumer segments.

Research Questions and Design

This dissertation seeks to advance our understanding of these two important consumer segments by comparing and contrasting the EC and the Frugal. Previous research on EC and frugality often mention the other in a cursory way, but does not specifically address both in tandem. Three research questions are proposed to address this gap in the literature:

1. What are the psychometric properties of the scales designed to measure Environmental Concern, Frugality and their consequent behaviors?
2. Do Frugal and EC consumers have different trait motivators and different behavioral consequences?
3. Do frugal and environmentally concerned consumers respond differently to consumption related messages?

To answer these questions, three studies are proposed. The first study will assess the psychometric properties of the EC construct. The second study builds on the first and investigates the trait antecedents and consequences of EC and frugality. The third study is a pair of 2x2x2 experiments to determine if frugal and EC consumers will respond differently to consumption-related messages.

Contribution to the Literature

The contributions of this research include expanding our knowledge of these two important and influential consumer groups. While previous researchers have noted similarities between the consumer orientations of frugality and EC, little has been done to focus beyond the similarities and the differences of the two. The results of this research will benefit managers and public policy leaders by providing tools for promoting sustainable behavior in their communities and increase their firm's exposure to the sustainable consumer market.

Organization of the Dissertation

This dissertation is organized along the following lines: in chapter two, the literatures on EC, and frugality is reviewed. Chapters three, four, and five present three studies addressing the research questions in this dissertation. Finally, chapter six discusses the results and contributions of this research.

CHAPTER II

REVIEW OF LITERATURE

Within the academic literature, researchers have developed constructs to measure people's propensity to be frugal (e.g., Lastovicka et al. 2001; Mowen 2000), and to be ecologically minded (e.g., Dunlap and Van Liere 1978). The varying attempts to quantify the segments have drawn on demographic, psychographic, and behavioral methods. In addition, conceptualizations of the constructs themselves have included assessing them as values, beliefs and social norms.

Importantly, researchers have not attempted to simultaneously investigate and test the relationships among the measures of frugality and environmental concern (EC). The background material in this literature review will establish the logic for placing the two constructs in a proposed nomological net in chapter three. This chapter is dedicated to describing each construct in detail.

Environmental Concern

This review of EC will attempt to outline some perspectives and features of the environmentally concerned consumer segment. The review begins with a brief historical sketch of EC. Then an outline will be presented of the attempts to categorize EC consumers demographically, psychographically, and behaviorally. Finally, a brief discussion regarding the impact education has on EC, and a review of the NEP scale will be presented.

Roots of Environmental Concern

The modern EC movement came to the foreground in 1962 when Rachel Carson published her book *Silent Spring*. The book addressed the environmental consequences of the widespread use of DDT. DDT is an insecticide that was heralded as a marvel of modern chemistry for its ability to kill insects, yet leave vertebrate life unharmed. However, DDT is dangerous to those creatures further up the food chain, in this case, the songbirds that eat the insects. Although direct application to invertebrates was not deemed to be dangerous, the animals that ate insects treated with DDT were harmed. Carson noted that songbird populations were declining in areas exposed to DDT. Carson foresaw a spring where there were no songbirds to sing songs due to the bird's eradication via DDT. As a result of her research, the U.S. government banned the use of the pesticide DDT, and the world started to pay attention to the environment.

Since the arrival of EC as a prominent research area, defining the construct has been one of the most persistent challenges for researchers (Diamantopoulos et al. 2003; Van Liere and Dunlap 1981). Various scholars conceptualize EC as an attitude, a behavior, and a belief. For example, Kinnear et al. (1974) propose that EC is made of two components: attitude and behavior. They suggest that a buyer's attitude should express concern for ecology and a purchasing behavior that is consistent with intentions to maintain the environment. Maloney et al. (1975) propose that EC is a diverse set of ideas that include attitudes toward specific environmental problems. Crosby et al. (1981) proposes that EC is a set of strong positive attitudes toward preserving the environment. deHaven-Smith (1988) suggests that EC is a collectively held belief system that is fragmented and narrowly focused on mundane irritants such as local pollution and litter.

This diversity of definitions suggests that the term EC is vague, and that vagueness has inhibited the scholarly development on the topic (Dunlap and Jones 2002). For this research, I chose the Guber (2003) conceptualization of EC due to its broad scope. She defines EC as an underlying consumer trait that is marked by attitudes toward specific environmental problems (e.g. air pollution or wildlife protection), support for government spending for environmental protection, knowledge about environmental issues, preference for environmental policy, and self-reported participation in environmentally responsible activities like recycling or energy conservation.

The traits of those concerned with the environment are often linked to Voluntary Simplicity. Voluntary Simplicity (VS) is defined as the degree to which an individual consciously chooses a way of life intended to maximize the individual's control over his/her own life (Leonard-Barton and Rogers 1980). VS proponents have a desire to reduce their impact on the earth (Zavestoski 2002), and are committed to reducing their carbon footprint (McDonald et al. 2006). As such, they are likely to participate in sustainable behaviors such as using public transportation and alternative transportation such as bicycles, purchasing locally produced food, and recycling (McDonald et al. 2006). In addition, green issues such as energy consumption (Shaw and Newholm 2002), materialism (Iwata 2001), and precycling, which is the intentional purchase of recyclable products, and the avoidance of products that are not recyclable (Huneke 2005).

As it has been difficult to quantify EC, so too, has it been challenging to develop a viable green or environmentally concerned market. Heiskanen (2005) proposes that green consumption patterns different from traditional consumption patterns. First, traditional consumer policy helps the consumer acquire as much as he wishes, whereas

sustainability sometimes requires a reduction of consumption (Tonner 2000). Second, the primary benefits that green consumers actively seek are different than a traditional consumer. Those benefits can be classified in four categories (Ottman et al. 2006). First, the products ought to be healthy and safe to all living things (not only to the human consumer). Second, the products ought to be competitively priced. Third, the products ought to be convenient to purchase and use, and should perform as well or better than non-green products. Finally, green products ought to carry their own sort of symbolism or green cachet, which is similar to green conspicuous consumption.

Part of the challenge in developing a viable green market is that consumers have shown that they are unwilling to compromise on key product attributes such as convenience, availability, price, quality, and performance (Crosby et al. 1981; Ginsberg and Bloom 2004; Meyer 2001). In addition, consumers are wary of firms that say they are "green" but use the term as a marketing tool to attract consumers without actually adopting an environmental stewardship orientation (Carlson et al. 1993). This phenomenon has often been called "green washing."

Even though it has been challenging to develop the sustainable market, indications exist that the green market is potentially large and profitable (Mintu-Wimsatt and Bradford 1995; Tucker 1980). Even the mainstream consumer professes some green behavior: seventy percent of consumers said that a product or package's recyclability has affected their purchase decisions (Ottman 1993). The marketing research firm Mintel International group suggests that the green market in 2006 was $200 billion, and they predict more growth in the future (Mintel International Group Ltd. 2006).

The following is a review of perspectives that researchers have assumed as they attempted to understand, define and categorize those who are environmentally concerned, and who show environmentally motivated behaviors. Those perspectives include demographics, behavior, and attitudes and beliefs.

Characteristics of the Environmentally Concerned Consumer

Early research attempted to define the EC consumer demographically. Although demographics has shown little practical significance, it was generally found that age, income level, socio-economic status, gender, and education make a difference in whether a consumer exhibits EC opinions and behaviors (Diamantopoulos et al. 2003; Getzner and Grabner-Krauter 2004; Granzin and Olsen 1991; Laroche et al. 2001; Van Liere and Dunlap 1980). Most of the research suggests that those who practice EC have a higher education level, are younger, urban, and more likely to be female. In addition, people living in single-family homes are more likely to exhibit EC attitudes than those living in apartments (Berger 1997; Van Liere and Dunlap 1980) and those who own single family homes are more likely to be environmentally concerned than those who rent single family homes (Barr et al. 2005). This may be due to the long versus short-term outlook between owners and renters. In addition, Van Liere and Dunlap (1980) suggest a difference in the level of EC between rural and urban residents. They found that those in a rural community are more likely to be dependent on the use of the natural environment via extraction industries such as farming, logging or fishing, whereas urban residents are often less economically dependent on jobs associated with extracting natural resources.

Research has noted that attitudes change as people become aware or educated about environmental problems (Schwepker and Cornwell 1991). As such, the more a

person is aware of and knowledgeable about environmental issues the more likely he or she is to be environmentally conscious. One attitude noted by researchers involves materialism and consumption. EC proponents take a position that a sustainable economy will not be achieved until consumers shift consumption patterns and reduce consumption levels (Fuchs and Lorek 2005). Shifting those consumption patterns requires equipping individuals with the knowledge of the importance of green issues and identifying activities that are effective in addressing those issues (Heckler 1994; Olander and Thogersen 1995). For example, first teaching that environmental degradation is a problem is as important as teaching people that recycling is an effective activity to remedy the problem of environmental degradation.

Therefore, the messages used to educate and teach consumers about green issues should be personally relevant to the audience (Heckler 1994) and positively framed (Lord 1994). Green messages suffer from a perception problem, and consumer trust is an important moderator for the success of environmentally framed messages (Osterhus 1997), lessening message effectiveness when consumer trust is low. The message itself also affects the success of the message. Claims that brag about a product's environmental benefits and publicity that is designed to enhance an organization's environmental image are prone to be considered misleading or deceptive (Carlson et al. 1993).

As such, marketers and brand managers have discovered that an important messaging tool to communicate to EC consumers is the product label. Thogersen (2000) found that environmentally concerned consumers are avid readers of product labels. This affinity for reading labels is prompted by a desire to protect the environment, and a need

for accurate information to assist that goal. Therefore, the propensity to read labels is moderated by a consumer's trust in the label's accuracy. These findings suggest that EC consumers have a desire for information to both measure the efficacy and the informational content of the label. In addition, Grankvist et al's (2004) research indicates that labels with an environmental or green theme positively affect the purchase behavior of EC consumers, but those same labels will not affect the purchase behavior of non-EC consumers. Thus, this finding suggests that environmental themes are not influential to a non-environmentally concerned consumer.

In conclusion, these demographic studies have revealed a confusing collection of factors that show statistical significance, yet little or insignificant practical significance. The varied results that researchers have realized searching for the demographic profile of an EC consumer has caused some to suggest that demographics might not be the best predictor of EC behavior (Cornwell and Schwepker 1995; Pickett et al. 1993; Schwepker and Cornwell 1991). Therefore, some researchers have focused their efforts on understanding the beliefs and attitudes of the EC consumer.

Beliefs and Attitudes of the Environmentally Concerned Consumer

While the demographic manifestations have been useful in defining environmentally concerned consumers, other research has attempted to categorize EC consumers through their antecedent beliefs and attitudes (Hopper and Nielsen 1991; Schwartz 1970; Widegren 1998). Some suggest that these are better at predicting EC behavior than the socio-demographic indicators (Kinnear et al. 1974; Schlegelmilch et al. 1996; Schwepker and Cornwell 1991). Pro-environmental attitudes and dispositions are complex and multidimensional (Cleveland et al. 2005), yet some consistent findings have

emerged. Prior research has revealed that EC attitudes fall into six broad categories including self-efficacy, altruism, connectedness to nature, a concern for the future, and a desire to limit economic development (Bohlen et al. 1993; De Young 1996; Ebreo and Vining 2001; Johnson and Johnson 1995; Schultz 2000; Schwepker and Cornwell 1991).

To begin, research suggests that EC consumers have an internal locus of control, or an attitude that they are not a victim of fate, but are accountable for their actions, and can shape their future (Schwepker and Cornwell 1991). This attitude of self-efficacy is analogous to perceived consumer effectiveness (PCE), or an individual's belief that their actions make a difference (Barr 2007; Berger and Corbin 1992; Kinnear et al. 1974; Roberts 1996). PCE suggests that those who engage in environmentally concerned behaviors believe that their efforts make a difference to them and to the larger environmental movement. In addition, EC proponents report that they are intrinsically motivated by feelings of empowerment, competence, and satisfaction (De Young 1996). As such, firms and public policy makers can encourage this attitude through messages that remind consumers that their actions make a difference both corporately, and individually (Ellen et al. 1991; Henion and Wilson 1976; Schwepker and Cornwell 1991). In addition, affluence does not moderate the relationship between EC and goal setting behavior (Ebreo and Vining 2001). Both the rich and the poor respond to the current degradation of the environment with a hope and desire to see it improve in the future (Dunlap and Mertig 1995).

Other research suggests that ethics and altruism are important facets of EC (Bohlen et al. 1993; De Young 1996), and this orientation contributes to a feeling of connectedness to nature. Connectedness to nature refers to a perception of equality

between the self, others, and the natural world (Dutcher et al. 2007). This connection implies an attitude of shared destiny or future for both the person and the environment, where the person cannot survive without the environment. Therefore, humans are more stewards of natural resources than owners of the resources. A feeling of empathy (Lee and Holden 1999) or of adopting another's perspective is also part of the environmentally concerned ethics. Much as the connection to nature fosters an attitude that decreases the dominance of humans, so too, does the feeling of empathy, where nature and the natural world almost become a persona that has a future and can be harmed or helped by our actions.

Schultz (2000) suggests that there are three distinct clusters of environmental attitudes: altruistic, egoistic, and biocentric. Altruistic attitudes encompass concern for others, egoistic is a concern for self, and biocentric attitudes foster a concern for the environment. Schultz contends each attitude is founded on a concern for the negative consequences that could befall valued objects. Someone values these objects because they are included in a person's cognitive representation of self. Indeed, Ewing (2001) suggests that egoistic attitudes have more to do with environmentally concerned behaviors than do altruistic attitudes. EC individuals care for the environment more because it affects their own fortune and well-being, more than the impact to the environment itself.

Altruism can also be seen in the norm of reciprocity, which suggests that consumers who are concerned about conservation and the environment are influenced by the expectations of the cooperative intentions of others; i.e. they are more likely to exhibit sustainable behavior when they expect others to also act in a similar way. However,

consumers who are not concerned about conservation and the environment are less influenced by the cooperative intentions of others (Wiener and Doescher 1994). In other words, some consumers are liable to free-ride environmental benefits from those practicing EC behavior (Pickle and Wiser 1997) ushering in a tragedy of the commons situation (Hardin 1968) where the potential benefits due to the restraint of some are erased by the excessiveness of others. In addition, some may hold two opposing attitudes at the same time (Ellen et al. 1991). For example, some believe that governments ought to take the lead in addressing environmental issues (Fraj and Martinez 2007), while others see it as a responsibility of the individual through grass-roots activism (Dunlap and Mertig 1995).

While the values and attitude perspective has found much support for the assertion that values and attitudes will predict behavior, there is also evidence that EC attitudes do not adequately predict EC behavior (Mainieri et al. 1997; Wiener and Doescher 1995). Simply put, people may feel that it is important to act in an environmentally responsible way, but their actions might fall short of their attitudes or behaviors. The obstacles toward environmental behavior may be seen through structural impediments. For example, an EC consumer may have a positive attitude toward bicycle commuting, and express a willingness to ride a bike to work. Yet they continue to drive because the community lacks safe cycling routes or their job does not have locker rooms or shower facilities. The EC consumer chooses to drive because it is safer to drive a car, or more convenient to arrive at worked dressed in professional clothes, rather than showering and changing clothes. Other obstacles toward environmental behavior may be due to a perceived lack of personal benefits for environmental behavior (Fujii 2006). In

other words, a person may agree that recycling is beneficial to the community and to the planet's health, but they may fail to recycle because the reward for recycling does not directly affect them. In other words, the benefit is not salient or significant to the individual.

Finally, and to the chagrin of many business leaders, EC consumers profess a desire to limit economic development (Johnson and Johnson 1995). EC consumers perceive development as a foe of the natural environment, to be limited, regulated and restricted (Brulle 1996). This attitude has become strong and pervasive in many segments of today's culture. This attitude has even appeared in popular culture. As an example, the prominent children's author Dr. Seuss uses the theme of unbridled development as the theme for one of his most prominent works, The Lorax (Geisel 1971).

Behaviors of the Environmentally Concerned Consumer

The behavioral manifestations of EC fall into four broad categories of energy conservation, the purchase and use of green products, waste reduction, and use the of green transportation systems (Balderjahn 1988; Ebreo and Vining 2001; Gilg et al. 2005; Roberts 1996). These behaviors will vary by individual (Frannson and Garling 1999), such that committed environmental consumers may actively pursue all of the above behaviors, while others will be selective and elect to participate only in those activities they deem important.

Examples of the first category of behaviors, energy conservation, are sometimes simple actions such as turning off the lights when one leaves a room or turning down the temperature on the thermostat in winter and turning it up in summer. They can also be as sophisticated and involved as installing roof-top gardens on office buildings. These flat

roofs offer excellent opportunities for energy savings because the soil for the gardens is a natural insulator. The vegetation prevents a building from absorbing solar heat. In addition, the storm water runoff is reduced. This is a terrific benefit for both the owners of the building and the surrounding community, as it alleviates potential flooding and erosion from heavy rains. However, engineering the roof to support the weight of the soil, plants, and water can be a challenge, and it is difficult to repair a leaking roof with several inches of soil and vegetation. Other common examples of energy conservation include driving less, replacing high energy consumption appliances such as hot water heaters, drying laundry outside on a clothes line, and adding insulation to the home (Barr et al. 2005; Roberts 1996).

Second, the purchase and use of "eco" or green products also varies in its sophistication. It can be as simple as purchasing locally grown food from the farmer's market. The advantages to this purchase behavior are that the food has minimal transportation costs, supports the local community and economy, and is often organically grown. On the other hand, the purchase of green products can also be as sophisticated as organizing a local coop of buyers willing to purchase and install a large wind powered generator or windturbine, as the citizens at Independent School District 704 in Proctor, Minnesota did in 2006. Other examples of purchasing eco products include buying biodegradable cleaning agents or purchasing clothing made from natural fibers such as cotton or bamboo.

The third category of EC behavior is waste reduction. Waste reduction is as simple as buying less stuff and recycling, or choosing to repair and reuse an item rather than throwing it away. Recycling is an important behavior that is common to many

consumers, not only those concerned with the environment (Berger 1997; Roberts 1996). For example, seventy percent of consumers said that a product or package's recyclability has affected their purchase decisions (Ottman 1993). Recycling is useful because it may serve as a gateway behavior leading to other more committed EC behaviors (Berger 1997). Waste reduction behaviors also include composting, pre-cycling (intentionally purchasing products that can be recycled), fixing broken appliances and donating used goods to others.

The final category of EC behavior is transportation. Perhaps the best example of a green transportation system is an individual's effort to minimize the number of trips made in a car, especially those trips that include only the driver (Jain 2005). More efficient and environmentally sensitive transportation alternatives for local trips include carpooling, walking, riding a bicycle, and using public transportation such as busses, subways and trams. One of the most unfriendly transportation choices with regard to the environment is air travel. Long-distance travel in our world today has become the almost exclusive domain of the airplane. While air travel is unbeatable in regards to convenience and time efficiency, it also requires an enormous amount of fossil fuel. More environmentally sensitive methods of long-distance transportation include trains and boats. While they use much less fuel per passenger than an airplane, they are slower, and less flexible regarding routes and schedules.

Scales to Measure Environmental Concern.

One criticism with scales measuring EC knowledge is that environmental issues evolve and change. For example, global warming and climate change have replaced pollution and animal extinction as the preeminent environmental issues (Van Liere and

Dunlap 1981). Kinnear and Taylor (1973) developed an early scale of EC, but used very specific items relating to laundry brands. While it worked well for their needs, it is not as easily transferred to other contexts. Kinnear et al. (1974) adapted a scale from that previous work, but also included behavior and attitude measures as a basis for EC, and Weigel and Weigel (1978) developed an early scale that continues to find some favor because it uses reported behavior to measure EC.

Arguably, the most recognized scale to assess EC is the New Environmental Paradigm (NEP) scale developed by Dunlap and Van Liere (1978). Revised in 2000 (Dunlap et al. 2000), it is a 15-item, Likert format scale that assesses five facets of an ecological world view. The first facet is labeled *limited growth*--the belief that the earth's natural resources are finite and will only support a limited number of people. The second facet is *antianthropocentrism*--the belief that humans should cooperate with the environment and other earthly life forms, not compete and conquer the environment. The third construct is *the fragility of nature*--the belief that the earth's environmental balance is fragile, and that humans can affect the environment. Fourth is *the rejection of exemptionalism*--the attitude that human innovation and ingenuity is not enough to conquer the environment, that humans are not exempt from nature's laws. Finally, the fifth construct is *ecocrisis*--the idea that the earth's environment is becoming so abused as to become irreparable. Please see Table One.

Dunlap et al. (2000) suggest that research on environmentalism was local and small scale in nature during the 1970's. This means that individuals concerned about environmental issues were able to look in their backyard and see their causes for concern, especially issues such as hazardous waste. New York's Love Canal is an example of this

phenomenon. However, in the ensuing years, issues of EC "have generally tended to become more geographically dispersed, less directly observable, and more ambiguous in origin" (Dunlap et al. 2000, p.426). The sources of current environmental issues are less directly observable. These include problems such as ozone depletion, global warming, and the increasing loss of endangered species and habitats. As a result, Dunlap and his colleagues suggest that research has shifted from specific environmental phenomena to the beliefs and attitudes about these phenomena.

Table One:
New Environmental Paradigm (NEP) scale

1. We are approaching the limit of the number of people the earth can support.*
2. Humans have the right to modify the natural environment to suit their needs.
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will insure that we do NOT make the earth unlivable.
5. Humans are severely abusing the environment.*
6. The earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations,
9. Despite our special abilities humans are still subject to the laws of nature
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.*
11. The earth is like a spaceship with very limited room and resources.*
12. Humans were meant to rule over the rest of nature.
13. The balance of nature is very delicate and easily upset.*
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

Even numbered items are reverse coded.
Limits to growth: items 1, 6, 11
Anti-anthropocentrism: items 2, 7, 12.
Fragility of nature: items 3, 8, 13
Rejection of exemptionalism: items 4, 9, 14.
Ecocrisis: items 5, 10, 15.

While the NEP scale has proven its value, and is widely accepted, one criticism has been its lack of a theoretical base. Stern et al. (1999) note that the NEP scale offers a

sort of “folk wisdom” perspective to EC, and propose that it be some part of the Values Beliefs Norms Theory (VBN) as proposed by Stern et al. (1999). VBN posits that values are antecedent to environmental beliefs and attitudes, which in turn is antecedent to behavioral intentions. Stern et al. (1999) suggest that the NEP scale most accurately reflects the environmental beliefs portion of the VBN theory. The VBN theory is built from Schwartz’s (1977) work on altruism and behavior that posits that values and beliefs will influence behavior. Behavior that is in agreement with one’s values and beliefs will boost self-esteem; whereas behavior that is contrary is more likely to result in guilt or negative self-evaluations. Further, when a person is both aware of the consequences and acknowledges responsibility for her behavior, she is more likely to behave in an altruistic fashion.

In conclusion, the efforts to measure and evaluate EC have been explored demographically, attitudinally, and behaviorally. As such, important antecedents to EC seem to include altruism, education, and concern for others. The important consequences include energy conservation, waste reduction, green purchase behavior, and concern for specific environmental issues such as global warming. These antecedents and consequent facets of EC will be further explored in this paper.

Frugality

This review of Frugality will attempt to outline features of the frugal consumer segment. The review begins with a discussion of the definition of Frugality, followed by a review of the attitudes and behaviors of the frugal consumer segment. Finally, this section concludes with a discussion of the scales used to measure frugality.

Among a variety of perspectives towards frugality, most reflect two prominent features: the economizing of money and material resources. Arguably the most prominent definition and the one adopted here is from Lastovicka et al. (1999), who propose frugality as a lifestyle trait where a person is disciplined in acquiring products and services and is resourceful in using them. Todd and Lawson (2003) also suggest that frugality is the propensity to achieve long-term goals through the denial of short-term whims and the creative use of resources. De Young (1986) offered a slightly different perspective emphasizing avoiding waste as well as the careful use of resources. Finally, Bernthal et al. (2005) perceive frugality as a lifestyle trait, but frame it as a deliberate constraint of one's lifestyle. While these definitions are each slightly different, they offer a perspective of the frugal consumer that suggests someone who is resource driven, goal oriented, and disciplined.

Frugal consumer traits are similar to those of an EC consumer. Both are concerned with the management and stewardship of resources (Fujii 2006; Lastovicka et al. 1999). Yet frugality is generally more concerned with saving economic resources (Bardhi and Arnould 2005), and EC is focused more on issues such as wildlife conservation, pollution, and the general health of the planet (Brulle 1996). As a result, Lastovicka et al. (1999) suggest that frugal individuals need not be environmentally concerned.

Attitudes of the Frugal

Like the EC consumer, frugal consumer's behavior differs from the behavior of mainstream consumers. Frugal consumers are independent (Craig-Lees and Hill 2002) and perceive frugality as a satisfying activity worth pursuing in its own right. Some

consumers also confess that frugality is fun, i.e. a hedonic experience (Bardhi and Arnould 2005). These frugal consumers suggest that they enjoy practicing frugality for two reasons (De Young 2000). First, frugal consumers feel empowered because they are able to accomplish things and live in such a way that other mainstream consumers are either unwilling or unable. For example, frugal consumers indicate a sense of pride because they do not have to depend on others for their welfare. They are capable and proficient individuals who can fix their own car or grow their own food. In addition frugal consumers are often competitive. That is, many frugal consumers feel as if living in a materialistic society is like a competition, and the prize is the money in one's wallet (De Young 1996). Frugal consumers feel that somebody is always trying to take their money, be it the crafty retailer with their promotions, or the credit card company with their high interest rates (Engle 2009).

A recent study from Rick et al. (2008) suggests that frugal consumers can be separated into two segments related to the emotions of pain and joy. The traditional view of the frugal consumer is based upon the work of Lastovicka et al. (1999). The frugal consumer saves money because it makes them feel good, they enjoy saving money and conserving resources. Frugals are positive and optimistic. On the other hand, Rick et al. (2008) suggest that Tightwads hate to spend money; spending money is painful, and Tightwads choose not to spend in order to avoid pain. Because a Tightwad hates to part with cash, he or she will deliberately pass up purchases that would improve her life. Tightwads do not sensibly calculate the benefits of saving versus spending, but rather choose to save and hoard money. As such, the frugal consumer tends to be happier than the mainstream consumer, while tightwads are less happy (Rick et al. 2008).

Interestingly, frugal consumers disapprove of an entitled lifestyle and attempt to avoid its financial traps, but they also recognize the two primary tools of an entitled lifestyle are useful if handled correctly: credit cards and debt (Bernthal et al. 2005). Although frugal consumers avoid credit cards and loans, they are not forbidden. They are viewed simply as tools that may be useful in reaching a goal. However, they are dangerous tools if used carelessly or incorrectly. A power saw can be used to cut wood for the construction of a house. It can also injure or maim a negligent operator (or others) with its spinning blade. So too, are the tools of debt and credit cards. Used wisely they are convenient and sometimes perceived as necessary, but used negligently they can also be tempting and addicting. As such, it was found that consumers who support the values of frugality and delayed gratification are often recovering from an entitled lifestyle that put them under the burden of debt (Shehryar et al. 2001).

It may be interesting to compare the frugal consumer to their polar opposite--an entitled or materialistic consumer. While an entitled consumer justifies their spending choices by reasoning that they are due rewards for having endured various hardships, the frugal consumer is less susceptible to that logic. Evidence suggests that frugal consumers resist letting others judge and influence their behavior (Lastovicka et al. 1999) and may be low in self-monitoring, i.e. looking to others for behavioral cues (Gould et al. 1997; Stammerjohan and Webster 2002). In addition, frugal consumers may feel freer through their constraint of lifestyle than entitled consumers do through their credit lifestyle (Bernthal et al. 2005). Though a frugal consumer may not count as many material possessions as another, they also have less emotional strain from worrying about paying for or maintaining those material possessions.

Rick et al. (2008) contrast frugal consumers with an entitled or materialistic consumer, which they call a Spendthrift. Spendthrifts tend to find too little pain in spending, thus spending more than frugals would in the same situation. An important difference between spendthrifts and frugals is the attitude toward spending. Frugals are more likely to purchase a product if it has a hedonic theme, whereas tightwads are more likely to purchase a similar product if it has a utilitarian theme. For example, a tightwad is more likely to purchase a product or service such as a massage or a visit to a spa if it is framed as relieving pain, where a spendthrift is more likely to purchase the same product if it is framed as providing pleasure.

Behaviors of the Frugal

Frugal behavior can be classified into two broad purchasing strategies. In one, a person attempts to avoid a purchase, in the other, he or she inactively fails to purchase. The first strategy involves delaying or procrastinating until the purchase desire wanes. This is the antithesis to impulse buying because the consumer is aware of the urge to splurge, and actively resists it. Similar to avoidance strategies is the strategy of reevaluating the need, where consumers re-prioritize their needs or decide that practicing self-reliance or self-control is a better decision than purchasing something. This strategy is an ascetic or self-sacrificial ignoring of the need, where one may feel it a sense of duty to go without at the present time in order to save for a future expenditure (Gould et al. 1997; Shehryar et al. 2001; Stammerjohan and Webster 2002).

From these two broad frugal consumption strategies, researchers describe a handful of more specific shopping and consumption tactics, noted for their variety and creativity (Craig-Lees and Hill 2002; Lastovicka et al. 1999). For example, frugal

consumers who have assumed the broad strategy of reevaluating the need may then implement a tactic of self-service, where they choose to service a product themselves rather than replacing or having a professional service it. It is common for frugals to do their own maintenance and repair on their own home and car, as well as to work on common household items such as appliances (Lastovicka et al. 1999). Frugal consumers are also more willing to build their own product, rather than buying it from a store. Further, frugal consumers may be willing to build their own home or furniture, or to quilt a blanket from reclaimed fabric. Therefore, frugality involves a high level and commitment to resource competence, i.e. the skills and ability to be proficient at making things last (De Young 1986).

Resource competency suggests that frugal consumers are likely to be highly educated and have time to spend pursuing their lifestyle (Todd and Lawson 2003). Frugal consumers have a desire to learn and do things on their own, suggesting a need for information or cognitive resources. In addition, being resource competent may also be time-consuming, which is why older or mature consumers are well represented in the frugal consumer segment. These consumers are often retired or have grown children that have left the home, and have more free time to devote their pursuits (Todd and Lawson 2003).

On the other hand, it may be fair to assume that some frugal consumers practice a frugal lifestyle due to need, i.e. they have a low income and are forced by situation to be frugal. However, Gardels' (2000) research does not completely agree with this assertion. This research finds that one need not be poor in order to have a frugal attitude and lifestyle. In the same way, one can be poor and have an entitled attitude and materialistic

lifestyle. As such, frugality transcends poverty, where the frugal enjoy owning fewer possessions. This does not mean that frugals abandoned all material possessions, but that they are willing to enjoy fewer possessions. A simple lifestyle allows them the ability to purchase or acquire the material items they deem important (Craig-Lees and Hill 2002).

The choice of a simple, non-materialistic lifestyle suggests that frugality and Voluntary Simplicity have much in common (Elgin and Mitchell 1977). The term was first coined when Gregg (1936) sought to define a lifestyle that emphasized the satisfaction of having enough and discouraged the pursuit of consumption and wealth. Research reveals that VS consumers are well educated, possess valuable professional and technical skills, and are capable of earning a high income (Etzioni 1998). While VS consumers possess the skills to achieve a higher income, they often choose a lifestyle of few possessions (Huneke 2005). In addition, VS consumers are also concerned about the environment (Iwata 1999), and believe that their actions have an impact on themselves and the planet (McDonald et al. 2006).

Interestingly, frugal consumers do not necessarily avoid and disdain all hedonistic products and services. Like the VS consumer, Frugals are willing to skimp and save to purchase a hedonic good such as a trip with the family on holiday (Craig-Lees and Hill 2002; Gardels 2000). In addition neither EC nor frugality had a significant relationship with behavioral intent to reduce automobile use (Fujii 2006). This finding may be due to the inconvenience of alternative transportation for some consumers, such as waiting for a bus or the impracticality of riding a bicycle long distances.

Scales Measuring Frugality

While EC has several research perspectives, and scales reflecting those perspectives, frugality has fewer. The most prominent of the scales is the Lastovicka et al. (1999) scale. This eight-item scale was developed in a series of six studies. In their evaluation of the scale, they proposed it to be uni-dimensional and found it positively correlated with value consciousness and price consciousness, and negatively related to materialism.

In two studies Mowen (2000) developed an alternative measure of frugality that he called tightwadism. While Mowen's scale and the Lastovicka et al. scale were being developed concurrently and independently, Mowen did find an important weakness in the frugality scale after it was published, in that it has poor internal reliability. Mowen's exploratory factor analysis revealed the eight item frugality scale has two factors rather than the one proposed by Lastovicka et al. Mowen suggested that the first factor represented a "care in spending" orientation where the consumer is concerned about their financial resources. The second factor represented a stewardship or "care in owning" orientation where the consumer is concerned about their non-financial material resources. Please see Table Two.

It is important to note that Mowen's conceptualization of Tightwad is different than the definition proposed by Rick et al. (2008). Mowen's scale is concerned with the stewardship of financial resources, which is similar to the *care in spending* portion of the Lastovicka et al. (1999) scale. However, Mowen's scale does not include an affect orientation as does the Rick et al. scale, which relates to the pain in spending. However,

Mowen's scale does suggest a strong reluctance to spend money whatsoever, where the Latovicka et al. scale allows that some spend after saving for the necessities.

Table Two
Scales to Measure Frugality

Frugality (Lastovicka et al. 1999)

1. If you take good care of your possessions, you will definitely save money in the long run.
2. There are many things that are normally thrown away that are still quite useful.
3. Making better use of my resources makes me feel good.
4. If you can re-use an item you already have, there's no sense in buying something new.
5. I believe in being careful in how I spend my money.
6. I discipline myself to get the most from my money.
7. I am willing to wait on a purchase I want so that I can save money.
8. There are things I resist buying today so I can save for tomorrow.

Care in Owning: items 1-4
Care in Spending: items 5-8

Tightwad (Mowen 2000)

1. Find that I have a hard time spending money on anything but necessities.
2. I act like a tightwad, and spend very little.
3. I like to keep my standard of living modest, because it makes me feel better.
4. Find that I can save easier than I can spend.
5. I get more enjoyment out of saving than spending.

In conclusion, the efforts to evaluate frugality have been explored by other researchers in a similar fashion to those done with EC. Research has found that the important antecedents toward frugality are independence, a need for cognitive resources, and a future orientation. Important consequent traits include resource competence, stewardship of resources, and limited consumption behavior. These antecedents and consequent facets of frugality will be further explored in this dissertation.

CHAPTER III

STUDY ONE – CONSTRUCT REFINEMENT

Study One evaluates several constructs pertaining to both frugality and environmental concern (EC). This is an important first step because the scales utilized in this research come from differing sources and research streams raising possible concern regarding the constructs' conceptualizations (MacKenzie 2003), or concerns that the constructs may not be focused on the issues of EC and frugality. Following the advice from Peter (1981), who warned that adopting a scale from another field may impact the scale's validity in a marketing analysis, an investigation will be done on these scales to insure their applicability to this present research.

Measures.

New Environmental Paradigm Scale

The first scale utilized in this dissertation is the New Environmental Paradigm (NEP) scale (Dunlap et al. 2000). This analysis begins with its fifteen item NEP scale because of its prominence in measuring the general beliefs of EC (Kilbourne and Pickett 2008; Roberts and Bacon 1997). The NEP scale measures five facets of an ecological world view (Xiao and Dunlap 2007). The first facet is labeled *limited growth*, or the belief that the earth's natural resources are finite and that it will support a finite number of people. The second facet is *antianthropocentricism*, or the belief that humans should

cooperate with the environment and other life forms, not compete and conquer the environment. The third facet is *the fragility of nature*, which is the belief that Earth's environmental balance is fragile, and that humans can affect this balance. The fourth facet is *the rejection of exemptionalism*, which is the belief that humans are not exempt from nature's laws and that human innovation and ingenuity is not enough to overcome all of the earth's environmental problems. Finally, the fifth facet of the NEP scale is labeled *ecocrisis*. It is the belief that the earth's environment is becoming so abused as to become irreparable. Please see Table One for a list of the items in this scale. Each facet is made up of three items, the items of each facet are interspersed such that the first facet's items are question 1, 6, and 11, with the even numbered items being reverse coded. This multi-dimensional conceptualization of EC has been widely used and accepted in research (Diamantopoulos et al. 2003). However, a simpler and shorter scale representing the single facet of EC might be warranted (MacKenzie 2003) for use in this research. The purpose of the first analysis is to determine whether a single factor reduced scale will be more efficacious for use in Study Two. Subjects provide responses on seven-point Likert-type scales anchored with strongly disagree and strongly agree.

Scales for Frugality

The second analysis will be to compare two prominent scales in the marketing literature that measure frugality: the frugal scale (Lastovicka et al. 1999) and tightwad scale (Mowen 2000). Please see Table Two for a list of items for each scale. Previous research from Mowen (2000) revealed that the eight-item frugal scale is made up of two constructs rather than one as proposed by Lastovicka et al. (1999). The first construct seems to measure a "Care in Spending," and the second a "Care in Owning" (Mowen

2000, p193). Confirmatory factor analysis from Mowen's study also revealed that the five-item tightwad scale and the care in spending scale are different constructs. The second analysis in Study One will replicate Mowen's analysis in order to confirm which scale is most appropriate for use in the subsequent studies. The survey for this study was written such that subjects provided responses on seven-point Likert-type scales, as was done with the NEP scale.

Scales for the Surface Traits

The third analyses in Study One will be to assess the scales indicating the consequent behaviors or surface traits of frugal and environmentally concerned consumers. Included in this analysis will be a test to verify the discriminant validity between the situational and surface traits. The first scales are from the Voluntary Simplicity (VS) literature (Leonard-Barton 1981; Leonard-Barton and Rogers 1980) and the last is from sociology (Guber 2003). The first set, the three VS scales, measure the behaviors of VS consumers, which are also common behaviors to frugal and EC consumers. The scales were divided into three facets by Bruner and Hensel (1998) and are labeled *ecological awareness*, *materialism*, and *self-determination*. The first two facets have four items each, while the last facet consists of five items. The first facet, *ecological awareness*, is manifest by one's willingness to recycle, eat meatless meals, and one's participation in ecological or conservation organizations. The second facet, *materialism*, measures one's anti-materialistic tendencies, such as one's propensity to ride a bicycle for transportation, and to purchase furniture or clothing from second-hand stores or garage sales. Finally, the third facet, *self-determination*, measures one's propensity to make gifts and clothing for themselves and their family, raise food in their

garden, and do their own maintenance on their home and car. The final analysis examines the Frequency of Buying Green Products (FBGB) scale from Guber (2003). This scale measures green marketing or green buying behaviors that are common to both frugal and environmentally concerned consumers. These behaviors include purchasing

Table Three
Scales to Measure Consequent Traits

Voluntary Simplicity (EcoAware)

1. Recycle newspapers used at home.
2. Recycle glass jars and bottles used at home.
3. Intentionally eat meatless meals.
4. Contribute to ecological or conservation organizations.

Voluntary Simplicity (Material Needs)

1. Buy the furniture you need at a garage sale or second-hand store.
2. Ride a bicycle or walk for transportation to work.
3. Buy needed clothing at a second-hand store or garage sale.
4. Ride a bicycle on errands close to home.

Voluntary Simplicity (Self-Determination)

1. Make gifts instead of buying them.
2. Make clothing or furniture for the family.
3. Try to do your own home repairs instead of hiring someone.
4. Grow the vegetables the family uses during the summer season.
5. I, a family member, or friend changes the oil in the family car when it needs changing

Frequency of Buying Green Products (Surface Trait)

1. Avoid purchasing certain kinds of products because the packaging is excessive or environmentally harmful.
2. Avoid purchasing certain kinds of fresh food because of the chemicals used in food production.
3. Avoid purchasing products made by a company that pollutes the environment.
4. Buy products in packages that can be refilled.
5. Buy a product because the label or advertising said it was environmentally safe or biodegradable.
6. Avoid restaurants using plastic foam containers.
7. Avoid buying products in aerosol containers.

goods from companies that do not pollute, buying products that come in packages that can be refilled or reused, and purchasing products that are biodegradable. These items in the three VS scales and the FBGP scale represent a diverse set of broad behaviors that may be better sorted into distinct sets of constructs. Subjects respond to the items for these scales on a seven-point Likert-type scale from "never do that thing" to "frequently do that thing." The scales for each are in Table Three.

Data Collection and Sample Characteristics

The data was collected from a student sample of undergraduates enrolled in upper-division business classes at a state university in the Midwest. The students were assured of anonymity and informed of their right to refuse taking the survey. In addition, the students were rewarded with extra credit for participation in the survey. One of the concerns in a study of this type is the use of students as subjects. While a student sample may not be representative of the entire population, Calder et al. (1981) suggest that a student sample is appropriate when the sample adequately represents the population concerning the areas applied in the research. Data was collected via a paper and pencil survey which took about 15 minutes to complete. Two surveys were discarded for excessive incomplete responses, leaving a sample size of 288 subjects. The sample was 52 percent female, with a mean age of 21 years.

Results

Refinement of NEP scale

Principle component factor analysis with varimax rotation was used to investigate the 15 item NEP scale. Inspection of communalities and correlation matrices indicate that the data were suitable for this analysis. These conclusions were further supported by

the Kaiser-Meyer-Oilkin (KMO) sampling adequacy of .804 and a significant Bartlett's Test of Sphericity ($\chi 2$=1049.212, p=0.000). Items were retained if they loaded 0.50 or more on a factor and did not load more than 0.50 on two factors, i.e. cross-loading. Third, the item should have a communality of 0.50 or more, and finally, items were retained if the reliability analysis indicated an item-to-total correlation of more than 0.40 (Hair et al. 2006). Based on this procedure, the 15 item scale was reduced to a single factor with five items measuring a broad attitude toward EC. Chronbach's alpha of the reduced NEP scale is 0.701.

Comparison of the Tightwad and Frugal Scales

The second analysis in Study One compares the Tightwad and Frugal scales. Previous research from Mowen (2000) found two issues of concern regarding the frugal scale (Lastovicka et al. 1999). The first concern is that the frugal scales measures two dimensions, and the second is that the frugal scale bore a lower coefficient alpha than the tightwad scale. The two dimensions revealed in Mowen's analysis were labeled care in spending and care in owning. The first represents a stewardship of financial resources, and the second represents a concern for material resources. This analysis will repeat Mowen's work to comparing the two scales.

For this study, principle component analysis with varimax rotation on the tightwad and frugal scale yielded three factors with Eigen values greater than one, which accounted for 67% of the variance. This is consistent with Mowen's (2000) analysis. The Kaiser-Meyer-Oilkin (KMO) sampling adequacy is .859 and Bartlett's Test of Sphericity is significant ($\chi 2$=1861.167, p=0.000). The first factor from this analysis is the five item tightwad scale, and the second two factors are the care in spending and care in

owning factors originally revealed by Mowen (2000, p.195). . The coefficient alpha for each scale is 0.87 for tightwad, 0.76 for care of ownership, and 0.89 for care in spending.

Comparison of NEP and Tightwad Scales

The third analysis in this study compares the NEP and the tightwad scale to determine if they measure two different constructs. The reduced NEP of five items and the five item tightwad scale were subjected to Principle Component analysis with varimax rotation. Inspection of communalities and correlation matrices indicate that the data were suitable for this analysis. These conclusions were further supported by the Kaiser-Meyer-Oilkin (KMO) sampling adequacy of .800 and a significant Bartlett's Test of Sphericity ($\chi 2$=975.320, p=0.000). Two factors with Eigen values greater than one emerged, which accounted for 56% of the variance. The five tightwad items loaded on the first construct, and the five NEP items loaded on the second construct. No items were removed in this analysis since the five items for each scale met the qualifications for retention as outlined in Hair et al. (2006). While NEP and Tightwad are two different constructs, they are significantly and weakly related (bivariate correlation r=.19, p=.001).

Refinement of Surface Traits

The goal of the final analysis is to refine scales that measure the surface traits. The four scales included in this analysis include the three scales measuring voluntary simplicity from Leonard-Barton (1981), and the frequency of buying green products from Guber (2003). An additional item was included in this analysis that relates to recycling behavior. The twenty-one items were subjected to principle component analysis with varimax rotation with maximum likelihood extraction. One concern with an analysis with this large a number of variables is the number of observations in the data set. Hair

et al. (2006) suggest that there ought to be at least 5 observations per variable, and 10 observations would be better. The data set for this analysis has 13 observations per variable (n=288), which meets those requirements. Inspection of communalities and correlation matrices indicate that the data were suitable for this analysis. In addition, maximum likelihood was used as the extraction method because of its ability to improve the parameter estimates (Hair et al. 2006). These conclusions were further supported by the Kaiser-Meyer-Oilkin (KMO) sampling adequacy of .888 and a significant Bartlett's Test of Sphericity ($\chi 2=2889.347$, $p=0.000$). This analysis revealed a three factor solution.

The first factor is made up of four items that seem to reflect one's propensity to engage in a simple or modest lifestyle. Therefore, this factor is labeled "modest living." The Chronbach's alpha of this scale is .78. The second factor is made up of three items that reflect one's propensity to engage in recycling behaviors. This factor is called "recycling," and has a Chronbach's alpha of .88. Finally, the third construct revealed in this analysis called "green buying" because they seem to reflect a person's propensity to engage in green buying behaviors. The Chronbach's alpha of this construct is .84.

The last analysis will be to compare the proposed surface and situational traits for discriminant validity. Included in this analysis are the reduced NEP scale, the tightwad scale, and the three surface traits: modest living, recycling, and green buying. These items were subjected to principle component analysis with varimax rotation. The assumptions for this analysis were met, (KMO) = .828 and Bartlett's Test of Sphericity is significant ($\chi 2=2594.069$, $p=0.000$). The analysis yielded the expected results of five

factors, with each item loading on its appropriate factor. Therefore, the three surface traits are unique and distinct from the two situational traits.

Discussion

The results of Study One provide a distilled version of the NEP scale, which reduces the scale from five facets to one construct. Chronbach's alpha of the reduced scale is also smaller than the alpha for the full 15 item scale (alpha = 0.70 and 0.80). That reduction is due in a large part to the smaller number of items in the reduced scale versus the full scale (Voss et al. 2000). In addition, the reduction of Chronbach's alpha is the trade-off for the benefit of reducing the five facets of the original scale to the single construct of the new scale.

Furthermore, the analysis from Study One suggests that the tightwad scale and the frugal scale are different constructs, where the frugal scale represents two separate constructs. The frugal scales multi-dimensional character measuring stewardship and fiscal responsibility does differ from measuring one's propensity to save rather than spend money. Although stewardship, or the care of material possessions, is a consumer trait worthy of study, it is not the focus of this line of research. In addition, an examination of the items in the tightwad and the frugal/care in spending scales suggests that the tightwad scale deals with a more devoted or acute view of frugality. Where the tightwad items include "I find that I have a hard time spending money on anything but necessities," and "I act like a tightwad, and spend very little," the care in spending items are less intense. Examples of the care in spending items include "I believe in being careful in how I spend my money," and "There are things I resist buying today so I can

save for tomorrow." Thus, it seems that the care in spending scale measures a less committed form of frugality than the tightwad scale.

Table Four Summary of Revised Scales
Modest Living 1. I frequently buy furniture at garage sales or second-hand stores 2. I frequently buy clothing at a second-hand store or garage sale 3. I frequently make gifts instead of buying them 4. I make clothing or furniture for the family
Recycle 1. I frequently recycle newspapers used at home 2. I frequently recycle glass jars and bottles used at home 3. I frequently recycle used cans, bottles, or paper
Green Buying 1. I avoid purchasing products made by a company that pollutes the environment 2. I buy a product because the label or advertising said it was environmentally safe or biodegradable 3. I avoid restaurants using plastic foam containers 4. I avoid buying products in aerosol containers
Reduced NEP 1. The earth is like a spaceship with very limited room and resources. 2. We are approaching the limit of the number of people the earth can support. 3. Humans are severely abusing the environment. 4. The balance of nature is very delicate and easily upset. 5. The so-called "ecological crisis" facing humankind has been greatly exaggerated.

In addition, the analysis reveals that the NEP scale and the tightwad scale also measure two different constructs. As was expected, the NEP scale seems to be a general measure of environmental beliefs, and the tightwad scale is a general measure of fiscal self-restraint. This is an important finding, for it suggests that frugality and EC are independent traits of a consumer's personality.

Finally, the surface traits were analyzed, which revealed some interesting findings. Four scales were submitted for analysis and three constructs emerged from the data. The first construct originated from the FBGP scale, which was simplified to four

items representing common green buying actions. Dropped were the items regarding "avoiding purchase of a product with excessive packaging," and "avoiding buying fresh foods because of the chemicals used in production." The three voluntary simplicity scales were reduced to two constructs in this analysis. The first is a scale represents a propensity to recycle, and the second represents a propensity to buy used clothing and furniture instead of new, and to create/build things like gifts, furniture, and clothing, rather than buying them. See Table Four for a summary of the revised scales. See Appendix B for a table of bivariate correlations of the constructs.

CHAPTER IV

STUDY TWO – ANTECEDENTS AND CONSEQUENCES OF FRUGALITY AND ENVIRONMENTAL CONCERN

The purpose of this chapter is to describe the second study in this dissertation, which compares the traits of the frugal and the Environmentally Concerned (EC). . The first section of this chapter discusses the theoretical framework for this research. The Meta-Theoretic Model of Motivation, or 3M Model (Mowen 2000), is employed as the theoretical basis for analyzing the structure of the psychological traits. The second section discusses the development of hypotheses and the nomological net. The third section presents the results of the study, and the final section will be devoted to discussing the results.

Theoretical Background – A Meta-Theoretic Model of Motivation.

An important question in the investigation of frugality and EC concerns how to organize these constructs into a nomological network. This study employs the 3M Model of motivation and personality (Mowen 2000) as the theoretical structure for proposing a nomological net of constructs. The 3M Model approach has been used in past research as a structure to investigate many phenomena, such as service employee performance (Brown et al., 2002), job resourcefulness (Licata et al., 2003), volunteerism (Mowen & Sujan, 2005), superstition (Mowen & Carlson, 2003), and word-of-mouth

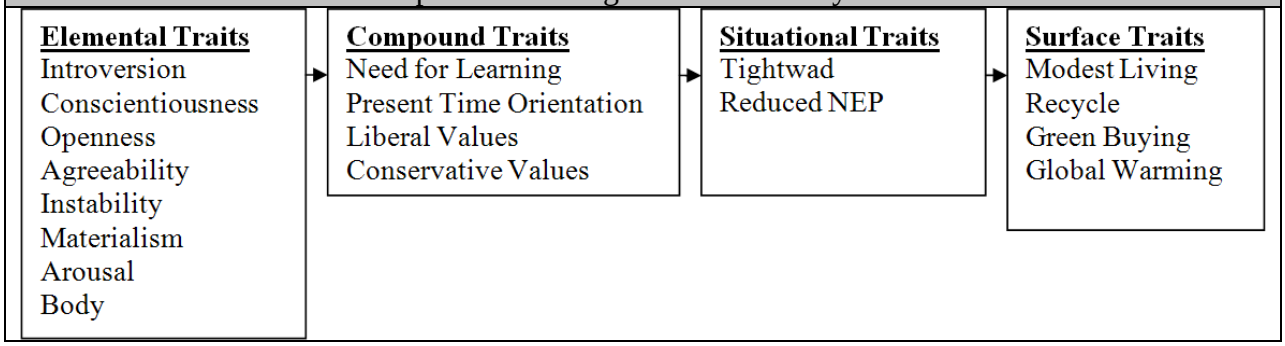
communications (Mowen, Park, and Zablah, 2007). Because the 3M Model has been effectively used in diverse research, it is applicable in this research.

The 3M model is based in part on the work of Allport (1937), and integrates control theory, evolutionary psychology principles, and elements of hierarchical trait theories to provide an integrated explanation of how personality and situations interact to influence feelings, thoughts, and behaviors. The 3M Model suggests that enduring dispositions to respond (e.g., traits) can be arranged into four levels based upon their levels of abstraction. Ranging from the most abstract to the most concrete, the four levels of traits are: elemental, compound, situational, and surface. Previous research has suggested that frugality and EC are also traits (Guber 2003; Lastovicka et al. 1999; Mowen 2000). Therefore, these constructs lend themselves well to this analytical framework.

In the hierarchy, elemental traits reside at the most abstract level. Mowen identified eight elemental traits which are defined as basic, underlying predispositions of individuals arising from genetics and a person's early learning history (Mowen 2000, p.20). These traits are cross-situational, enduring dispositions that represent the most basic components of the personality–motivational structure of the individual. The eight elemental traits in Figure One are: openness to experience, conscientiousness, introversion, agreeableness, emotional instability, need for material resources, need for arousal, and need for body resources. The first five elemental traits were adapted from Saucier's (1994) Five-Factor model. The need for arousal was adapted from Zuckerman's (1979) work on sensation seeking. The constructs material resources and body resources follow evolutionary psychology principles which suggest that the needs

arose from Darwinian selection pressures and were necessary for the survival of the species. For example, the human species cannot survive without creating material resources such as tools, weapons, clothing, and shelter. Humans that acquired or created those resources were more likely to survive than those who did not. This research will follow Mowen's (2000) proposition to include all eight elemental traits in this research as control variables. Further, it is important to include all eight elemental traits because if one does not, an 'illusory prediction' might occur, which is when it appears as if a compound or situational trait is predicting a surface trait (Mowen and Voss 2008).

Figure One
Proposed Nomological Net for Study Two



Compound traits reside at the next level in the hierarchy. Compound traits are defined as unidimensional dispositions emerging from the interplay of elemental traits, from the culture in which the individual lives, and the learning history of the individual (Mowen 2000, p.22). Included in this dissertation is the *need for learning*, *present time orientation*, and the values of *conservatism* and *liberalism*. The need for learning scale is well established in previous work by Mowen (2000) and is described as the enjoyment of learning and working on new ideas, and the priority of information as a resource. Following the pattern of previous research, it is placed at the compound level. The present time orientation scale (Hershey and Mowen 2000; Mowen and Sujan 2005) is

described as a focus on the present or living on a day-to-day basis. Also at the compound level are the values of conservatism and liberalism (Mowen et al. 2008). While values are not specifically compound traits, they do represent belief systems concerning socially preferred states of existence, which allows their inclusion at this level of analysis.

The third set of traits in the 3M Model are the situational traits. Situational traits result from the joint effects of elemental traits, compound traits, previous learning history, and the situational context in which the behavior occurs (Mowen 2000, p.22). This dissertation focuses on only two situational traits: EC and frugality. The scale for EC will be the reduced NEP scale (Dunlap and Van Liere 1978), and the scale for frugality will be *tightwadism* (Mowen 2000). Prior research from Mowen (2000) has placed tightwad at the situational level. The NEP scale is also placed at the situational level because environmental beliefs and actions are more prone to situational influences than compound traits. For example, education is proposed to influence environmental beliefs (deHaven-Smith 1988), and the need for learning, a facet of education, has already been established as a compound trait.

The surface traits are the most concrete of the traits which represent the fourth level of the 3M hierarchy. They are category-specific dispositions to behave with respect to a particular product category or domain of behavior (Mowen 2000, p.23). Included in this dissertation are four surface traits, three of which are developed in the previous study. The first is *modest living*, which represents behaviors common to the voluntary simplicity literature such as buying used or second-hand clothing and furniture (Leonard-Barton 1981). The second trait is *recycling*, or the propensity to recycle glass, cans and newspapers. The third is titled *green buying*, which is the propensity to purchase non-

polluting and environmentally safe products. The final trait is the *belief in global warming*, which is a belief that human behavior and actions are causing global environmental change. While the belief in global warming is a belief and not an action, it is a specific belief toward an object, and as such, is appropriate to the fourth level in the 3M hierarchy.

Research Hypotheses

This section is devoted to discussing the hypotheses and method used in this study. The hypotheses will be organized in order of their hierarchy, with the focus being the situational (third level) traits of frugality and EC. Thus, the first set of hypotheses regard the elemental traits' relationship to frugality and EC. Next will be the hypotheses regarding the compound traits' relationship to frugality and EC. Finally, the third set of hypotheses propose relationships between frugality and EC and the consequent surface traits.

Elemental Traits

Materialism

While all eight elemental traits are included in the model for this present research, it is not assumed that all eight prove to be relevant to the traits under study. Previous research by Mowen (2000) has suggested that materialism, conscientiousness, and the need for arousal may have a relationship to frugality. The first, materialism, is defined by Mowen (2000) as the need to collect and possess material goods. There is some discussion that the current scale used in the 3M model to measure materialism is better conceptualized as terminal materialism rather than instrumental materialism (Scott 2009). Instrumental materialism is the need for resources as tools and items necessary for

utilitarian purposes while terminal materialism is seen as the need for goods and items for hedonic purposes (Csikszentmihalyi and Rochberg-Halton 1978). For example a car can be used as basic transportation, a utilitarian purpose, or it can be perceived as a status symbol, a hedonic purpose. As such, Scott (2009) proposes that materialism as it is currently measured should be a situational trait rather than an elemental trait. As Scott's results are still forthcoming, and the prior research using the 3M model uses it as an elemental trait, this research will continue to use the scale and hierarchy as it exists.

The prior research suggests that materialism is negatively related to frugality and EC (Kilbourne and Pickett 2008; Mowen 2000). Traditional consumption patterns do not apply to the environmentally concerned (Heiskanen 2005). EC consumers take the position that a sustainable economy will not be achieved until consumers shift consumption patterns and reduce consumption levels (Fuchs and Lorek 2005). That change in consumption pattern includes purchasing goods and products that reduce waste, i.e. can be reused, repaired, and recycled. A stronger anti-materialism commitment from the EC segment is to reduce one's total consumption, as in, to buy and use less stuff. Other research has confirmed this ethic (Ebreo and Vining 2001; Tonner 2000). Therefore, it is proposed that materialism will have a negative relationship to EC.

In the same way, frugality has a negative relationship with materialism (Mowen 2000). The reasons for this negative relationship can be traced to some of the attitudes and behaviors of a frugal consumer. First, frugality concentrates on saving economic resources, especially personal economic resources (Bardhi and Arnould 2005). In order to reliably administer one's personal finances, one must try not to buy things (Gould et al. 1997). Frugal consumers will sometimes ignore a need in order to avoid a purchase

(Stammerjohan and Webster 2002), and feel guilty when they are forced to purchase (Shehryar et al. 2001). While simple denial or refusal to purchase may not eliminate a consumer's need, frugal consumers will instead use a product that they have on hand to meet that need (Craig-Lees and Hill 2002). Therefore it is proposed that materialism will also have a negative relationship with frugality.

Because this study aims to discern some antecedents of frugality and EC, it is proposed that materialism will asymmetrically affect frugality and EC. In other words, it is proposed that materialism will have a stronger negative effect on frugality than on EC because frugality focuses on personal material resources that are very salient to the individual, while EC focuses on shared global resources that are less salient. This will be empirically tested by determining the standardized beta coefficients and 95% confidence intervals of the two regression equations. If the standardized regression coefficients do not overlap, then the construct with the greater coefficient will have a stronger relationship with the materialism. Otherwise, neither will be deemed to have a stronger relationship.

H1a: Materialism will be negatively related to environmental concern.

H1b: Materialism will be negatively related to tightwad.

H1c: Materialism will have a greater effect on tightwad than on environmental concern.

The remaining two elemental traits that might have a relationship with frugality are conscientiousness and the need for arousal. Conscientiousness is the trait of being organized, precise, and efficient. The need for arousal is the trait of needing action and activity. While these two elementary traits did not reveal a direct relationship with

frugality in Mowen's research (Mowen 2000), the data did suggest a negative relationship mediated by the compound traits of present orientation and care in spending respectively. Because a direct relationship was not determined in prior research, the relationships between the elemental traits of conscientiousness and need for activity will be tested, but not hypothesized.

Compound Traits

In the present research, the compound traits need for learning, present time orientation, and the values of liberalism and conservatism are investigated for their possible relationship to EC and frugality.

The Need for Learning

The need for learning is described as the enjoyment of learning and working on new ideas, and the priority of information as a resource (Mowen 2000). It is hypothesized that the need for learning will be positively related to EC. First, one of the strongest demographic predictors of EC is a high level of education (Van Liere and Dunlap 1980). Second, environmentally concerned consumers have a strong desire to educate themselves about green products (Thogersen 2000). EC consumers are more likely to read and cognitively process product labels, and are more likely to act upon that knowledge. Third, environmentally concerned feel it is important to keep abreast of environmental issues (deHaven-Smith 1988; Schwepker and Cornwell 1991). In fact, the more a person is aware of and knowledgeable about environmental issues, the more likely he or she is to be environmentally conscious (Schwepker and Cornwell 1991). These findings suggest that EC consumers have a high need for learning, and thus, a correlation.

In the same way, prior research suggests that the need for learning may have a positive relationship with frugality. Frugal consumers are creative about solving consumer problems without spending money (Craig-Lees and Hill 2002; Lastovicka et al. 1999). For example a frugal person might be more likely to paint his or her own house rather than paying a professional painting crew to perform the work. As such, frugal consumers are independent (Craig-Lees and Hill 2002) and prefer to perform many of their own tasks: a "do-it-yourself" attitude. In order to perform one's own work, be it home or automobile repair, one must be willing to receive instruction and education. That education can be from others, from a book, or it could be from performing the work. Therefore, propensity toward independence, creativity, and problem solving ability suggest that frugality will have a positive relationship to the need for learning.

It is also proposed that the need for learning will have an asymmetric effect on frugality and EC. That is, the need for learning will have a stronger influence on EC than it has on frugality. The logic for this hypothesis is that EC is more dependent on educational resources. EC is a complex issue that covers a broad range of issues from recycling to global climate change. In addition, the awareness and understanding of those issues requires seeking information about environmental issues. On the other hand, while frugal consumers have a strong propensity to be innovative and creative in their use of resources (Todd and Lawson 2003), they are much less dependent of outside sources for their information. Frugality is impacted by an individual's daily tasks and financial obligations. Activities such as keeping track of bank accounts and keeping a budget do not require a high level of education (but do require commitment). Therefore,

it is hypothesized that the need for learning will asymmetrically affect environmental concerned and frugal consumers.

H2a: The need for learning will be positively related to environmental concern.

H2b: The need for learning will be positively related to tightwad.

H2c: The need for learning will have a stronger effect on environmental concern than it does on tightwad.

Present Time Orientation

Present time orientation reflects a short-term time horizon, where individuals live on a day-to-day basis, focus their attention more on the present than the future, and feel that the future is vague and uncertain. Previous research suggests that a present time orientation has a negative relationship with EC. As such, EC individuals have a future orientation with goals. One of those common goals is the sustainability of the planet. Fraj and Martinez (2007) found that individuals who choose environmentally friendly products desire to choose them not only because they are a healthier option for themselves, but that they encourage sustainability and benefit future generations. Research conducted by Ebreo and Vining (2001) found that the concern for future consequences has a direct positive relationship to a consumer's reported activities of recycling and waste reduction. Therefore, it is hypothesized that a present time orientation will have a negative relationship with EC.

It is also proposed that a present time orientation is also an antecedent to frugality. One of the characteristics of frugal consumers is a long-term orientation (Lastovicka et al. 1999). Frugal consumers save resources, particularly monetary resources, in the present so that they will have the ability to use those resources for a purchase or endeavor in the

future (Fujii 2006; Todd and Lawson 2003). Therefore, a hypothesis of a negative relationship between present time orientation is warranted. However, prior research has also found a positive relationship between present time orientation and frugality (Mowen 2000). This finding is counter to the predominate logic regarding frugality, and may represent a frugal consumer's overwhelming focus on daily tasks and chores at the expense of a long-term orientation. The hypothesis for this study will follow the findings from Mowen (2000) and suggest a positive relationship between present time orientation and frugality.

H3a: Present time orientation will be negatively related to environmental concern.

H3b: Present time orientation will be positively related to tightwad.

The Values of Liberalism and Conservatism

This dissertation will also include investigating the effects of liberal and conservative values on the propensity to be environmentally concerned and frugal. Consistent with other research including values in the 3M model (Mowen et al. 2008), values are placed at the compound level of analysis. Values are an "enduring belief that a specific mode of conduct or an end-state of existence (Rokeach 1973, p.5), while compound traits are "unidimensional predispositions that result from the effects of multiple elemental traits, a person's learning history, and culture" (Mowen 2000, p. 21). The compatibility between values and compound traits suggests that it is appropriate to include values at the compound level of analysis.

There is a great deal of evidence that EC has a positive relationship with liberal values. The major actors in environmental politics have traditionally been advocates of social change and a reformation of traditional or conservative values (Brulle 1996). Early

environmental organizations such as the National Arbor Day foundation and the Boone and Crocket Club were considered liberal because they opposed the traditional values of manifest destiny and advocated the conservation of natural resources. Current organizations established to protect the health of the planet and the people include the Natural Resources Defense Council and Earth First!. Therefore, it is believed that liberalism will have a positive relationship with EC.

On the other hand, conservative values seem to reflect an anti-EC ethic (Dunlap et al. 2001). Evidence suggests that conservative political leaders and think-tanks have a record of at best not supporting initiatives designed to protect the environment to obstructing those initiatives outright (Brechin and Freeman 2004; McCright and Dunlap 2000). Further, from some points of view, the dominant paradigm of capitalism and the promotion of economic growth opposes environmental movements (Austin 2002; Pellow 1999). Many believe that the country (and the world) must make a decision between economic growth and jobs versus preservation and activities to insure the health of the planet (Dunlap et al. 1993). Therefore, it is proposed that conservatism will have a negative relationship with EC.

H4a: Liberalism will have a positive relationship to environmental concern.

H4b: Conservatism will have a negative relationship with environmental concern.

Unlike environmental concern, frugality does not seem to have a political values orientation. Contemporary research has not attempted to address this question. This gap in our research may suggest an opportunity to glean new knowledge in this arena, or it may represent the fact that there is no reason to suspect a relationship between liberal and conservative values and frugality. Yet, some historical perspectives suggest frugality to

be aligned with a conservative rather than a liberal viewpoint. Witkowski (1989) found that frugality was institutionalized by governments during the colonial period to both insure the future success of communities and colonies, but also as a reaction to liberal and excessive fashions being imported from Europe. In addition, frugality as advocated by many of the world's major religions is good character and a righteous lifestyle (Dayton 1996; Gould et al. 1997). As a result, frugality may have a positive relationship with conservatism, and a negative relationship with liberalism.

H4c: Liberalism will have a negative relationship with Tightwad.

H4d: Conservatism will have a positive relationship with Tightwad.

Surface Traits

In the present research, the surface traits of modest living, recycling, green buying, and the belief in global warming are investigated as possible consequent traits of EC and frugality.

Modest Living

Modest living behaviors are conceptualized as purchasing furniture and clothing at second-hand stores or at garage sales, as well as making clothing, gifts, and furniture for one's family. It is believed that EC will have a positive relationship to these behaviors. These behaviors recycle resources and use less new resources. At the same time, it is believed that frugality will have a positive relationship with the modest living behaviors because these behaviors represent simple and effective strategies to save money. One can find aspects of both frugality and EC in the ethics of modest living or voluntary simplicity (Elgin 1981). EC consumers show a great deal of constraint when it comes to purchasing products (Shehryar et al. 2001), and are willing to utilize alternative

purchasing strategies in order to meet material needs. However, it is hypothesized that frugality will have a stronger relationship with modest living behaviors than EC. This proposition is based on the logic that frugality is more concerned about the consumption of resources, where EC is more concerned about the consequences of the behaviors relating to the use of resources (Fujii 2006). As was done with the first set of hypotheses, this will be empirically tested by comparing the standardized beta coefficients and 95% confidence intervals of the two regression equations.

H5a: Environmental concern will be positively related to modest living.

H5b: Tightwad will be positively related to modest living.

H5c: Tightwad will have a greater effect on modest living behaviors than will environmental concern.

Recycling

Recycling behavior is included in this dissertation because it is a common behavior to both frugal and EC consumers (Vining and Ebreo 1990). One's propensity to recycle seems to depend on three facets: the relative convenience of recycling as a disposition strategy (Ewing 2001), one's education and knowledge about the importance and benefits of recycling (Kashmanian 1989), and the social norms in one's community or social group regarding recycling behavior (Vining and Ebreo 1992). While the first facet of recycling behavior is not related to an investigation of psychological antecedents, the second two facets of recycling are related and important to this line of research. One of the hypothesized antecedents to EC is need for learning. There is a similar relationship between recycling behavior and education. Individuals that recycle are generally educated about recycling's importance (Heckler 1994), understand what materials are

recyclable and beneficial to their community, and know where and how to recycle (Vining and Ebreo 1990). In addition, recycling is a form of altruistic behavior (Hopper and Nielsen 1991), where proponents recycle less for the good of themselves, and more for the good of their community and their environment. Finally, recyclers perceive greater social pressure to recycle due to the dominant social norms of their community (Vining and Ebreo 1992), and therefore are more likely to feel a personal obligation to recycle.

While there is evidence that recyclers are like the frugal and find satisfaction from the efficient use of resources (Granzin and Olsen 1991), there is also evidence that the frugal may be resistant to recycling behaviors. Vining and Ebreo (1990) suggest in their research that non-recyclers are motivated toward recycling behavior only when there are financial incentives and rewards for their recycling behavior. As such, this suggests that consumers might not be willing to recycle unless they perceive a reward for themselves, which is an egoistic orientation. As Fujii (2006) noted in his research, frugal consumers are concerned about the consumption of resources and more concerned about their financial resources. Therefore, it is suspected that frugal consumers may be more like the general population and may be willing to recycle when there is a reward, i.e. a benefit to their financial resources. This is in opposition to the environmentally concerned consumer who is concerned with the general consequences of their recycling behaviors.

H6a: Environmental concern will be positively related to recycling behaviors.

H6b: Tightwad will be negatively related to recycling behaviors.

Green Buying

The green buying scale measures one's propensity to avoid using and purchasing products that pollute the environment, as well as preferences for products that are environmentally safe. It is believed that EC will have a positive relationship with green buying behaviors that relate to concerns about pollution and care of the environment because individuals with a concern for the environment have consistently expressed a willingness to purchase green products (McDaniel and Rylander 1993; Schlegelmilch et al. 1996). As such, these behaviors are congruent with the environmental beliefs measured in the NEP scale. However, the green buying scale also reflects purchasing products that are often perceived as more expensive than traditional products (Laroche et al. 2001). Some retailers and manufacturers have found it difficult to entice consumers to overcome the perceived high price of green or environmentally friendly products (Wong et al. 1996). Therefore, consumers who are price oriented and are similar to frugal consumers will be discouraged from purchasing green products. For that reason, it is proposed that frugality will be negatively related to the shopping behaviors outlined in the green buying scale.

H7a: Environmental concern will be positively related to Green Buying.

H7b: Tightwad will be negatively related to Green Buying.

Belief in Global Warming

Global warming is an interesting and contentious issue. Not everybody agrees that global warming is a problem. Some do not believe that global warming is real, and some have never heard of global warming. On the other hand, there are many who consider global climate change to be a serious problem that man has helped cause, and it

is a problem that will have a serious negative effect on people and civilizations (ACNielsen 2007).

An investigation of the belief in global warming will provide an interesting contrast between environmentally concerned and frugal consumers. Corbett and Durfee (2004) found that belief in global warming varies across populations, and that environmentally concerned individuals have a consistent positive belief in global warming. In addition, they note that global warming has been called an invisible or unobtrusive issue because the average person does not have the real-world experiential conditions to shape their opinions or develop an understanding of the issue (Corbett and Durfee 2004). The media attention to global warming have caused some to call it a "celebrity social problem," one that reaches national attention only when something remarkable (such as the summer heat wave of 1988) causes attention to be focused on it (Ungar 1992). Others have discounted global warming as bad science and hype (Crichton 2003). As such, the belief in global warming is a useful construct to investigate the differences between environmentally concerned and frugal consumers. Therefore, it is suspected that EC consumers will have a positive relationship to the belief in global warming. There seems to be an obvious link between concern for the planet, i.e. EC, and concern for global warming.

On the other hand, there is little research published regarding a possible link between frugality and a belief in global warming. One could argue, however, because global warming is not perceived as a threat to a frugal consumer's personal finances, there may be a negative relationship with global warming. Yet, there is much information that is available that suggests that there is a positive relationship between

frugality and a belief in global warming. There are several organizations which promote frugality as a simple tactic consumers can use to positively impact the environment. Those espousing this view include the Union for Concerned Scientists (Brower and Leon 1999), and The Rocky Mountain Institute (Heede 2002). These groups argue that reducing one's carbon footprint is a critical and necessary step toward addressing the problem of global warming. They also indicate that the reduction in carbon emissions positively benefits one's pocketbook. People who have a lower carbon footprint use less fuel because they drive less and live in smaller, more energy efficient homes. This means that those who actively pursue a low carbon lifestyle also spend less on energy, a benefit to the frugal minded consumer. It is through this logic that a positive relationship between tightwadism and a belief in global warming is founded. However, it will be hypothesized that EC will have the greater effect on global warming because of the greater quantity and depth of research available.

H8a: Environmental concern will be positively related to belief in global warming.

H8b: Tightwad will be positively related to belief in global warming.

H8c: Environmental concern will have a greater effect on a belief in global warming than environmental concern.

Empirical Method

Measures

The measures used in the second study are from the first study, and from other research using the 3M model. The measures from the first study include the revised NEP scale, and the revised voluntary simplicity scales of recycling, green buying, and modest

Table Five Summary of Hypotheses	
H_{1a}	Materialism will be negatively related to environmental concern.
H_{1b}	Materialism will be negatively related to frugality.
H_{1c}	Materialism will have a greater effect on frugality than environmental concern.
H_{2a}	The need for learning will be positively related to environmental concern.
H_{2b}	The need for learning will be positively related to frugality.
H_{2c}	The need for learning will have a stronger effect on environmental concern than frugality.
H_{3a}	Present-time orientation will be negatively related to environmental concern.
H_{3b}	Present-time orientation will be positively related to frugality.
H_{4a}	Liberalism will have positive relationship with environmental concern.
H_{4b}	Conservatism will have a negative relationship with environmental concern
H_{4c}	Liberalism will have a negative relationship with frugality.
H_{4d}	Conservatism will have a positive relationship with frugality.
H_{5a}	Environmental concern will be positively related to modest living.
H_{5b}	Frugality will be positively related to modest living.
H_{5c}	Frugality will have a greater effect on modest living behaviors than environmental concern.
H_{6a}	Environmental concern will be positively related to recycling behaviors.
H_{6b}	Frugality will be negatively related to recycling behaviors.
H_{7a}	Environmental concern will be positively related to Green Buying.
H_{7b}	Frugality will be negatively related to Green Buying.
H_{8a}	Environmental concern will be positively related to belief in global warming.
H_{8b}	Frugality will be positively related to belief in global warming.
H_{8c}	Environmental concern will have a greater effect on a belief in global warming than frugality.

living. Also included in this study are the eight elemental traits, the tightwad scale and the need for learning scale from Mowen (2000), and scales to measure present time orientation (Mowen and Sujan 2005), liberal and conservative values (Mowen et al. 2008), and a belief in global warming. While materialism is the only elemental trait that is hypothesized to have a relationship with the consequent traits in this study, the other seven traits are included in the analysis as control variables that minimize the possibility of illusory predictions (Mowen and Voss 2008). An illusory prediction is where a mid-level trait appears to have a relationship with a consequent trait, but that variance is

actually accounted by one of the elemental traits. In addition, it provides the ability to identify new relationships.

Data Collection

Data for the second study was collected via an online survey from the internet research firm Zoomerang. The instrument for this survey was first written as a paper and pencil survey similar in form to the survey developed in study one. It was then converted into an online version via the upload process to Zoomerang.com. Zoomerang presented the survey to their panel, and the collected data was returned about five days later. The items in this survey are Likert-type questions, similar to Study One. There were no blank items on the survey as the computer program required that all items must be filled out to complete the survey. Zoomerang offered this survey to 1000 members of its research panel, and 555 surveys were completed. Respondents were 52% female, median age is between 35 and 44 years old, with 75% of the respondents having attended or completed college.

Results

Prior to analyzing the data, it was examined for its suitability for analysis. First, an examination was made to check for influential cases or outliers that might potentially have an impact on the study (Hair et al. 2006). Examination did not reveal any such cases. Second, the variables were checked for normality by examining their normal curves, and PP plots, of which all were deemed appropriate for further analysis.

Analysis One – Tightwad.

The first analysis was run using hierarchical linear regression with tightwad as the dependent variable. The independent variables were the eight elemental traits on the first

level, learning, present time, liberal and conservative as independent variables on the second level. Prior to assessing the results of the analysis, a further examination of the data was conducted to assess whether the data met the four basic assumptions of linear regression. First, the relationship between the independent and dependent variables was checked for linearity. Second, the error terms were checked for their independence, i.e. that they have no serial correlation. Third, the error terms were assessed for constant variance, i.e. the error terms are heteroscedastic. Fourth, the error terms were checked for normality. In addition, multicollinearity, or the presence of redundant dependent variables, was also tested. The results of these tests indicate that the data meets these assumptions.

The first model assesses the elemental traits on the DV, and the second model assesses the elemental traits and the compound traits on the DV. Both models are statistically significant ($p<.000$). The elemental traits account for 11% of the variance of tightwadism, while the elemental traits and the compound traits account for 16%. Analysis showed that the elemental traits of introversion ($p<.01$, $\beta=.18$), materialism ($p<.01$, $\beta=-.30$), and body resources ($p<.01$, $\beta=.18$) were related to the trait of tightwad, with materialism having a negative relationship. This analysis provides support for hypothesis H1b, which proposed that materialism would be negatively related to tightwadism. See Table Six for beta coefficients and significance levels and Table Seven for a summary of hypotheses.

The second model indicates that the same elemental traits are significantly related to the trait of tightwad providing further support for hypothesis H1b. In addition, the compound traits of liberal and conservative values are significant, each with a positive

Table Six
Study Two: Beta Coefficients for Hierarchical Regression Analysis (N=555)

	DV:TWD		DV:EC	
Elemental Traits				
Introversion	.18***	0.15***		
Conscientiousness				
Openness			0.08*	
Agreeability		-0.08*		
Instability				
Materialism	-.30***	-0.33***		
Arousal			0.10*	
Body	.18***	0.16***		
Compound Traits				
Need for Learning				0.20***
Present Time				0.09**
Liberal		0.21***		0.27***
Conservative		0.25***		-0.11**
Situational Trait				
Environemental C				
Tightwad				
Adjusted Rsquare	0.11	0.16	0.02	0.17

	DV: modest living			DV: Recycle			DV: Green Buying			DV: Global War	
Elemental Traits											
Introversion	0.11**	0.08*								0.10**	0.10**
Conscientiousness	-0.17***	-0.15***	-0.17***				-0.11**	-0.11**	-0.10**		
Openness	0.19***	0.19***	0.18***	0.17***	0.10*	0.11*	0.22***	0.19***	0.20**	0.10**	
Agreeability				-0.08*	-0.09*	-0.09*					
Instability	0.15***	0.12***	0.11**								
Materialism	-0.12**	-0.14***									
Arousal					-0.09*	-0.10*	0.11**				
Body	0.11**	0.10**					0.17***	0.16***	0.13***		
Compound Traits											
Need for Learning					0.14**	0.11*					0.14***
Present Time					-0.12***	-0.14***			-0.07*		
Liberal		0.21***	0.15***		0.17***	0.10*		0.31***	0.18***		0.27***
Conservative		0.19***	0.13***					0.10**	0.09**		-0.15***
Situational Trait											
Environemental C			0.03			0.18***			0.33***		
Tightwad			0.27***			0.08*			0.17***		
Adjusted Rsquare	0.08	0.11	0.18	0.02	0.06	0.09	0.10	0.16	0.29	0.02	0.17

*p<.10, **p<.05, ***p<.01

relationship (p<.01, β=.21 and p<.01, β=.25 respectively). This analysis provides support for hypotheses H4d which proposed that conservatism will have a positive relationship with tightwadism; however, the other hypotheses regarding the antecedents to frugality were not supported (hypotheses H2b, and H3b). One surprise from this analysis is the finding that liberalism has a significant positive relationship with tightwadism, counter to the prediction proposed in hypothesis H4c. A concern with this analysis is the relationship between EC and frugality, and whether that relationship influences the

Table Seven: Summary of Results - Study Two		
H_{1a}	Materialism will be negatively related to environmental concern.	Not Supported
H_{1b}	Materialism will be negatively related to frugality.	Supported ($p<.01$, $\beta=-.30$)
H_{2a}	The need for learning will be positively related to environmental concern.	Supported ($p<.01$, $\beta=.20$)
H_{2b}	The need for learning will be positively related to frugality.	Not Supported
H_{3a}	Present-time orientation will be negatively related to environmental concern.	Not Supported, opposite relationship found. ($p<.05$, $\beta=.09$)
H_{3b}	Present-time orientation will be positively related to frugality.	Not Supported
H_{4a}	Liberalism will have positive relationship with environmental concern.	Supported ($p<.01$, $\beta=.27$)
H_{4b}	Conservatism will have a negative relationship with environmental concern	Supported ($p<.05$, $\beta=-.11$)
H_{4c}	Liberalism will have a negative relationship with frugality.	Not Supported, opposite relationship found. ($p<.01$, $\beta=.21$)
H_{4d}	Conservatism will have a positive relationship with frugality.	Supported ($p<.01$, $\beta=.25$)
H_{5a}	Environmental concern will be positively related to modest living.	Not Supported
H_{5b}	Frugality will be positively related to modest living.	Supported ($p<.01$, $\beta=.27$)
H_{6a}	Environmental concern will be positively related to recycling behaviors.	Supported ($p<.01$, $\beta=.18$)
H_{6b}	Frugality will be negatively related to recycling behaviors.	Not Supported
H_{7a}	Environmental concern will be positively related to Green Buying.	Supported ($p<.01$, $\beta=.33$)
H_{7b}	Frugality will be negatively related to Green Buying.	Not Supported, opposite relationship found. ($p<.01$, $\beta=.17$)
H_{8a}	Environmental concern will be positively related to belief in global warming.	Supported ($p<.01$, $\beta=.62$)
H_{8b}	Frugality will be positively related to belief in global warming.	Not Supported

relationships to the antecedent traits. Reduced NEP and Tightwad are significantly correlated ($r=.193$, $p<.000$), however analysis conducted controlling for that relationship did not find any changes with Tightwad or Reduced NEP's relationships with the

antecedent traits. See Table Six for beta coefficients and significance levels and Table Seven for a summary of hypotheses.

Analysis Two – Environmental Concern

The second analysis was run with NEP as the dependent variable. As was done with the first analysis, in model one the eight elemental traits were predicting NEP. The second model adds the compound traits of learning, present time, liberal and conservative values. Both models were statistically significant ($p=.037$ for the first model, $p<.000$ for the second model). The elemental traits accounted for little variance in the reduced NEP scale, just 2%, while the elemental traits combined with compound traits accounted for 17% of the total variance. None of the elemental traits were significant predictors of NEP. Thus, the analysis did not support hypotheses H1a which predicted a negative relationship between materialism and EC.

Analysis for the second model revealed that all four compound traits were significant predictors of NEP. Hypotheses 2a, which proposed a positive relationship between the need for learning and NEP, was supported ($p<.01$, $\beta=.20$). Hypotheses 3a, which proposed a negative relationship between a present-time orientation and NEP was not supported. Counter to that prediction, a significant positive relationship was found ($p<.05$, $\beta=.09$). Hypotheses 4a and 4b were both supported, which predicted a positive relationship with liberal values and a negative relationship with conservative values ($p<.01$, $\beta=.27$; ($p<.05$, $\beta=-.11$ respectively).

Analysis Three – Modest Living

The purpose of the third analysis is to calculate the antecedents to the surface trait of modest living and to test the fifth set of hypotheses which predict the relationship NEP

and tightwadism have with modest living. Modest living behaviors include buying used clothing and furniture, and making rather than buying gifts, clothing and furniture. As was done on the first two analyses, the eight elemental traits were used as independent variables for the first model. The second model adds the four compound traits, and the third model adds the two situational traits of NEP and tightwadism. In this analysis, all three models were significant ($p<.000$ for each). The percent of total variation of modest living (adjusted R squared) by the elemental traits is 8%, while the adjusted R2 for the second model is 11%. The third model, which includes the traits of NEP and tightwadism, increased the accounted variance to 18%.

Hypothesis 5a proposed that EC will be positively related to modest living. This hypothesis was not supported by the data. However, Hypothesis 5b which proposed that frugality would also be positively related to modest living, is supported ($p<.000$, $\beta=.27$). As such modest living behaviors are predicted by tightwadism, and not predicted by NEP. While not hypothesized, the third model also reveals that liberal and conservative values are significant positive predictors of modest living ($p<.000$ for both, $\beta=.15$ for liberal, $\beta=.13$ for conservative). In addition, three elemental traits were revealed as antecedent to modest living. The first, conscientiousness ($p<.000$, $\beta=-.17$), which is the trait of being precise, efficient, and organized, has a negative relationship with modest living. The second, openness, ($p<.000$, $\beta=.18$), which is the trait of being imaginative, original and creative, has a positive relationship. Finally, the third elemental trait, instability, ($p<.05$, $\beta=.11$), which is the trait of being moody, temperamental, or touchy has a positive relationship with modest living.

Analysis Four – Recycle

The purpose of the fourth analysis is to test the sixth set of hypotheses and to reveal the other antecedents of recycling. Recycling behaviors include recycling cans, newspaper and glass. In this analysis, all three models are statistically significant ($p=.016$ for the first model, $p<.000$ for the other two models). The adjusted R2 for the models are.02, .06 and .09 respectively. In this analysis, hypotheses 6a was supported ($p<.000$, $\beta=.18$), which predicts NEP's positive relationship with recycling behaviors. On the other hand, hypotheses 6b, which predicts tightwad's negative relationship with recycling behaviors was not supported.

While not hypothesized, the analysis revealed only one other significant antecedent to recycling: present-time orientation ($p<.000$, $\beta=-.14$). Present-time orientation is a compound trait that indicates a focus on the present more than the future, an uncertainty in the future, and a preference for day-to-today living. This negative relationship with recycling suggests that those indicating a propensity to recycle do not have to concur with a present-time orientation.

Analysis Five – Green Buying

The purpose of the fifth analysis is to test the seventh set of hypotheses. Green buying behaviors include avoiding products made by companies that pollute, that use plastic foam packaging, or that come in aerosol containers. Hypotheses 7a predicted a positive relationship with NEP and hypotheses 7b predicted a negative relationship with tightwadism. All three models reached statistical significance ($p<.000$ for each, with an adjusted R2 of .01, .16, and .29 for each of the three respective models). Analysis supported hypothesis 7a ($p<.000$, $\beta=.33$), and rejected hypotheses 7b ($p<.000$, $\beta=.17$).

In addition, the results suggest five other antecedents to green buying. Three elemental traits are significant predictors. The first two, conscientiousness and openness ($p<.05$ for both, $\beta=-.10$ for conscientiousness, $\beta=.20$ for openness) show a pattern similar to modest living. The third elemental trait is body resources, in which a person focuses on their body and spends time keeping their body healthy, has a positive relationship with Green Buying ($p<.000$, $\beta=.13$). The other two antecedents are liberal and conservative values ($p<.000$, $\beta=.18$ for liberal, $p<.005$, $\beta=.09$ for conservative).

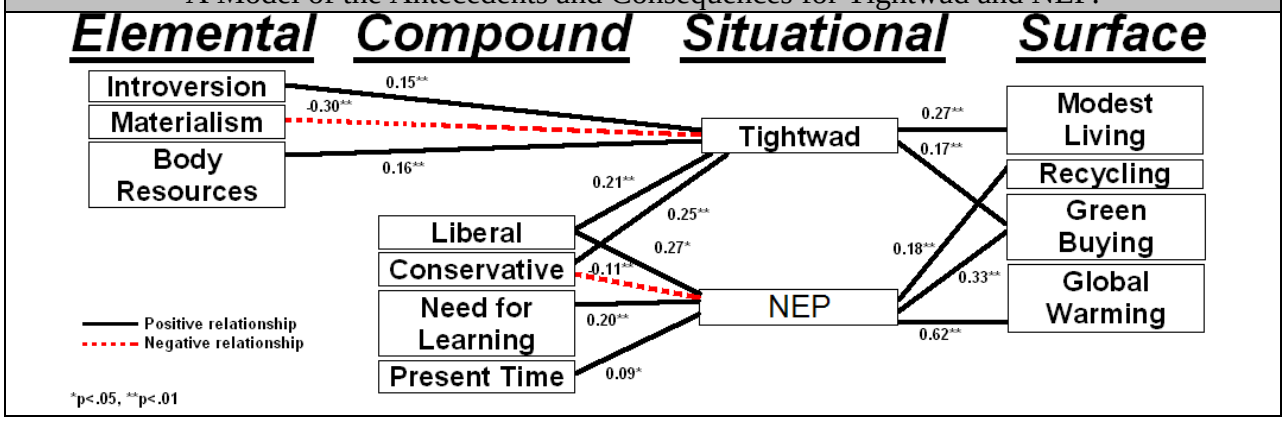
Analysis Six – Global Warming

The final analysis is conducted to test the eighth set of hypotheses and to assess the antecedents of a belief in global warming. The belief in global warming is the belief that human behavior is causing the global climate change. Hypothesis 8a predicts a positive relationship with NEP and a negative relationship with tightwadism. All three models reached statistical significance ($p=.015$ for the first model, $p<.000$ for the remaining two, with an adjusted R square for the models of .02, .17 and .50 respectively). Analysis supports hypotheses 8a ($p<.000$, $\beta=.62$). The standardized beta for this analysis is the largest of any in this study. No significant relationship was found with tightwadism, failing to support hypotheses 8b. Further examination reveals three other antecedents to a belief in global warming. The first is the elemental trait of introversion ($p<.000$, $\beta=.09$). Introversion is the propensity toward being shy, bashful or introverted. The others two antecedents are the values of liberal and conservatism ($p<.000$, $\beta=.10$ for liberal, $p<.05$, $\beta=-.08$).

Discussion

The results of Study Two provide an interesting picture of a frugal and environmentally concerned consumer. While not all of the proposed hypotheses were supported, the data did support several, and also provided keen insights to the antecedent and consequent traits of these two important consumer groups. It is important to note in the following discussion that the two consumer groups are similar, as expected, but also distinct. It is the divergence between these two groups that will provide the supporting arguments for the experiment in Study Three. As such, the first and second sets of hypotheses provide the strongest contrast between these two consumer groups. The following discussion will track the hypotheses in order.

Figure Two
A Model of the Antecedents and Consequences for Tightwad and NEP.



Hypothesis 1a and 1b proposed that materialism will be negatively related to both EC and tightwad, and that materialism will have a greater effect on tightwad than EC (H1c). The data supports H1b but not the other two. These findings in support of H1b provide support for previous research from Mowen (2000) regarding the materialism/tightwad relationship. However, the results also reveal that materialism does not have a significant relationship with EC. Therefore, the data suggests that those

consumers who profess a concern for the environment do not have a consistent anti-materialistic personality trait, whereas those who advocate a frugal lifestyle are more likely to also be anti-materialistic.

The second set of hypotheses proposed that the compound trait of need-for-learning will be positively related to both EC (H2a) and tightwadism (H2b), with the need for learning having a stronger effect on EC than on tightwadism (H2c). As was the case with the first set of hypotheses, the data supports one of the three hypotheses, but in this case, the support is for the relationship with EC. As such, one may suggest that environmentally concerned consumers are more likely to practice and enjoy their cognitive faculties than frugal consumers.

The third set of hypotheses predicted that the compound trait of a present-time-orientation will be negatively related to EC (H3a) and positively related to tightwadism (H3b). In this case, the data does not support either of the two hypotheses. The results fail to support H3b, which suggests that a present-time-orientation is unrelated to tightwadism, and reject H3a, which suggests a positive relationship to EC. Therefore, the results are counter to the expectations proposed in this dissertation with regards to the present time/EC relationship.

The fourth set of hypotheses was established to test the relationship of liberal and conservative values to EC and frugality. It was proposed that liberalism would be positively related to EC (H4a) and negatively related to tightwadism (H4c), and that conservatism would be negatively related to EC (H4b) and positively related to frugality (H4d). The data supports three out of the four proposed relationships, rejecting H4b. Contrary to what was hypothesized, the liberal and conservative values are both

positively related to tightwadism, while liberal values are positively related and conservative values are negatively related to EC. These findings suggest that consumers who are committed to either end of the political spectrum are more likely to hold frugal traits, while those consumers that are not as committed to their political values are also less committed to hold frugal traits. On the other hand, liberal values do have a statistically significant positive relationship with EC while conservative values have a statistically negative relationship with the EC.

Admittedly, the logic regarding H4c and H4d was meager. Whereas political orientation has been consistently noted as a strong antecedent to EC (Brechin and Freeman 2004; Brulle 1996; Dunlap et al. 2001), very little research has been conducted regarding political orientation and frugality. In fact, in the seminal piece by Lastovicka et al. (Lastovicka et al. 1999) political orientation was not at all considered as an antecedent to frugality. The basis for these hypotheses was found in the political struggles Colonial America experienced, where a conservative fiscal orientation was critical to the success of the community and country (Witkowski 1989) and to the conservative religious overtones of frugality (Dayton 1996; Gould et al. 1997). Yet the findings of this study suggest that the frugal are likely to be persons at the polar ends of the political spectrum.

The fifth set of hypotheses investigates the surface trait of modest living. Modest living behaviors include buying used clothing and furniture, and making rather than buying gifts, clothing, and furniture. It was hypothesized that both EC and tightwad would be positively related modest living (H5a and H5b) and tightwad would have the stronger relationship (H5c). The results gleaned from the data indicate that modest living behaviors are consequent to frugality, but not to EC. This suggests that the voluntary

simplicity behaviors of modest living (Craig-Lees and Hill 2002; Elgin and Mitchell 1977; Leonard-Barton 1981) are more likely to be practiced by the frugal than the environmentally concerned.

On the other hand, recycling behaviors showed the opposite relationship as modest living. The sixth set of behaviors proposed that environmentally concerned consumers would be likely to recycle (H6a) and that frugal consumers would not (H6b). The first hypothesis was supported by the data ($p<.000$, $\beta=.18$), but the second was not. While H6b was not significant at the $p<.05$ level, it is at the $p<.10$ level with a $\beta=.08$. These findings show that the situational trait of environmentally concerned is an important antecedent to recycling behavior, but that tightwadism is, at best, a minor antecedent. While the other aspects of recycling such as social norms (Hopper and Nielsen 1991), convenience (Ewing 2001) and awareness (Vining and Ebreo 1990) are likely stronger antecedents to recycling behavior, this analysis points out that between the environmentally concerned and the frugal consumers, it is the environmentally concerned who are more likely to recycle.

The seventh set of hypotheses propose that the environmentally concerned will be more likely to participate in Green Buying, i.e. the green purchasing tactics of choosing products that reduce pollution, are recyclable, and are made by environmentally friendly firms (H7a), while the frugal would be unwilling to practice Green Buying due to their higher costs (H7b). The data show that both EC and frugality hold a significant positive relationship with Green Buying ($p<.01$ for both, $\beta=.33$ for EC, $\beta=.17$ for tightwadism). Therefore, H7a was supported, and H7b was rejected. This finding suggests that both the

frugal and the environmentally concerned see merit in the practice of buying non-polluting products and supporting environmentally friendly firms.

The last set of hypotheses considers the relationships between EC and frugality and one's belief in global warming. It was hypothesized that both EC and tightwad would have a positive relationship with the belief in global warming (H8a and H8b), with EC having the greater influence (H8c). Results of this study reveal that EC does indeed have a positive relationship with the belief in global warming ($p<.000$, $\beta=.62$), supporting H8a. However, no support was found for a link between frugality and a belief in global warming (H8b, $p>.10$, $\beta<.00$).

Conclusion

The results of Study Two reveal a complex picture of the frugal and environmentally concerned consumer. The original intent of this line of research was to delineate the differences between the two sets of consumers, both in their antecedents and in their consequent behaviors. The results of this study suggest that there are more differences than were first hypothesized. Some of the most interesting findings come from an examination of the behaviors of EC and tightwadism.

First, environmentally concerned consumers are more likely to recycle and believe in global warming. This suggests that as municipalities and firms commence sustainability initiatives that include a recycling program, frugal consumers might not be as willing to participate as an environmentally concerned individual. On the other hand, frugals might be enticed to contribute to the recycling efforts if they see a reward for themselves (Fujii 2006), such as cash incentives. One such incentive is a two cent per bag discount some grocers offer to patrons who bring their own canvas grocer bags,

rather than accepting the ubiquitous and noxious plastic grocery bag normally used. The belief in global warming also shows that frugal and environmentally concerned consumers are different. Therefore, a firm's or organization's sustainability initiative that includes references to global climate change will likely register a reaction from environmentally concerned individuals, but will not likely influence the frugal. This is important as advocates attempt to garner support and publicity for their efforts, such as at Louisiana State University where university officials are attempting to develop and build a culture of sustainable behavior among students, staff and faculty (Blum 2009).

Second, frugal consumers are more likely to exhibit the modest living behaviors of buying used clothing or furniture, and making things rather than purchasing them. This is an important finding for communities and organizations that deal with used household goods such as Goodwill, Habitat for Humanity, and other non-profit charities (Simpson 2009). As these organizations seek to collect and resell their wares, they will benefit most from their marketing activities by focusing on the frugal consumer and their traits rather than the environmentally concerned.

The third finding in this research is that both tightwad and environmentally concerned consumers are prone to purchase green products. This is a unique discovery of this research, for it is the only surface trait that is shared by both consumer segments. This finding supports Straughan and Roberts (1999) suggestion that additional attention should be paid to the psychographic variables of the green consumer. Green marketing is a sort of Holy Grail for marketers today who are keen to develop an advantage over their competitors (Ottman 1993; Polonsky and Rosenberger 2001). These advantages include promotional opportunities (Biddle 1993), and the ability to reach unique and distinct

niche markets (Laroche et al. 2001; Meyer 2001). However, green marketing has not met all the potential credited to it by firms and consumers. For example, some consumers feel that green marketing is a trick to mislead or deceive consumers (Carlson et al. 1993). Investors, too, are wary of green marketing initiatives by firms, such that firms that announce green marketing efforts suffer lower stock prices as a result (Mathur and Mathur 2000). While recognizing the advantages and disadvantages of green marketing, this finding from Study Two adds support to the argument that firms and organizations which use green marketing strategies are able to include both consumer groups as advocates and consumers.

Another interesting finding concerns the relationship that liberal and conservative values have with frugality and EC. Both liberal and conservative values are positively related to tightwadism. Yet a different pattern appears for EC, where liberal values are positively and conservative values are negatively related. These results suggest that frugality is not unique to conservative or liberal persons, but that those with more extreme conservative or liberal values will be frugal. On the other hand, as was expected, environmentally concerned individuals are more likely to be liberal, and quite unlikely to be conservative.

There is also a contrast between materialism and the need for learning. Results show that materialism has a strong negative relationship with tightwadism, but does not have a relationship with EC. This result supports previous findings (Lastovicka et al. 1999; Mowen 2000) and suggests that tightwads are not likely to be materialistic and possess material goods considered luxuries, nor would they find that the ownership of valuable things was important. On the other hand, the environmentally concerned

consumer has a strong need for learning. No relationship between need for learning and frugality were revealed. This finding suggests that environmentally concerned consumer enjoys learning and working with new ideas.

These two findings are important because they highlight two important and unique antecedent traits for frugal and environmentally concerned consumers. As firms and public policy makers attempt to persuade and influence these two important consumer groups, these results suggest that one message my not influence both groups. Suppose that a firm is interested in attracting consumers via green marketing. The results from study two suggest that both frugal and environmentally concerned consumers are interested and willing to purchase green products. However the motivations behind their interests in green products differ. As such, green products that are oriented toward a cognitive theme, such as detailed labels (Grankvist et al. 2004; Thogersen 2000) may be well received by environmentally concerned consumers, but yield little influence on frugal consumers. On the other hand, green products that are oriented toward an anti-materialism theme (Todd and Lawson 2003) may be better received by frugal consumers than environmentally concerned consumers. This line of reasoning will be further explored in Study Three.

CHAPTER V

STUDY THREE – A TEST OF MESSAGING THEMES

The purpose of this study is to test the findings of the Study Two by investigating the relationships in an experiment. The findings of Study Two suggest that frugality and environmental concern (EC) each have a unique antecedent. Specifically, the results suggest that materialism is related to frugality but not related to EC, while the need for learning is an antecedent to EC but not to frugality. If these findings are valid, then a message with a materialistic theme will influence the frugal and not the environmentally concerned, and a message with a learning theme will influence the environmentally concerned and not the frugal. The purpose of the third study is to test these predictions.

The theoretical guide for this examination is schema congruity theory (Fiske 1982; Fiske and Taylor 1991). Schema congruity theory suggests that a person will act in accordance with the organized structure of associations and expectations they have for a given domain. It is this structure that helps the individual to interpret and evaluate a stimulus. Research on schema congruity theory suggests that a stimulus that is consistent with an individual's schema is more likely to be attended to and more positively received than a message that is inconsistent with the schema.

A real-world application of schema congruity theory can be seen in the selection of endorsers for a product or a firm (Martin 1996). For example, prominent celebrity athletes, such as Tiger Woods, are ubiquitous and effective endorsers in the marketplace.

These celebrity athletes are most effective or persuasive when the message receiver's schema of the endorser matches the receiver's schema for the product or brand. As such, schema congruity theory suggests that when the receiver has congruence between the schemas of the endorser and the product, the endorsement will be positively evaluated. However, the opposite is true when there is a high level of incongruence or a mismatch between the schemas of the product and endorser. In that case, the receiver will tend to form a negative evaluation (Martin 1996).

Hypotheses

While schema congruity theory provides insight into how consumers perceive messages, it also provides managers and public policy makers with ideas on how to promote socially responsible behaviors encouraging sustainability, including reducing consumption, reusing goods instead of discarding them, and recycling and precycling. The results of Study Two suggest that a materialism themed message will trigger a response based upon a consumer's level of frugality, and a learning themed message will trigger a response based upon a consumer's level of EC. Specifically, a low materialism message ought to be positively received by those high in frugality, while a high materialism message will be negatively received. An opposite reaction should occur for those low in frugality such that a low materialism message ought to be negatively received and a high materialism message will be positively received. Similarly, a high learning themed message will be positively received by those high in EC, while a low learning message will be negatively received, and an opposite reaction should occur for those low in EC. The low EC individuals should positively receive a low learning themed message and positively receive a high learning theme message. Further, schema

congruity theory suggests that a learning themed message will not influence a consumer based upon the level of frugality, and neither would a material themed message influence a consumer based upon the level of EC. Thus, Study Three addresses the following research questions. First, does a materialism themed message influence a person based upon their level of frugality? Second, does a learning themed message influence a person based upon their level EC?

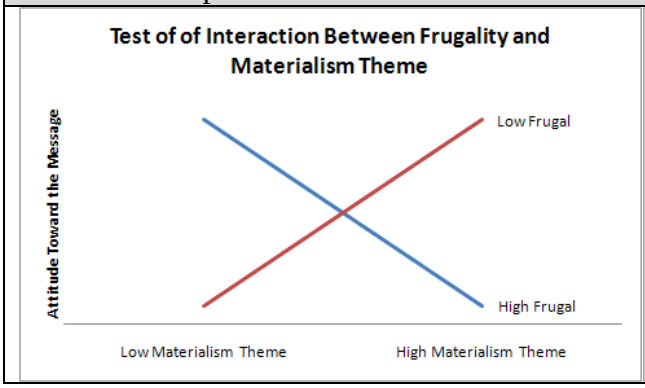
Based on the above research questions, the following hypotheses are proposed.

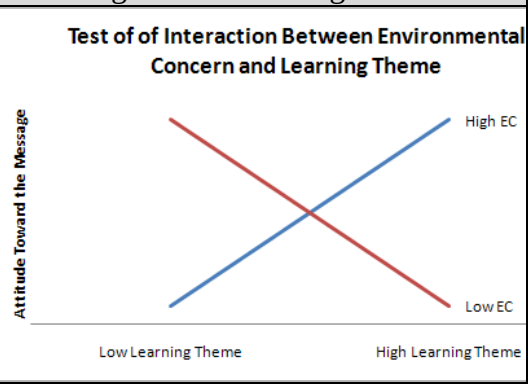
H09: Those high in frugality will prefer a low materialism message over the high materialism message, while those low in frugality will prefer the high materialism message over the low materialism message.

H10: Those high in environmental concern will prefer the high learning message over the low learning message, while those low in environmental concern will prefer the low learning message over the high learning message.

The following figure depicts the proposed two way interactions that will which will be investigated in each experiment.

Figure Three
Proposed Interactions for Material and Learning Themed Messages





Methodology

Two experiments are conducted to test the hypotheses for the message, employing a between subject 2x2x2 experimental design. The first independent variable for each experiment will be the message, which is manipulated. Each experiment will have two messages. The Experiment One will have a high materialistic themed message and a low materialistic themed message, and Experiment Two will have a high learning themed message and a low learning themed message. The second and third independent variables for both experiments are measured variables. The second independent variable is an individual's level of frugality, which is measured via the tightwad scale (Mowen 2000). The third independent variable is an individual's level of EC, measured via the revised NEP scale (Dunlap and Van Liere 1978). Individuals will be assigned to either a high or low group for both frugality and EC via median splits. The survey instrument includes five items, which act as the dependent variables. Factor analysis will be used to determine the best combination of items to make up the dependent variable for the experiments. Table Four includes the five items for the dependent variable. ANOVA will be the principal tool for analyzing the data of this study; however, follow up analysis will be conducted with linear regression.

Table Eight Items for the Dependent Variable
DV1: How would you rate this advertisement?
DV2: How would you rate the shoe, i.e. the Road Master 300?
DV3: How would you rate the company, i.e. Swift Shoes?
DV4: What do you think of the endorser, Terry Gray?
DV5: Do you think Terry Gray makes a good endorser for Swift Shoes?

For the proposed hypotheses in the first experiment to be supported, statistical analysis should reveal that the two-way interaction between frugality and materialism is statistically significant, while the two-way interaction between EC and materialism is not significant. The same is true for the second experiment, where the two-way interaction between EC and learning should be significant, while the two-way interaction between frugality and learning will not be significant.

The manipulated variable for the experiment is an advertisement for a common consumer product, i.e. running shoes. The message depicts a runner endorsing the shoe and the firm producing the shoe. The shoe, company, and endorser are all fictitious. The four messages are identical, save for the text describing the endorser, which was manipulated to present the four experimental themes. Samples of the messages may be found in Appendix F.

Pretests

Two separate pretests were performed to develop the messages. The purpose of the pretest was to ensure that the messages are manipulating the materialism and need for learning themes. A shoe was chosen as the object of the message because shoes are commonly purchased by the subjects in the experiment. First, an examination of shoe ads was conducted to determine how those messages are constructed. The goal of this investigation was to find examples of various themes that could be integrated into the experimental messages. It was found that some themes were common to certain types of footwear. For example, high materialism themes were common for dress shoes, while utilitarian themes were common for work shoes and boots. The decision was made to use running shoes as the focal product, since running shoes can be worn for utilitarian means,

i.e. running, can be used as normal every day footwear, and can be used for fashion or symbols of conspicuous consumption. Several sample messages were then developed using an image of a running shoe as one component of the message, along with other components including a silhouette of a runner, and message text.

The messages were presented to a panel consisting of twelve members of the faculty and doctoral students in the marketing department. Through their suggestions and criticisms, the messages were revised and resubmitted for review. A total of fourteen sets of revisions were reviewed by the panel. In the end, a final set of messages was developed that included a photograph of a runner, and text relating to the themes of materialism and need-for-learning. This set of four messages did not include a picture of a shoe, since it was felt that the actual shoe may distract from the theme. The photograph of the runner was posed with the text so that the runner appeared to be endorsing the shoe. The photograph of the runner/endorser was from the back, and the gender of the runner was kept androgynous to insure male or female preferences would not be elicited. The sample text gave the endorser a fictitious name, with four lines of text describing the runner. Those four lines were different for each condition, representing the four themes of the message.

Next, the four messages were pretested to assess the manipulation of learning and materialism themes. The goal of the pretest is to ensure that a group similar to the intended subjects of the main study identifies the four experimental messages as matching their intended purpose. The sample size for this pretest was 67 individuals from an MBA program. Each subject saw one of the four sample messages. There were 16 individuals receiving the high learning message, while 17 individuals received each of

the other three message groups. After viewing the message/stimulus, the subjects indicated view of the endorser's level of materialism and need for learning, which are the manipulation check variables. The scales used to measure materialism and the need for learning were taken from Licata et al. (2003). Analyses were conducted using ANOVA. The first analysis was to test the materialism manipulation, and the second analysis is to test the learning manipulation.

The first analysis indicated that the materialism themes were properly manipulated. The ANOVA showed a significant difference between the means [$F(3,63)=7.753$; $p=.000$]; the mean for the high materialism theme message was 5.03, and the mean for low materialism is 3.16. However, the learning themed messages were not significantly different [$F(3,63)=2.315$; $p=.084$]; the mean for the high learning theme message was 4.88 and the low learning was 5.25.

The messages were revised and prepared for a second pretest. Two changes were made to the messages. First, the text was rewritten to increase the emphasis of the themes of materialism and need-for-learning. Second, a photograph of shoe was included in the message. The image of the shoe was altered to remove the logos, thus avoiding any influences from individual brand preference. The sample size for this second pretest was 41 individuals, selected from upper division business courses at the college. As before, each subject saw one sample message, thus there were 4 cells (four messages) with 11 individuals receiving the high learning message, while 10 individuals received each of the other three messages. As in the previous pretest, the manipulation check variables were the evaluations of the endorser's level of materialism and need for

learning. The independent variable was the experimental message, which had four levels. Each subject saw one message, creating a between subjects design.

Analysis via ANOVA indicated that there was a significant difference between the two materialism themed messages [$F(3,37)=7.06$; $p=.001$]. The mean for the high materialism message is 6.08 and the mean for the low materialism is 3.58. Therefore, the groups viewing the high and low materialism themed messages differ on their evaluation of the endorser's level of materialism. The second analysis also showed a difference between the two learning themed messages [$F(3,37)=8.16$; $p=.000$], where the mean for the high learning message 5.57 and the mean for the low learning message is 2.88. Thus, the groups viewing the high and low learning themed messages differ on their evaluation of the endorser's level of need for learning. In summary, the results of the second pretest suggest that both the materialism themed messages and learning themed messages are adequately manipulated.

The Experiments: Data Collection and Sample Characteristics

The main survey was collected using the online survey tool Qualtrics. Invitations to participate in the survey were extended to 586 undergraduate business students. Invitations were made in class and emailed to the students. In order to increase participation, students were awarded a nominal bonus point award from their professor for participating in the survey. Subjects completed the survey online, and they were permitted to take the survey at any time during a five day period. A total of 454 surveys were completed, a 77% response rate. The average age of the respondent was 20.6 years, and 45.7% were male. The survey instrument may be seen in Appendix F.

The experiment was divided into three sections. The first section was a survey that measured the respondent on various personality traits, including their level of frugality and EC. The scales used to measure frugality and EC are the Tightwad scale (Mowen 2000) and the revised NEP scale from Study One. Once they completed the first section and moved to the second section, they could not return to the first section. Subjects were required to answer every question on the survey before they could move on to the second section. The second section of the survey presented one of the four experimental messages to the individual. The message fit on one page (or screen) so that the individual could see the whole message without scrolling. The individual could spend as much time as they desired looking at the message. Once they moved to the third section, they could not return to the second section. The third and final section of the survey asked five questions about the message. These questions make up the dependent variable for the experiment. Upon completing the survey, a final page was presented that gave them a debriefing and thanked them for their participation.

A total of 13 surveys were incomplete and could not be included in the analysis. Removing incomplete surveys resulted in 441 surveys. There is concern that subjects who took a lot of time to take the survey may have different responses than those who took little time to take the survey. These individuals may not be in the same condition at the beginning of the survey when they were exposed to the experimental stimuli than they are when they are measured for their response at the end of the survey. Thus, the interruptions and distractions may have altered their condition during the time they took the survey. In addition, those who took little time to complete the survey may not have

actually taken the survey, but rather simply sped through the questions as quick as possible in order to garner their extra credit reward.

It was decided that surveys taken in less than eight minutes would be of questionable validity because it took the author more than eight minutes to take the survey. In addition, it was also decided that individuals that took longer than an hour are suspect. Several subjects contacted the researcher because they were concerned when the Qualtics website did not let them advance to the next page on the survey, but rather took them to the Qualtrics home page. Many subjects were able resume the survey where they left off once they logged in a second time. This situation may describe why some subjects took over 24 hours to complete the survey. Removal of those surveys taken less than eight minutes and those taken in more than an hour reduced the sample size by 17 and 19 respectively, resulting in 405 usable surveys.

Analysis

Prior to testing the experiment, the data was manipulated to fit the requirements of ANOVA, which requires categorical independent variables and interval scaled dependent variables. The independent variables of EC and frugality were converted to categorical variables via median splits. The high frugal group is composed of those who scored 3.6 and above, while those scoring less than 3.6 compose the low frugal group. Those who scored 4.2 and above compose the high EC group, and those who scored below 4.2 compose the low EC group.

Next, the assumptions for ANOVA were tested. The assumptions include normality of the error terms, homoscedasticity, which is the constant variance or homogeneity of the error terms, linearity between the independent variables and the

dependent variable, and independence of the error term. The normality of the error terms distribution was assessed using normal probability plots (Hair et al. 2006) by plotting the standardized residuals along a diagonal line representing the normal distribution. Satisfying the normality assumption, the line of the plotted error terms closely resembled the distribution diagonal. Second, homoscedasticity was tested via the Levene's test. The Levene's test for the first experiment (materialism message) revealed that the homogeneity of variance test is not rejected [$F(7,186)=1.891$; $p=.073$], while the test for the second experiment (learning message), was also not rejected [$F(7,203)=0.916$; $p=.495$] affirming homosedasticity for both experiments. Thus, the initial analysis of the data for both experiments suggests that it is appropriate for ANOVA analysis.

Factor Analysis of the Dependent Variable

The next step was a factor analysis of the five items that composed the dependent variable. Principle component analysis with varimax rotation was used to conduct this analysis. Inspection of communalities and correlation matrices indicate that the data were suitable for this analysis. These conclusions were further supported by the Kaiser-Meyer-Oilkin (KMO) sampling adequacy of .876 and a significant Bartlett's Test of Sphericity ($\chi 2=1872.611$, $p=0.000$). Items were retained if they loaded 0.50 or more on a factor and did not load more than 0.50 on two factors, i.e. cross-loading. Third, the item should have a communality of 0.50 or more, and finally, items were retained if the reliability analysis indicated an item-to-total correlation of more than 0.40 (Hair et al. 2006). The results revealed a single factor structure consisting of all five items. The Chronbach's alpha for this factor is .809.

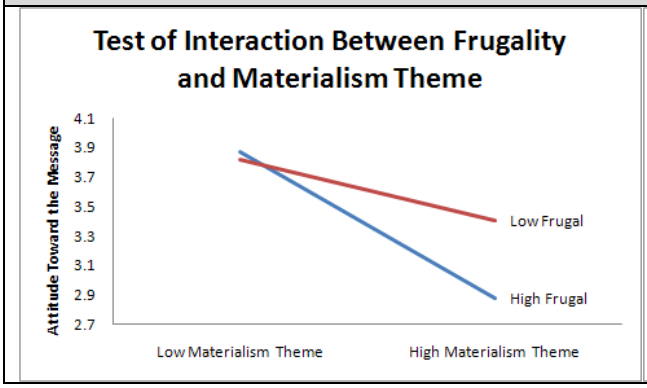
Experiment One: the Materialism Message

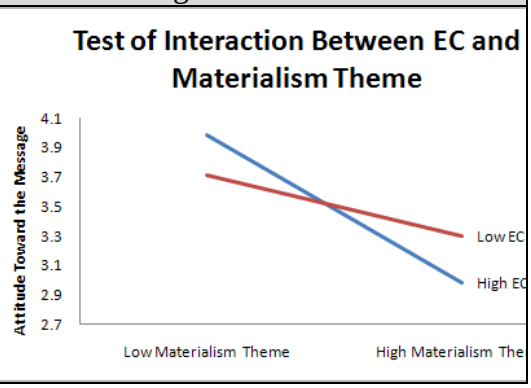
The purpose of the first experiment is to test Hypothesis 9, which proposes that frugality will moderate the relationship between a materialism themed message and the response to the message. Analysis supports this hypothesis, such that there is a significant two-way interaction between frugality and materialism [F(1,186)=4.744; p=.031]. Specifically, this analysis reveals that both frugal groups prefer the low material message over the high materialism message. However, they differ on their evaluation of the high material themed message, such that those high in frugality rated the high material message lower than those low in frugality [means of 2.88 and 3.41 respectively, F=8.194; p=.005). In addition, post hoc analysis suggests that they are both equivalent in their evaluation of the low material themed message [means of 3.87 for high frugal and 3.82 for low frugal, F=0.073; p=.784]. Please see Table Nine and Figure Four.

Table Nine
Tests of Between-Subjects Effects- Experiment One

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Frugal	2.673	1	2.673	3.119	.079
EC	.023	1	.023	.027	.869
Message	23.637	1	23.637	27.585	.000
Frugal * EC	2.324	1	2.324	2.713	.101
Frugal * Message	4.065	1	4.065	4.744	.031
EC * Message	4.170	1	4.170	4.867	.029
Frugal * EC * Message	.159	1	.159	.185	.667
Error	159.377	186	.857		
Corrected Total	193.367	193			

Figure Four
Interactions for Material Themed Messages





An unexpected finding is the two-way interaction between EC and the materialism themed message. Analysis revealed that this interaction is also significant [F(1,186)=4.867; p=.029]. This finding is inconsistent with the findings from Study Two, which suggested that materialism was not related to one's level of EC. As shown in Figure Four, the results reveal that both environmentally concerned groups prefer a low materialism theme over a high materialism theme, yet we also find that those high in EC appear to be more sensitive to the message theme. Specifically, those high in EC prefer the low materialism theme over the high materialism theme [means of 3.98 and 2.98 respectively, F=29.172; p=.000], as do those low in EC [means of 3.71 and 3.30, F=4.904; p=.026]. However, Figure Eight and the ANOVA suggest that those high in EC rated the low materialism theme higher than the low EC group. Analysis of these two means does not reveal a significant difference [means of 3.98 and 3.71, F=2.127; p=.142]. In the same way, it appears that those high in environmentally concern dislike the high materialism theme more than those low in EC. Again, a comparison of two means does not reveal a significant difference [means of 2.98 and 3.30, F=2.907; p=.082]. These results reveal that the manipulation of the materialism theme had a

greater effect on the high environmentally concerned group than the low environmentally concerned group, which is revealed by the cross-over interaction.

Experiment Two: the Learning Message

The purpose of the second experiment is to test Hypothesis 10, which proposes that EC will moderate the relationship between a learning themed message and the response to the message. Specifically, Study Two suggested that a high learning themed message would be more appealing to those high in EC while the low learning themed message would be more appealing to those low in EC. The analysis, however, does not support this hypothesis as no significant relationship was found [F(1,203)=0.007; p=.932]. Please see Table Ten.

Table Ten
Tests of Between-Subjects Effects – Experiment Two

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Frugal	.108	1	.108	.101	.751
EC	.221	1	.221	.207	.649
Message	31.871	1	31.871	29.919	.000
Frugal * EC	.000	1	.000	.000	.997
Frugal * Message	.097	1	.097	.091	.763
EC * Message	.008	1	.008	.007	.932
Frugal * EC * Message	.738	1	.738	.693	.406
Error	216.243	203	1.065		
Corrected Total	249.485	210			

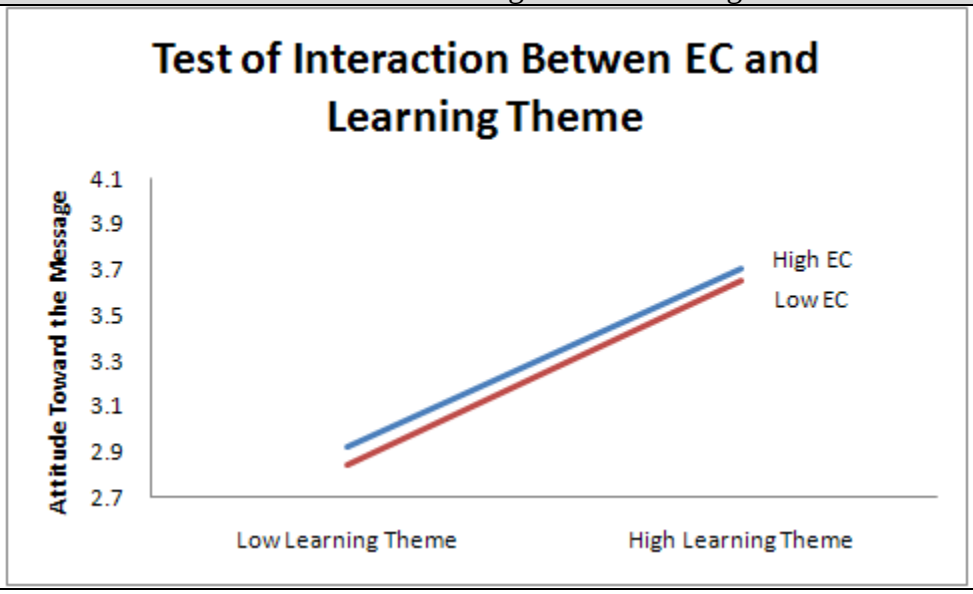
The only statistically significant finding from Experiment Two shows that a high learning themed message is universally more appealing than a low learning themed message [F(1,203)=29.919; p=.000]. Therefore, regardless of one's level of EC or frugality, the subjects of Experiment Two preferred the high learning themed message

(mean of 3.68) over the low learning themed message(mean of 2.88). Please see Figure Five.

Replication of Study Two using Study Three data.

Because the results from Study Three do not confirm all of the predictions made based upon the results of Study Two, a replication of Study Two using Study Three's data was performed. Data collected in Study Three includes the eight elemental traits, the four compound traits (i.e., need for learning, present time orientation, and liberal and conservative values), the situational traits (i.e., frugality and EC), and the four surface

Figure Five
Interactions for Learning Themed Messages



traits (i.e., modest living, recycling behaviors, green buying and belief in global warming). The sample for Study Two was 555 adults from an internet panel, while the sample for this analysis is 454 students from the university.

The results revealed several differences between the two studies. Specifically, Study Two suggests that the need for learning is unrelated to frugality and related to EC. Study Three finds the opposite, that need for learning is unrelated to EC (failing to

Table Eleven
Study Three: Beta Coefficients for Hierarchical Regression Analysis (N=454)

	DV: TWD		DV: EC	
Elemental Traits				
Introversion	**0.118	**.115		
Conscientiousness		*.079		
Openness				
Agreeability				*.083
Instability			***.137	**.117
Materialism	***-0.506	***-0.467		
Arousal	**0.116			
Body			*-.094	*-.096
Compound Traits				
Need for Learning		**0.116		*.087
Present Time		***.179		**-.104
Liberal		**.149		***.291
Conservative		**.149		
Adjusted Rsquare	0.264	0.306	0.019	0.123

	DV: Modest Living			DV: Recycling			DV: Green Buying			DV: Global Warr	
Elemental Traits											
Introversion							*.099		*-.086		
Conscientiousness							*-.095				
Openness	***.187	***.188	***.194								
Agreeability							**.113	**.114	**.097	***.162	***.163
Instability										***.185	***.157
Materialism	***-.304	***-.318	***-.289	***-.194	***-.193	***-.206	***-.137	***-.130	**-.110		
Arousal	**.133	***.154	***.144								
Body				**.134	**.128	**.145					
Compound Traits											
Need for Learning											
Present Time		*-.084	*-.088								*-.081
Liberal		***.250	***.220		***.278	***.231		***.325	***.249		***.302
Conservative		*.130			**.177	**.183					
Situational Traits											
Environmental C						***.172			***.237		
Tightwad											
Adjusted Rsquare	0.140	0.165	0.168	0.040	0.063	0.084	0.032	0.102	0.150	0.040	0.160

*p<.10, **p<.05, ***p<.01

support Hypothesis 2a), and is related to frugality (supporting Hypothesis 2b, β=0.12, p<.01). Second, Study Two proposed a positive relationship between present-time orientation and frugality (H3b), yet no relationship was found. However, Study Three finds a significant positive relationship supporting H3b (β=0.18, p<.01). Third, Study Two found that conservative values are negatively related to EC, confirming Hypothesis 4b, while the data from Study Three fails to find that relationship. Fourth, Study Two

shows that materialism is a significant antecedent for only one of the surface traits: modest living. However, Study Three shows that materialism is a significant antecedent to modest living, recycling, and green buying. See Table 11 for the Beta coefficients for the regression analysis.

Therefore, the basic relationships upon which the experiments for Study Three were constructed are not found in the data from the student sample. The differences between Study Two and Three may be due to the nature of the sample, or the method of data collection. First, the sample from Study Two consisted of adults from survey panel for the online survey company Zoomerang. The sample included individuals of various ages and backgrounds from across the country. However, the sample for Study Two consisted of young adult college students from the same university. The student may not have the same diverse backgrounds, life experiences and influences as the adult sample. Further, while both data sets were collected online, two different websites were used, Zoomerang for Study Two, and Qualtrics for Study Three. The difference between the online presentations of both surveys may have influenced the data collection.

Replication of Study Three with Linear Regression

Replication of Study Three using linear regression was conducted to see if it supports the findings using ANOVA. A step-wise model procedure was used. Results support a significant EC/materialism theme interaction, [$F(1,189)=3.641$; $p=.043$], however the frugal/materialism theme approaches but does not reach significance [$F(1,181)=2.896$; $p=.091$],. Further investigation into the frugal/materialism interaction reveals that the extreme cases of frugality (the top eight frugal individuals, and the nine most unfrugal individuals) forces the frugal/materialism relationship into significance

[F(1,171)=3.945; p=.049],. These 17 subjects are not outliers as all but four have Zscores below 1.96, and the remainder are below 2.58. However, the result suggests that the interaction likely is present at some level in the data—which may suggest the presence of a non-linear effect/relationship. Therefore, the regression analysis partially supports the ANOVA analysis such that the EC/materialism interaction is significant, but the materialism/frugal message interaction is not.

Discussion

The results of Study Three partially support one of the two hypotheses. First, Hypothesis 9 proposed that the subject's level of frugality would influence the preference for a high versus a low materialism themed message, such that those high in frugality would prefer the low materialism themes, and those low in frugality would prefer the high materialism themes. The analysis for this hypothesis revealed three interesting findings. First, as predicted, high frugal consumers preferred the low materialism message over the high materialism message. However it was unexpected that both groups would prefer the low materialism message, and were equivalent in their rating of that message. This finding may be due to current economic conditions that have moved frugality from the fringe and into the fashion of popular culture (Engle 2009). Third, the data shows that those high in frugality rate the high materialism message lower than those low in frugality. This third finding partially supports the thesis that a materialism themed message will differentially influence those high and low in frugality.

While a relationship between materialism themes and EC was not expected, analysis revealed three interesting findings regarding this relationship. First, both high and low environmentally concerned groups preferred the low materialism themed

message over the high materialism themed message. Again, this may be due to people's reactions to the recent downturn in the world's economy. Second, those low in EC preferred the high materialism themed message more than those high in EC. Third, those high in EC rate the low materialism message higher than those low in EC. These last two findings do not support the hypotheses from Study Three, but they are interesting because they partially support the original thesis for Study Two, which suggested that low environmentally concerned consumers were generally more materialistic than those high in EC. The reasons for this discrepancy may be due to the difference in the two sample populations, and will be further discussed in the Weaknesses and Future research section.

In the second experiment, Hypothesis 10 proposed a relationship between learning themes and EC, such that those high in EC would prefer a high learning themed message over a low learning themed message, and those low in EC would prefer the low learning theme over the high learning theme. The analysis of the second experiment did not support hypothesis 10. In fact, the analysis did not find a significant relationship between EC nor frugality and a learning themed message. This analysis does suggest that a high learning themed message is more preferable than a low learning themed message regardless of one's level of frugality or EC. As with Experiment One, this finding may be more due to the sample population used for this study, than to an actual effect.

Weaknesses and Future Research

Several weaknesses have been noted from this research. They include concerns regarding the scales for materialism, frugality, and liberal and conservative values, a lack of manipulation check for the manipulated variables in the experiment, the influence of social desirability, and concerns regarding the experimental stimuli.

First, as was noted in the analysis of Study Two, the scale employed to measure materialism may deserve some attention in the future. Specifically, the measure of materialism developed by Mowen (2000) represents one's desires for things that are expensive, valuable and luxurious. Some suggest that materialism is better conceived as a multi dimensional construct (Richins and Dawson 1992). Mowen's (2000) definition of materialism is analogous to terminal materialism, in which object are valued only because they represent an end in itself, rather than being instrumental to carrying out tasks (Csikszentmihalyi and Rochberg-Halton 1978). Future research should be conducted to develop a scale measuring instrumental materialism.

Further, there is concern whether liberalism and conservatism are values. It may be that they are more ideologies than values. Rokeach proposed that the values of freedom and equality are antecedent to the political viewpoints of liberalism and conservatism (Rokeach 1973). Further investigation is required to determine whether values or ideologies lie a the compound level of the 3M hierarchy.

Second, Mowen's (2000) conceptualization of frugality via the tightwad scale ignores the other facets of frugality. Specifically, the tightwad scale considers the stewardship of fiscal resources, while others suggest that the stewardship of non-fiscal resources are important too (Lastovicka et al. 1999). The frugality scale measures both a fiscal or "care in spending" orientation, and a stewardship of possessions or "care in owning" orientation (Mowen 2000). As such, this research ignores the stewardship facet of frugality and focuses on the fiscal portion of the concept. Additional research should be conducted to determine if one's stewardship orientation influences their attitudes and decisions in the marketplace. Specifically, no one has investigated whether there is a

difference between one's care in spending and one's care of their material possessions. In addition, the tightwad scale (Mowen 2000) seems to represent a more committed form of frugality, i.e. a person who will not spend; while the first half of the frugal scale (Lastovicka et al. 1999) represents the view of someone who saves so that they may purchase something important. These two issues suggest that further analysis into the structure of frugality and the relationships between its elements is warranted. In sum, the quality of the measure of frugality can be questioned and may have contributed to the weak results.

The third weakness in this study is the lack of a manipulation check for the experiments. This oversight prevents our knowing if the experimental manipulations actually performed as expected. A manipulation check ought to have been included at the end of the experiment or in the debriefing portion of the study. Its lack of inclusion in this study provides an opportunity for inclusion in future research. However, it should be noted that the rigorous development of the manipulations in the pretests suggest a strong likelihood that the manipulations were successful. In addition, there may be an opportunity for social desirability bias to influence the data. Social desirability bias describes the tendency for respondents to reply in a manner that will be approved by others. It may be that those taking the survey want others to know that they are green or frugal, and responded to the surveys accordingly. One of the weaknesses of this research is the lack of a test for social desirability.

Finally, the manipulation for the learning themed experiment may have been too strong. The only significant results of Experiment Two were the main effects for learning. As such, the strong message may have been overwhelming, preventing the

interactions from EC or frugality from becoming evident. If this is so, then a revised message may allow the interactions to be seen. Therefore, further research into the presentation of the message is necessary to explore the learning themed relationships.

Other areas of future research include investigations into message themes and persuasion. Specifically, the learning themes of this research were manipulated by the words and text of the message. It should be noted, however, that other ways of manipulating theme of learning should be explored. For example, high and low learning themes may be explored using an ELM approach (Petty and Cacioppo 1986). As such, the high learning theme may be manipulated using the direct route of persuasion and the low learning theme could be manipulated using the peripheral route.

Finally, another area of future research includes investigations utilizing alternative measures of EC. The benefit of developing a scale based upon the 3M model principles is that it will improve nomological and predictive validity (Mowen and Voss 2008).

CHAPTER VI

GENERAL DISCUSSION

Chapter six contains a discussion and synthesis of the findings of this research and the implications of the findings. The chapter concludes with potential limitations of the research, an agenda for future research, and a general conclusion.

Overview of the Dissertation

To the author's knowledge, this dissertation represents the first work to specifically investigate the characteristics of the frugal and environmentally concerned. In particular, this research sought to discern the unique psychological antecedents and behaviors of each consumer group, and then performs an experiment to test those relationships. This research employed three studies to address the three research questions of this dissertation:

1. What are the psychometric properties of the scales designed to measure environmental concern, frugality and the consequent behaviors?
2. Do frugal and EC consumers have different trait antecedents and different behavioral consequences?
3. Do frugal and environmentally concerned consumers respond differently to consumption related messages?

The first research question was addressed in Study One using principle component factor analysis. Question two was addressed using multiple regression in Study Two, while the final question was investigated using an experiment in Study Three.

Study One

The first research question was addressed in Study One, where the various scales used for Study Two were analyzed for their efficacy. Data was collected from a student sample, which rendered 288 usable responses.

The first scale to be addressed was the New Environmental Paradigm (NEP) scale (Dunlap and Van Liere 1978; Dunlap et al. 2000). The scale included 15 items, representing the five facets of EC identified by the authors. Those facets include limits to growth, or the belief that the earth's natural resources are finite and that it will support a finite number of people; antianthropocentricism, or the belief that humans should cooperate with the environment and other life forms, not compete and conquer the environment; fragility of nature, which is the belief that Earth's environmental balance is fragile, and that humans can affect this balance; rejection of exemptionalism, which is the belief that humans are not exempt from nature's laws and that human innovation and ingenuity is not enough to overcome all of the earth's environmental problems; and ecocrisis, which is the belief that the earth's environment is becoming so abused as to become irreparable. Based upon proposals by Mowen and Voss (2008), the purpose in investigating this scale was to determine whether a single-faceted, reduced scale could be derived. Principal Factor Analysis with varimax rotation resulted in a reduced five item scale that loaded on a single factor with a Chronbach's alpha of 0.701.

A second analysis was conducted comparing the frugality scale (Lastovicka et al. 1999) and the tightwad scale (Mowen 2000). The frugal scale is an eight item scale proposed to consist of two dimensions: the care of economic resources, and the care of material resources. These are the two facets that Mowen described as care in spending and care in owning (Mowen 2000, p195). Principal Component Analysis confirmed that the frugality scale consists of two factors, and that each is different than the single-factor tightwad scale. The coefficient alpha for the tightwad scale was .87, while the coefficient alphas for the two factors of the frugal scale were .89 and .76. Examination of the individual items from the scales suggests that the tightwad scale measures a more committed form of fiscal restraint than the care in spending portion of the frugality scale. For example, items such as "I believe in being careful in how I spend my money," and "I discipline myself to get the most from my money" are less severe than "I find that I have a hard time spending money on anything but necessities." Therefore, it was elected to utilize the tightwad scale for use in the subsequent studies because of the frugal scale's poor psychometric properties.

The purpose of the third analysis was to verify discriminant validity between the NEP scale and the tightwad scale. Principal Component Analysis using varimax rotation verified this premise. This finding is important because the literature regarding sustainability, frugality, and EC often link the two together (Craig-Lees and Hill 2002; Elgin and Mitchell 1977), the analysis revealed that they are two different constructs.

The final set of analyses in Study One sought to refine the constructs measuring the surface traits predicted by the constructs of frugality and EC. Three scales from the voluntary simplicity literature and one scale from the green marketing literature were

chosen for this analysis. The first three scales represent the behaviors of voluntary simplifiers (Leonard-Barton 1981) which include ecological awareness, materialism, and self-determination. The frequency of buying green products (FBGP) scale (Guber 2003) represents green or environmentally concerned purchase behaviors. The factor analysis revealed three dimensions: modest living, recycling, and green buying. The fist, modest living, represents behaviors such as making one's own clothes, and doing one's own repairs on their house or car. This scale has four items, with a coefficient alpha of .78. The second scale, recycling, represents behaviors such as recycling paper, glass, and aluminum. This scale has three items, with a coefficient alpha of .88. Finally, the third scale, green buying, represents the green buying behavior similar to the FBGP scale. This scale also has four items, with a coefficient alpha of .84. Interestingly, none of the four scales entered in this factor analysis exited without seeing some revision. The original FBGP scale was reduced from seven items to four, while the three voluntary simplicity scales (Leonard-Barton 1981) were shuffled into the scales of recycling and modest living.

In sum, the purpose of Study One was to investigate the properties of these scales in order that they may be used in Study Two. The results of this investigation revised and refined these scales, which were then included in Study Two, which involves the investigation into the antecedents and consequences of frugality and EC.

Study Two

The second research question was addressed in Study Two, where a 3M model approach was used to assess the antecedent and consequent traits of frugality and EC.

Data was collected from a panel of adults via the online research tool Zoomerang. This panel study resulted in 555 usable responses.

The study is broken down into two parts, each designed to determine how the hypothesized antecedents and consequences differ in their relationships with frugality and EC. The proposed antecedents to frugality and EC include a negative relationship with materialism, and a positive relationship with the need-for-learning. In addition, it was proposed that present time orientation would be negatively related to EC, and positively related to frugality, while the values of liberalness would be positively related to EC and negatively related to frugality. Finally, it was expected that conservatism would be negatively related to EC, and positively related to frugality. The consequent traits include modest living, recycling, green buying, and an additional scale measuring one's belief in global warming. First, it was hypothesized that EC and frugality would both be positively related to modest living. Second, that recycling would be positively related to recycling while frugality would have a negative relationship. Third, that EC would be positively related to green buying, and frugality would have a negative relationship. Finally, it was proposed that EC would have a positive relationship with belief in global warming, and frugality would have a negative relationship.

There were several interesting findings from this study, some of which confirmed the hypotheses. First, materialism was expected to be negatively related to both frugality and EC. The data did not support this hypothesis, but found instead that materialism is negatively related to frugality, but unrelated to EC. Second, it was proposed that need-for-learning would be positively related to both frugality and EC. Again, this hypothesis was not fully supported. The data from Study Two suggests that need for learning is

positively related to EC, but unrelated to frugality. Third, it was proposed that a present-time orientation would be negatively related to EC, and positively related to frugality. The findings for these tests were unexpected, for neither prediction was validated. The data suggests that present-time orientation is positively related to EC, and unrelated to frugality. Fourth, liberal and conservative values were considered as antecedents to frugality and EC. It was proposed that liberal values would be positively related to EC, while conservative values would be negatively related to EC. In the same way, it was proposed that liberal values would be negatively related to frugality, while conservative values would be positively related to frugality. The data from this study supported the proposed relationship with EC, while the results for frugality were more interesting. The data suggests that both conservative and liberal values are positively related to frugality, perhaps suggesting that the more extreme one is with their political and social orientation, the more likely they are to be frugal.

The analysis of the consequent traits also offered some interesting insights. First, the only consequent trait that was common to both EC and frugality was green shopping and buying behaviors represented by the green buying scale. In addition, the standardized β weights of each were roughly equivalent. Second, the only other consequent trait related to frugality was modest living, which is the propensity to do one's own repairs or build their own crafts. The scale for EC was not related to those same modest living behaviors. Third, EC was related to the recycling behaviors and belief in global warming, where frugality was unrelated to both.

This analysis from Study Two suggests that the frugal and the environmentally concerned consumer differ more than previously recognized (Fujii 2006; Lastovicka et al.

1999). In particular, there were three interesting findings regarding the antecedents. First, that materialism is not related to EC is a troubling finding, for it goes against much previous research on the topic. Second, that the need-for-learning is unrelated to frugality is interesting, for it also is counter to the hypothesis and to previous research. Third, the findings regarding liberal and conservative values are surprising, and to the author's knowledge, untested in the literature. That liberal values are positively related to EC while conservative values are negatively related to the same supports our prior understandings of this relationship. However, that both conservative and liberal values are positively related to frugality represents an interesting and possibly important insight. If the polar ends of the political spectrum are more likely to be frugal, they may also be opinion leaders in both society and public policy creation, which is important for the policy debates surrounding sustainability. Additional research is necessary to test this assumption.

In addition, environmentally concerned and frugal consumers differ on their consequent behaviors and attitudes. Of particular interest to the marketing literature is the relationship these two consumer groups have to green marketing. Results from this study suggest that both frugal and environmentally concerned consumers are likely to participate in the green buying behaviors. This is an important finding for it suggests that a firm's efforts to reach a green marketing audience ought to include both the frugal and the environmentally concerned consumer.

In sum, the purpose of Study Two was to answer the second research question of this dissertation. A 3M Model approach was used to assess the antecedents and consequent traits of frugality and EC. The results of this study provide the information

necessary to craft the experiment utilized in Study Three, where the purpose will be to test two of these new found relationships. More specifically, it seeks to test the hypotheses that materialism is a unique antecedent to frugality, and that learning is a unique antecedent to EC.

Study Three

The purpose of Study Three was to test two of the findings from Study Two. Schema congruity theory was used as the theoretical basis to test whether a materialism themed message would influence a frugal individual, while a learning themed message would influence an environmentally concerned individual. As such, two messages, a high theme and a low theme, were prepared. The results of Study Two suggested that a high materialistic message would be attractive to those low in frugality and unattractive to those high in frugality. However, a low materialism message would have an opposite effect, such that the low frugal would find the low materialism message attractive, and the high frugal would reject that message. In the same way, a message with a high learning theme should be positively received by those high in EC and negatively received by those low in EC, while message with a low learning theme would be positively received by those low in EC and negatively received by those high in EC.

Therefore, two 2x2x2 between subjects experiments were conducted to test these hypotheses. The independent variables were the message theme (i.e., involving material or information needs), level of frugality, and level of EC, while the dependent variable was the attitude toward the message. The research focus was on the two way interactions between message theme and the level of frugality (for the materialism themed experiment) and the level of EC (for the learning themed experiment). The results of the

two experiments do not fully support the findings from Study Two. First, experiment one revealed that both high and low frugal groups prefer the low material message over the high materialism message, but the groups differ on their evaluation of the high materialism message, such that those low in frugality rate the high materialism message higher than those high in frugality. In other words, both groups rated the high materialism message lower than the low materialism message, but those high in frugality were more opposed to the high materialism message. Second, Experiment One revealed an unexpected relationship between EC and materialism. Similar to the relationship with frugality, both high and low environmentally concerned groups rated the low materialism message higher than the high materialism message. However, the analysis suggests that those high in EC were more sensitive to the materialism themed message. Specifically, while both groups favored the low materialism theme, those high in EC rated it higher than those low in EC. The reverse pattern occurred for the high materialism theme, where those high in EC rated lower than those low in EC.

The second experiment was designed to test the relationship between a learning themed message and EC. The results of Experiment Two did not find that EC interacts with a learning themed message, not did it find that frugality interacts either. The analysis did find that a high learning theme message is universally more appealing than the low learning theme.

These results are important because they suggest that message theme may interact with personality traits to influence the evaluation of the message. While this research does not fully explore the relationships between message theme and personality, it does find that the personality trait of frugality and EC are sensitive to a materialism themed

message. As such, this research contributes to our extant knowledge regarding messages and personality traits, and provides researchers a basis for continuing this line of investigation. In addition, this research will also assist those interested in sustainability, for it provides insight into the themes that may trigger a response for two consumer groups interested in sustainability: the environmentally concerned and the frugal.

The results of experiment two are interesting for two reasons. First, the results of experiment two suggest that the strength of the message may overwhelm the moderating effects of personality. In experiment two, the only significant finding was that the high learning themed message was universally more appealing than the low learning themed message. It may be that the low-learning themed message was insulting, suggesting that the endorser was dumb and of low intelligence, and therefore unappealing. If this is so, then a message that better reflects a low need for learning rather than low intelligence is required.

Second, the results suggest that schema congruity theory may not be applicable in all situations. Specifically, it may not make predictions under all situations. One possible explanation for the difference in effects between the two experiments is the level hierarchy of the personality traits. Materialism is an elemental trait, while need for learning is a compound trait. Elemental traits are basic, underlying dispositions of the individual, not easily influenced by situation or the environment. Compound traits are at the next level of the hierarchy; they are traits that emerge from the interaction of the elemental traits, and are influenced by outside factors, including culture and the learning history of the individual. Therefore, it may be that schema congruity theory is most applicable to the elemental personality traits rather than the more concrete levels of

personality. Future research should compare two messages to themes on the same level of the hierarchy to determine if the level of hierarchy influences the persuasiveness of the message.

Finally, there may be constructs that moderate the predictions of schema congruity theory. In this dissertation, age may be one of those constructs. The adult sample from study two and the student sample from study three differed on their levels of materialism and need for learning. As one would expect, the student sample was higher in the need for learning than the adults (means of 5.3 and 4.8, $p<.000$),which may reflect the student's status and their role in seeking and participating in a formal education. In the same way, the student sample was also higher in materialism (means of 3.9 and 3.2, $p<.000$), which may reflect their station in life where they are transitioning from their parent's resources to seeking and building their own resources. At this stage they may feel that they have little, and are concerned about assembling those resources which they feel they need. On the other hand, the adults may already have collected their material resources, or through age and maturity, have discerned how much and which material possessions are important.

Limitations and Suggestions for Future Research

During the course of this research, several limitations have become evident. Such limitations provide opportunities to perform future research that refines and extends the present findings. These limitations include concerns over the definitions of the constructs, the exclusion of other possible mediators, and the experimental stimuli used in Study Three.

First, the definition of EC is problematic for this research. It is important that constructs are rigorously defined by avoiding ambiguity and vagueness. In addition, the relations between the dimensions and the construct should be specified (Dunlap and Jones 2002; MacKenzie 2003; Mowen and Voss 2008; Teas and Palan 1997). The definition of EC, which was adopted for this research is long, and multi-faceted, and imitates the complex and evolving nature of the environmental movement (Brulle 1996). However this research requires more tightly defined constructs in order to explore the various aspects of frugality and EC. As such, a scale measuring one's involvement with the environmental movement is recommended for development. While a revision to the EC scale does not directly address changes to the definition of EC, an improved scale will allow the definition used in this research to be streamlined and simplified as well. In the same way, there are also different levels or types of frugality. For example, there is the tightwad who refuses to spend, the frugal who saves to spend on something big, and the person who is less concerned about finances and more concerned about stuff; i.e. the stewardship of material goods. Therefore, further research is necessary to explore the different facets of frugality that are outside the scope of the tightwad scale.

Second, there are a number of potential mediators that were not investigated in this research. The most important of may be the trait of altruism. There is a tendency for environmentally concerned individuals to be altruistic (Bohlen et al. 1993; De Young 2000), while there seems to be a tendency for frugal individuals to be more hedonic in their goals and actions (Bardhi and Arnould 2005). Research into this question is important, because the relationship between altruism and EC and frugality is not consistent. For example, for some individuals, concern over the environment may be

egoistic, a concern over the effects of environmental degradation on one's self and loved ones, rather than altruistic, which is a concern for others (Stern and Dietz 1994). In the same way, while some frugal consumers are frugal because they want to conserve their own personal resources, there is anecdotal evidence of persons being frugal so they may share their wealth with others. A quick internet search of the terms "money, frugal, and giving" reveal several sites and blogs of individuals who are frugal but also generous with their financial resources.

Another issue that might influence the results of this research is that many of the scales used in Study Two are worded in a negative and pessimistic manner. Dunlap and his colleagues addressed this issue in the development of the NEP scale by reverse coding seven of the fifteen items. However, the second study is full of pessimistic language, and that may result in a condemning rather than optimistic or endorsing tone. For example, the items in the green buying scale use the word "avoid" in five of the questions, while the revised NEP scale used in this dissertation used four items (out of five) that suggest impending ecological doom. It might be useful to follow Dunlap's lead and craft items that are balanced in their orientation regarding pessimism and optimism.

Future research is also warranted on other aspects of frugality and EC. For example, what is their relationship with constructs that assess people's view of the role that technology plays for making the world more sustainable (Hart 1997). Two views of technology can be identified, Luddism versus technological utopianism. These two movements represent those who shun technology and those who embrace technology. Luddism is named after a figure from the British industrial revolution. Charles Ludd condemned technology (represented by the factory and the industrial revolution) and lead

a revolt. He and his followers protested the demise of traditional, small-scale cloth and fabric production using human-powered looms in the home. The new technology of power looms and factory production was changing the foundation of the community and the family, jeopardizing social order and eliminating traditional family structure and values. Therefore, his followers believed that the rampant use of technology was harming humanity. On the other hand, technological utopists see that technology has saved humanity and provides incredible benefits. For example, modern medicine, food production, and transportation would not be possible without the advances provided by human ingenuity and technological development.

These two movements are important, for they address a fundamental issue regarding sustainability. That issue revolves around questions of whether technology created the environmental problems we have, or whether technology will save us from our current problems. This is an important question for marketers, because it addresses current issues in our marketplace. For example, some who are interested in the health of the planet see the Toyota Prius, an advanced technology gasoline electric hybrid vehicle, as a viable alternative for green transportation. Toyota's marketing department believes this is true, as evidenced by their advertising messages promoting the car. Yet there are others in the environmental movement who view hybrid powered cars as ungreen, given that battery production produces a lot of pollution. In addition, they are expensive to replace, and difficult to recycle.

This dissertation also provides incentive for investigating the values of liberalism and conservatism. It was expected that liberal values would be positively related to EC, and that conservative values would be negatively related. However, the finding in Study

Two that both liberal and conservative values are positively related to frugality was a surprise. This finding may suggest that those who are more extreme in their political and social orientations are likely to be frugal. This relationship is worthy of further exploration and development, especially as it pertains to the more specific measures of EC and frugality.

Other areas of future research include investigations into pessimism and optimism. Rick et al. (2008) touch on this issue when they investigate frugality. In their research, they discover two categories of frugal people. The first group is those who love to save and find joy when saving money and conserving resources. The second group is those who hate to spend and find it painful to part with money. Those who find joy in saving are optimistic, speak of the freedom in saving, and the opportunities that saving provide. However those who hate to spend are pessimistic and speak of the danger of parting with cash, and the jeopardy that comes from the wanton use or resources. In the same way, are the environmentally concerned distressed about the natural environment because it is getting so bad (pollution, degradation, toxic waste, etc), and are pessimistic about the future? Or are they optimistic and see the possibility of a better future through increased public participation in environmental efforts, and greater governmental cooperation with industry in pollution prevention? Hope (MacInnis and De Mello 2005) and fear (Mowen et al. 2004) may also play a moderating role as stronger forms of optimism and pessimism.

Finally, the experimental messages used in Study Three were deliberately made to be simple, in order to avoid introducing confounding variables. However, as a result, the messages could also be accused of being somewhat homemade. It may be that the

experimental stimuli could have been better crafted using more professional graphics and technique.

Conclusions and Contributions

This research is important because it is the first investigation that simultaneously investigates frugality and EC. The research revealed that EC and frugality are clearly two different aspects of a consumer's personality. The results also revealed that the antecedent traits and consequent behaviors of frugality and EC differ. Finally, it is clear that messages themed around those antecedent traits have an influence on the consumer. These differences are important to marketers and advisors of public policy makers because they have an influence on issues regarding sustainability, growth and development. Finally, this dissertation contributes to the extent body of knowledge by providing leaders in public policy and business with information regarding two important constituent and consumer groups.

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APPENDICES

APPENDIX A

SURVEY FOR STUDY

ONE

Survey of Consumer Lifestyle and Motivation

Directions

This is an informed consent statement for search being conducted by Professor John Mowen in the Department of Marketing. Through this 15-20 minute survey we seek to understand the motives and personality traits that influence a number of different consumer activities. The results of this survey will be employed to develop an understanding of the individual difference variables that influence consumer behavior. The ideas behind the study will be discussed in class at a later date.

Your responses are confidential! The surveys will maintain in a locked office. When we enter data into the computer, your name will not be included. After entering in the data in the computer, we will destroy the surveys. You will receive two extra credit points for completing the survey. You are not required to complete the survey. If you do not wish to complete the survey, and desire to receive extra credit points, you can complete a one-page type written evaluation of a print advertisement by identifying the marketing concepts illustrated by the ad. There is no penalty for not completing the survey. You may turn in the survey with a statement on this page that you plan to do the one page write-up.

If you have any questions, please ask them to John Mowen (744-5112, BUS 323). In addition, questions may be directed to Dr. Sue Jacobs, IRB Chair, Oklahoma State University, 415 Whitehurst, Phone 405-744-5700.

I have read and I understand the procedure described above. I agree to participate in the procedure, and I have received a copy of this statement.

Name (print) _____ Instructor _____
Signature of Participant _____ Date: _____
I plan to do the one-page ad write up. No _____ Yes _____
First, please provide the below information.
What is your age? _____ years
What is your gender? Male Female

For each item circle the number that best describes how frequently you feel or act in the manner described in your professional, leisure, and home lives. There are no right or wrong answers. Just circle the response that most accurately describes how you feel or act in your daily life, not how you wish you would act. **Please note that some of the questions may appear to be similar to each other. It is important, however, that you answer ALL the questions!! Thanks.**

How often do you feel this way?	*Never*						*Always*
Feel bashful more than others	1	2	3	4	5	6	7
Introverted (e.g., avoid large groups of people)	1	2	3	4	5	6	7
Quiet when with people	1	2	3	4	5	6	7
Shy	1	2	3	4	5	6	7
Precise	1	2	3	4	5	6	7
Efficient	1	2	3	4	5	6	7
Organized	1	2	3	4	5	6	7
Orderly	1	2	3	4	5	6	7
Frequently feel highly creative	1	2	3	4	5	6	7
Imaginative	1	2	3	4	5	6	7
Find novel solutions	1	2	3	4	5	6	7
More original than others	1	2	3	4	5	6	7
Tender hearted with others	1	2	3	4	5	6	7
Agreeable with others	1	2	3	4	5	6	7
Kind to others	1	2	3	4	5	6	7
Softhearted	1	2	3	4	5	6	7
Moody more than others	1	2	3	4	5	6	7
Temperamental	1	2	3	4	5	6	7
Touchy	1	2	3	4	5	6	7
Emotions go way up and down	1	2	3	4	5	6	7
	1	2	3	4	5	6	7
Enjoy buying expensive things	1	2	3	4	5	6	7
Like to own nice things more than most people	1	2	3	4	5	6	7
Acquiring valuable things is important to me	1	2	3	4	5	6	7
Enjoy owning luxurious things	1	2	3	4	5	6	7
Drawn to experiences with an element of danger	1	2	3	4	5	6	7
Seek an adrenaline rush	1	2	3	4	5	6	7
Actively seek out new experiences	1	2	3	4	5	6	7
Enjoy taking more risks than others	1	2	3	4	5	6	7
Focus on my body and how it feels	1	2	3	4	5	6	7
Devote time each day to improving my body	1	2	3	4	5	6	7
Feel that making my body look good is important	1	2	3	4	5	6	7
Work hard to keep my body healthy	1	2	3	4	5	6	7
Enjoy learning new things more than others	1	2	3	4	5	6	7
People consider me to be intellectual	1	2	3	4	5	6	7
Enjoy working on new ideas	1	2	3	4	5	6	7
Information is my most important resource	1	2	3	4	5	6	7
The distant future is too uncertain to plan for	1	2	3	4	5	6	7
I pretty much live on a day-to-day basis	1	2	3	4	5	6	7
The future seems very vague and uncertain to me	1	2	3	4	5	6	7
I focus on the present more than the future	1	2	3	4	5	6	7

For the rest of the items, please circle the number that best indicates the extent that you "strongly disagree" to "strongly agree" with each of the statements.

	Strongly Disagree						Strongly Agree
I am extremely liberal in my politics	1	2	3	4	5	6	7
I am extremely liberal in my religious views	1	2	3	4	5	6	7
Overall, people would describe me as a liberal individual.	1	2	3	4	5	6	7
I am extremely conservative in my politics.	1	2	3	4	5	6	7
I am extremely conservative in my religious views.	1	2	3	4	5	6	7
Overall, people would describe me as a conservative individual.	1	2	3	4	5	6	7
We are approaching the limit of the number of people the earth can support	1	2	3	4	5	6	7
Humans have the right to modify the natural environment to suit their needs	1	2	3	4	5	6	7
When humans interfere with nature it often produces disastrous consequences	1	2	3	4	5	6	7
Human ingenuity will insure that we do NOT make the earth unlivable.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
Humans are severely abusing the environment.	1	2	3	4	5	6	7
The earth has plenty of natural resources if we just learn how to develop them.	1	2	3	4	5	6	7
Plants and animals have as much right as humans to exist.	1	2	3	4	5	6	7
Humans were meant to rule over the rest of nature.	1	2	3	4	5	6	7
The balance of nature is very delicate and easily upset.	1	2	3	4	5	6	7
Humans will eventually learn enough about how nature works to be able to control it.	1	2	3	4	5	6	7
The earth is like a spaceship with very limited room and resources.	1	2	3	4	5	6	7
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	1	2	3	4	5	6	7
If things continue on their present course, we will soon experience a major ecological catastrophe.	1	2	3	4	5	6	7
The so-called "ecological crisis" facing humankind has been greatly exaggerated.	1	2	3	4	5	6	7
Despite our special abilities humans are still subject to the laws of nature.	1	2	3	4	5	6	7
Find that I have a hard time spending money on anything but necessities.	1	2	3	4	5	6	7
I act like a tightwad, and spend very little.	1	2	3	4	5	6	7
I like to keep my standard of living modest, because it makes me feel better.	1	2	3	4	5	6	7
Find that I can save easier than I can spend.	1	2	3	4	5	6	7
I get more enjoyment out of saving than spending.	1	2	3	4	5	6	7
I believe that global warming is occurring	1	2	3	4	5	6	7
I believe that humans are causing the polar icecaps to melt	1	2	3	4	5	6	7
I believe that humans are causing the weather to be more extreme.	1	2	3	4	5	6	7
I believe that pollution is increasing the rate of extinctions of species.	1	2	3	4	5	6	7

Please answer the below questions based upon how frequently you perform this action.

	Never do that thing						Frequently do that thing
Recycle used cans, bottles or paper	1	2	3	4	5	6	7
Vote for a political candidate primarily because the candidate took strong environmental positions	1	2	3	4	5	6	7
Cut back on driving or use public transportation more often.	1	2	3	4	5	6	7
Buy products made of recycled material whenever possible.	1	2	3	4	5	6	7
Avoid purchasing certain kinds of products because the packaging is excessive or environmentally harmful.	1	2	3	4	5	6	7
Avoid purchasing certain kinds of fresh food because of the chemicals used in food production.	1	2	3	4	5	6	7
Avoid purchasing products made by a company that pollutes the environment.	1	2	3	4	5	6	7
Buy products in packages that can be refilled.	1	2	3	4	5	6	7
Buy a product because the label or advertising said it was environmentally safe or biodegradable.	1	2	3	4	5	6	7
Avoid restaurants using plastic foam containers.	1	2	3	4	5	6	7
Avoid buying products in aerosol containers.	1	2	3	4	5	6	7
Recycle newspapers used at home.	1	2	3	4	5	6	7
Recycle glass jars and bottles used at home.	1	2	3	4	5	6	7
Intentionally eat meatless meals.	1	2	3	4	5	6	7
Contribute to ecological or conservation organizations.	1	2	3	4	5	6	7
Buy the furniture you need at a garage sale or second-hand store.	1	2	3	4	5	6	7
Ride a bicycle or walk for transportation to work.	1	2	3	4	5	6	7
Buy needed clothing at a second-hand store or garage sale.	1	2	3	4	5	6	7
Ride a bicycle on errands close to home.	1	2	3	4	5	6	7
Make gifts instead of buying them.	1	2	3	4	5	6	7
Make clothing or furniture for the family.	1	2	3	4	5	6	7
Try to do your own home repairs instead of hiring someone.	1	2	3	4	5	6	7
Grow the vegetables the family uses during the summer season.	1	2	3	4	5	6	7
I, a family member, or friend changes the oil in the family car when it needs changing	1	2	3	4	5	6	7

APPENDIX B

TABLE OF BIVARIATE CORRELATIONS FOR STUDY ONE

	Reduced NEP	Tightwad	Frugality	Modest Living Behavior	Recycling Behavior
Tightwad	.191(**)				
Frugality	.205(**)	.573(**)			
Modest Living Behavior	.108	.219(**)	.215(**)		
Recycling Behavior	.149(*)	.213(**)	.228(**)	.382(**)	
Green Buying Behavior	.221(**)	.186(**)	.162(**)	.507(**)	.498(**)

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
N=288

APPENDIX C

SCALES FOR STUDY TWO

Need for Learning

1. I enjoy learning new things more than others
2. People consider me to be intellectual
3. I enjoy working on new ideas
4. Information is my most important resource

Present-Time Orientation

1. The distant future is too uncertain to plan for
2. I pretty much live on a day-to-day basis
3. The future seems very vague and uncertain to me
4. I focus on the present more than the future

Liberal and Conservative Values

1. I am extremely liberal in my politics
2. I am extremely liberal in my religious views
3. Overall, people would describe me as a liberal individual.
4. I am extremely conservative in my politics.
5. I am extremely conservative in my religious views.
6. Overall, people would describe me as a conservative individual.

Global Warming (Surface Trait)

1. I believe that humans are causing the weather to be more extreme
2. I believe that global warming is occurring
3. I believe that humans are causing the polar ice caps to disappear
4. I believe that pollution is increasing the rate extinction of species

APENDIX D

SURVEY FOR STUDY TWO

Survey of Consumer Lifestyle and Motivation

This is an informed consent statement for research being conducted by Professor John Mowen in the Department of Marketing at Oklahoma State University. Through this 15-20 minute survey we seek to understand the factors that influence a number of different consumer activities and beliefs. The results of this survey will be employed to develop an understanding of the individual difference variables that influence various consumer behaviors.

Your responses are confidential! The surveys will be maintained in a locked office. Your name will not be known to the researchers. You are not obligated to take this survey. If you do not wish to take the survey, simply decline to complete it.

Directions

For each item circle the number that best describes how frequently you feel or act in the manner described in your professional, leisure, and home lives. There are no right or wrong answers. Just circle the response that most accurately describes how you feel or act in your daily life, not how you wish you would act. **Please note that some of the questions may appear to be similar to each other. It is important, however, that you Answer ALL Questions. Thanks.**

How often do you feel/act this way?	**Never**								**Always**
Feel bashful more than others	1	2	3	4	5	6	7	8	9
Introverted (e.g., avoid large groups of people)	1	2	3	4	5	6	7	8	9
Quiet when with people	1	2	3	4	5	6	7	8	9
Shy	1	2	3	4	5	6	7	8	9
Precise	1	2	3	4	5	6	7	8	9
Efficient	1	2	3	4	5	6	7	8	9
Organized	1	2	3	4	5	6	7	8	9
Orderly	1	2	3	4	5	6	7	8	9
Frequently feel highly creative	1	2	3	4	5	6	7	8	9
Imaginative	1	2	3	4	5	6	7	8	9
Find novel solutions	1	2	3	4	5	6	7	8	9
More original than others	1	2	3	4	5	6	7	8	9
Tender hearted with others	1	2	3	4	5	6	7	8	9
Agreeable with others	1	2	3	4	5	6	7	8	9
Kind to others	1	2	3	4	5	6	7	8	9
Softhearted	1	2	3	4	5	6	7	8	9
Moody more than others	1	2	3	4	5	6	7	8	9
Temperamental	1	2	3	4	5	6	7	8	9
Touchy	1	2	3	4	5	6	7	8	9
Emotions go way up and down	1	2	3	4	5	6	7	8	9
Enjoy buying expensive things	1	2	3	4	5	6	7	8	9
Like to own nice things more than most people	1	2	3	4	5	6	7	8	9
Acquiring valuable things is important to me	1	2	3	4	5	6	7	8	9
Enjoy owning luxurious things	1	2	3	4	5	6	7	8	9

Drawn to experiences with an element of danger	1	2	3	4	5	6	7	8	9
Seek an adrenaline rush	1	2	3	4	5	6	7	8	9
Actively seek out new experiences	1	2	3	4	5	6	7	8	9
Enjoy taking more risks than others	1	2	3	4	5	6	7	8	9

Focus on my body and how it feels	1	2	3	4	5	6	7	8	9
Devote time each day to improving my body	1	2	3	4	5	6	7	8	9
Feel that making my body look good is important	1	2	3	4	5	6	7	8	9
Work hard to keep my body healthy	1	2	3	4	5	6	7	8	9

The distant future is too uncertain to plan for	1	2	3	4	5	6	7	8	9
I pretty much live on a day-to-day basis	1	2	3	4	5	6	7	8	9
The future seems very vague and uncertain to me	1	2	3	4	5	6	7	8	9
I focus on the present more than the future…….	1	2	3	4	5	6	7	8	9

Enjoy learning new things more than others	1	2	3	4	5	6	7	8	9
People consider me to be intellectual	1	2	3	4	5	6	7	8	9
Enjoy working on new ideas	1	2	3	4	5	6	7	8	9
Information is my most important resource	1	2	3	4	5	6	7	8	9

For the rest of the items, please circle the number that best indicates the extent that you "strongly disagree" to "strongly agree" with each of the statements.

	Strongly Disagree						**Strongly Agree**
I am extremely liberal in my politics	1	2	3	4	5	6	7
I am extremely liberal in my religious views	1	2	3	4	5	6	7
Overall, people would describe me as a liberal individual……	1	2	3	4	5	6	7

I am extremely conservative in my politics	1	2	3	4	5	6	7
I am extremely conservative in my religious views	1	2	3	4	5	6	7
Overall, people would describe me as a conservative individual…...	1	2	3	4	5	6	7

The earth is like a spaceship with very limited room and resources……	1	2	3	4	5	6	7
We are approaching the limit of the number of people the earth can support……..	1	2	3	4	5	6	7
Humans are severely abusing the environment……..	1	2	3	4	5	6	7
The balance of nature is very delicate and easily upset……	1	2	3	4	5	6	7
The so-called "ecological crisis" facing humankind has been greatly exaggerated……..	1	2	3	4	5	6	7

Find that I have a hard time spending money on anything but necessities.....	1	2	3	4	5	6	7
I act like a tightwad, and spend very little.....	1	2	3	4	5	6	7
I like to keep my standard of living modest, because it makes me feel better. ……	1	2	3	4	5	6	7
Find that I can save easier than I can spend……	1	2	3	4	5	6	7
I get more enjoyment out of saving than spending……..	1	2	3	4	5	6	7

For these items, please circle the number that best indicates the extent that you "strongly disagree" to "strongly agree" with each of the statements.

	Strongly Disagree						**Strongly Agree**
Buy furniture at garage sales or second-hand stores……	1	2	3	4	5	6	7
Buy clothing at a second-hand store or garage sale……	1	2	3	4	5	6	7
Make gifts instead of buying them……..	1	2	3	4	5	6	7
Make clothing or furniture for the family……..	1	2	3	4	5	6	7
Frequently recycle newspapers used at home…….	1	2	3	4	5	6	7
Recycle glass jars and bottles used at home……..	1	2	3	4	5	6	7
Recycle used cans, bottles, or paper……..	1	2	3	4	5	6	7
Avoid purchasing products made by a company that pollutes the environment……..	1	2	3	4	5	6	7
Buy a product because the label or advertising said it was environmentally safe or biodegradable……	1	2	3	4	5	6	7
Avoid restaurants using plastic foam containers……..	1	2	3	4	5	6	7
Avoid buying products in aerosol containers……	1	2	3	4	5	6	7
I believe that humans are causing the weather to be more extreme…..	1	2	3	4	5	6	7
I believe that global warming is occurring……	1	2	3	4	5	6	7
I believe that humans are causing the polar ice caps to disappear……..	1	2	3	4	5	6	7
I believe that pollution is increasing the rate extinction of species……	1	2	3	4	5	6	7

What is your gender: ___ male ___ female

What is your age? 18-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65+

What is your highest level of education completed? 8 years 12 years 14 years 16 years 18+ years

APPENDIX E

TABLE OF BIVARIATE CORRELATIONS FOR STUDY TWO

Pearson Correlations

	Materialism	Need for Learning	Present Time Orientation	Liberal Values	Conservative Values	Reduced NEP	Tightwad	Modest Living Behaviors	Recycling Behaviors	Green Buying Behaviors
Need for Learning	.104(*) p=.015									
Present Time Orientation	.128(**) p=.002	.106(*) p=.013								
Liberal Values	.123(**) p=.004	.157(**) p<.000	.111(**) p=.009							
Conservative Values	.069 p=.102	-.089(*) p=.036	.025 p=.549	-.530(**) p<.000						
Reduced NEP	.026 p=.537	.212(**) p<.000	.144(**) p=.001	.367(**) p<.000	-.267(**) p<.000					
Tightwad	-.201(**) p<.000	.072 p=.092	.086(*) p=.043	.074 p=.081	.138(**) p=.001	.193(**) p<.000				
Modest Living Behaviors	-.011 p=.796	.042 p=.319	.100(*) p=.018	.143(**) p=.001	.087(*) p=.040	.126(**) p=.003	.328(**) p<.000			
Recycling Behaviors	.010 p=.808	.169(**) p<.000	-.090(*) p=.033	.157(**) p<.000	-.087(*) p=.040	.227(**) p<.000	.122(**) p=.004	.187(**) p<.000		
Green Buying Behaviors	.074 p=.082	.173(**) p<.000	.027 p=.532	.301(**) p<.000	-.071 p=.093	.418(**) p<.000	.271(**) p<.000	.305(**) p<.000	.235(**) p<.000	
Belief in Global Warming	.053 p=.211	.179(**) p<.000	.104(*) p=.014	.379(**) p<.000	-.294(**) p<.000	.689(**) p<.000	.132(**) p=.002	.115(**) p=.007	.192(**) p<.000	.381(**) p<.000

N=555.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

APPENDIX F

SURVEY FOR STUDY THREE

Spring 2009 Survey
Survey of Consumer Lifestyle and Motivation
Directions

This is an informed consent statement for search being conducted by Rand Wergin and John Mowen in the Department of Marketing. Through this approximately 20 minute survey we seek to understand the motives and personality traits that influence a number of different consumer activities. The results of this survey will be employed to develop an understanding of the individual difference variables that influence consumer behavior. The ideas behind the study will be discussed in class at a later date.

You will be rewarded with four points extra credit for participation in this study. In order to register for the extra credit, you will be asked to indicate your instructor, and then identify yourself via the last four digits of your CWID and initials.

The list of participants will be provided to the instructor for registration of the extra credit. Your anonymity will be insured via this method.

If you do not wish to complete the survey, and desire to receive extra credit points, you may complete a one-page type written evaluation of a print advertisement by identifying the marketing concepts illustrated by the ad. There is no penalty for not completing the survey.

If you desire to participate in this extra-credit opportunity, your must complete the survey or the alternative assignment by Friday March 6 at 500pm.

If you have any questions about your rights as a research volunteer, you may contact Rand Wergin, Meinders School of Business, Oklahoma City University, Oklahoma City, OK 73106, 405-208-5823 or Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-1676 or irb@okstate.edu.

(checkbox) I have read and I understand the procedure described above, and agree to participate in the procedure.

Last four digits of CWID, and first and last name initials (i.e. 1234JD) _____

Instructor _____

Directions

For each item circle the number that best describes how frequently you feel or act in the manner described in your professional, leisure, and home lives. There are no right or wrong answers. Just circle the response that most accurately describes how you feel or act in your daily life, not how you wish you would act. **Please note that some of the questions may appear to be similar to each other. It is important, however, that you answer ALL the questions!! Thanks.**

How often do you feel this way?	**Never**						**Always**
Feel bashful more than others	1	2	3	4	5	6	7
Introverted (e.g., avoid large groups of people)	1	2	3	4	5	6	7
Quiet when with people	1	2	3	4	5	6	7
Shy	1	2	3	4	5	6	7
Precise	1	2	3	4	5	6	7
Efficient	1	2	3	4	5	6	7
Organized	1	2	3	4	5	6	7
Orderly	1	2	3	4	5	6	7
Frequently feel highly creative	1	2	3	4	5	6	7
Imaginative	1	2	3	4	5	6	7
Find novel solutions	1	2	3	4	5	6	7
More original than others	1	2	3	4	5	6	7
Tender hearted with others	1	2	3	4	5	6	7
Agreeable with others	1	2	3	4	5	6	7
Kind to others	1	2	3	4	5	6	7
Softhearted	1	2	3	4	5	6	7
Moody more than others	1	2	3	4	5	6	7
Temperamental	1	2	3	4	5	6	7
Touchy	1	2	3	4	5	6	7
Emotions go way up and down	1	2	3	4	5	6	7
Enjoy buying expensive things	1	2	3	4	5	6	7
Like to own nice things more than most people	1	2	3	4	5	6	7
Acquiring valuable things is important to me	1	2	3	4	5	6	7
Enjoy owning luxurious things	1	2	3	4	5	6	7
Drawn to experiences with an element of danger	1	2	3	4	5	6	7
Seek an adrenaline rush	1	2	3	4	5	6	7
Actively seek out new experiences	1	2	3	4	5	6	7
Enjoy taking more risks than others	1	2	3	4	5	6	7
Focus on my body and how it feels	1	2	3	4	5	6	7
Devote time each day to improving my body	1	2	3	4	5	6	7
Feel that making my body look good is important	1	2	3	4	5	6	7
Work hard to keep my body healthy	1	2	3	4	5	6	7

How often do you feel this way?	Never						Always
Enjoy learning new things more than others	1	2	3	4	5	6	7
People consider me to be intellectual	1	2	3	4	5	6	7
Enjoy working on new ideas	1	2	3	4	5	6	7
Information is my most important resource	1	2	3	4	5	6	7
The distant future is too uncertain to plan for	1	2	3	4	5	6	7
I pretty much live on a day-to-day basis	1	2	3	4	5	6	7
The future seems very vague and uncertain to me	1	2	3	4	5	6	7
I focus on the present more than the future	1	2	3	4	5	6	7

For the rest of the items, please circle the number that best indicates the extent that you "strongly disagree" to "strongly agree" with each of the statements.

	Strongly Disagree						Strongly Agree
I am extremely liberal in my politics	1	2	3	4	5	6	7
I am extremely liberal in my religious views	1	2	3	4	5	6	7
Overall, people would describe me as a liberal individual.	1	2	3	4	5	6	7
I am extremely conservative in my politics.	1	2	3	4	5	6	7
I am extremely conservative in my religious views.	1	2	3	4	5	6	7
Overall, people would describe me as a conservative individual.	1	2	3	4	5	6	7
We are approaching the limit of the number of people the earth can support	1	2	3	4	5	6	7
Humans have the right to modify the natural environment to suit their needs	1	2	3	4	5	6	7
When humans interfere with nature it often produces disastrous consequences	1	2	3	4	5	6	7
Human ingenuity will insure that we do NOT make the earth unlivable.	1	2	3	4	5	6	7
Humans are severely abusing the environment.	1	2	3	4	5	6	7
The earth has plenty of natural resources if we just learn how to develop them.	1	2	3	4	5	6	7
Plants and animals have as much right as humans to exist.	1	2	3	4	5	6	7
Humans were meant to rule over the rest of nature.	1	2	3	4	5	6	7
The balance of nature is very delicate and easily upset.	1	2	3	4	5	6	7
Humans will eventually learn enough about how nature works to be able to control it.	1	2	3	4	5	6	7
The earth is like a spaceship with very limited room and resources.	1	2	3	4	5	6	7
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	1	2	3	4	5	6	7
If things continue on their present course, we will soon experience a major ecological catastrophe.	1	2	3	4	5	6	7
The so-called "ecological crisis" facing humankind has been greatly exaggerated.	1	2	3	4	5	6	7
Despite our special abilities humans are still subject to the laws of nature.	1	2	3	4	5	6	7
Find that I have a hard time spending money on anything but necessities.	1	2	3	4	5	6	7
I act like a tightwad, and spend very little.	1	2	3	4	5	6	7
I like to keep my standard of living modest, because it makes me feel better.	1	2	3	4	5	6	7
Find that I can save easier than I can spend.	1	2	3	4	5	6	7
I get more enjoyment out of saving than spending.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
I believe that global warming is occurring	1	2	3	4	5	6	7
I believe that humans are causing the polar icecaps to melt	1	2	3	4	5	6	7
I believe that humans are causing the weather to be more extreme.	1	2	3	4	5	6	7
I believe that pollution is increasing the rate of extinctions of species.	1	2	3	4	5	6	7

Please answer the below questions based upon how frequently you perform this action.

	Never Do that thing				Frequently Do hat thing		
Recycle used cans, bottles or paper	1	2	3	4	5	6	7
Vote for a political candidate primarily because the candidate took strong environmental positions	1	2	3	4	5	6	7
Cut back on driving or use public transportation more often.	1	2	3	4	5	6	7
Buy products made of recycled material whenever possible.	1	2	3	4	5	6	7
Avoid purchasing certain kinds of products because the packaging is excessive or environmentally harmful.	1	2	3	4	5	6	7
Avoid purchasing certain kinds of fresh food because of the chemicals used in food production.	1	2	3	4	5	6	7
Avoid purchasing products made by a company that pollutes the environment.	1	2	3	4	5	6	7
Buy products in packages that can be refilled.	1	2	3	4	5	6	7
Buy a product because the label or advertising said it was environmentally safe or biodegradable.	1	2	3	4	5	6	7
Avoid restaurants using plastic foam containers.	1	2	3	4	5	6	7
Avoid buying products in aerosol containers.	1	2	3	4	5	6	7
Recycle newspapers used at home.	1	2	3	4	5	6	7
Recycle glass jars and bottles used at home.	1	2	3	4	5	6	7
Intentionally eat meatless meals.	1	2	3	4	5	6	7
Contribute to ecological or conservation organizations.	1	2	3	4	5	6	7
Buy the furniture you need at a garage sale or second-hand store.	1	2	3	4	5	6	7
Ride a bicycle or walk for transportation to work.	1	2	3	4	5	6	7
Buy needed clothing at a second-hand store or garage sale.	1	2	3	4	5	6	7
Ride a bicycle on errands close to home.	1	2	3	4	5	6	7
Make gifts instead of buying them.	1	2	3	4	5	6	7
Make clothing or furniture for the family.	1	2	3	4	5	6	7
Try to do your own home repairs instead of hiring someone.	1	2	3	4	5	6	7
Grow the vegetables the family uses during the summer season.	1	2	3	4	5	6	7
I, a family member, or friend changes the oil in the family car when it needs changing	1	2	3	4	5	6	7

Please read and examine the advertisement below. After you have read the ad, please go to the next page and answer the following questions. Please note that some of the questions may appear to be similar to each other. It is important, however, that you answer ALL the questions!!

After you turn this page, do not turn back to look at the ad! Thank you!

Swift Shoes: The Road Master 300

Terry Gray: Runner

Buys expensive things.
Acquires the finest.
Owns the valuable.
Demands luxury.

SwiftShoes.com

Swift Shoes: The Road Master 300

Terry Gray: Runner

Enjoys learning new things.
An intellectual.
Works on ideas.
Needs information.

SwiftShoes.com

Swift Shoes: The Road Master 300

Terry Gray: Runner

Avoids expensive things.
Ignores the finest.
Disdains the valuable.
Does not need luxury.

SwiftShoes.com

Swift Shoes: The Road Master 300

Terry Gray: Runner

Avoids learning new things.
Ignores the intellectual.
Disdains ideas.
Does not need information.

SwiftShoes.com

How would you rate this advertisement?

Disliked	1	2	3	4	5	6	7	Liked

How would you rate the shoe, i.e. the Road Master 300?

Disliked	1	2	3	4	5	6	7	Liked

How would you rate the shoe company, i.e. Swift Shoes?

Disliked	1	2	3	4	5	6	7	Liked

How much are you like Terry Gray?

Not at all similar	1	2	3	4	5	6	7	Very similar

Do you think Terry Gray makes a good endorser for Swift Shoes?

Not at all likely	1	2	3	4	5	6	7	Very likely

Debriefing

<Debriefing will appear on the final screen of the online survey.>

Thank you very much for your participation; this concludes the survey. This study investigated the response consumers have toward an advertising message. In this study, subjects were presented with one of five marketing messages. The purpose of the messages is to determine whether the unique personality traits of an individual will influence their response to the advertising message.

APPENDIX G

TABLE OF BIVARIATE CORRELATIONS FOR STUDY THREE

Bivariate Correlations

	Materialism	Need for Learning	Present Time Orientation	Liberal Values	Conservative Values	Reduced NEP	Tightwad	Modest Living Behaviors	Recycling Behaviors	Green Buying Behaviors
Need for Learning	-.019 p=.703									
Present Time Orientation	-.145(**) p=.003	-.093 p=.062								
Liberal Values	.008 p=.869	.088 p=.078	.057 p=.255							
Conservative Values	-.026 p=.599	-.117(*) p=.018	.004 p=.934	-.790(**) p<.000						
Reduced NEP	.037 p=.452	.110(*) p=.027	-.073 p=.144	.324(**) p<.000	-.273(**) p<.000					
Tightwad	-.501(**) p<.000	.100(*) p=.045	.242(**) p<.000	.046 p=.360	.035 p=.481	.031 p=.539				
Modest Living Behaviors	-.288(**) p<.000	.024 p=.637	.028 p=.578	.170(**) p=.001	-.089 p=.075	.127(*) p=.011	.189(**) p<.000			
Recycling Behaviors	-.179(**) p<.000	.078 p=.117	-.009 p=.859	.130(**) p=.009	-.034 p=.493	.177(**) p<.000	.098(*) p=.049	.288(**) p<.000		
Green Buying Behaviors	-.125(*) p=.012	.073 p=.142	.060 p=.232	.293(**) p<.000	-.204(**) p<.000	.307(**) p<.000	.132(**) p=.008	.368(**) p<.000	.427(**) p<.000	
Belief in Global Warming	.062 p=.210	.073 p=.141	-.065 p=.191	.357(**) p<.000	-.309(**) p<.000	.649(**) p<.000	-.048 p=.336	.113(*) p=.023	.160(**) p=.001	.321(**) p<.000

N= 405
** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

VITA

Rand Eric Wergin

Candidate for the Degree of

Doctor of Philosophy

Dissertation: THE FRUGAL AND THE ENVIRONMENTALLY CONCERNED: WHO ARE THEY, WHAT DO THEY DO, AND HOW DO YOU INFLUENCE THEM?

Major Field: Marketing

Biographical:

Education:
Received a Bachelor of Science degree in Marketing and Economics from Oklahoma State University in December 1988. Received a Masters in Business Administration degree from the University of Denver in November 1991. Completed the requirements for the Doctor of Philosophy in Marketing at Oklahoma State University, Stillwater, Oklahoma in December, 2009.

Experience:
Employed with Oklahoma City University from 2008-2009 as a visiting assistant professor. Employed with Oklahoma State University from 2001-2008 as full-time adjunct instructor and academic advisor. Prior experience in industry includes headmaster of a private K-12 school, restaurant and facilities management, and professional ski instructor.

Professional Memberships:
Member of American Marketing Association

Name: Rand Wergin Date of Degree: December, 2009

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: THE FRUGAL AND THE ENVIRONMENTALLY CONCERNED: WHO ARE THEY, WHAT DO THEY DO, AND HOW DO YOU INFLUENCE THEM?

Pages in Study: 144 Candidate for the Degree of Doctor of Philosophy

Major Field: Marketing

Scope and Method of Study: Two important consumer segments are the environmentally concerned (EC) and the frugal. There is substantial research on EC consumers (e.g., Kilbourne and Pickett 2008), and they are important to companies involved in green marketing and sustainability. Research on thrifty consumers is sparser (Lastovicka et al. 1999), yet recent changes in the United States' economy may be reawakening an interest in frugality. In this dissertation, I investigate the characteristics of the frugal and the EC consumer. In addition, I employ an experimental methodology to assess the persuasive effects of divergent communications on the two segments. Three studies were conducted. The first assesses the psychometric properties of constructs measuring EC, frugality, and tightwadism (Mowen 2000). The second study builds on the first to investigate the trait antecedents and consequences of EC and frugality. The third study is composed of two experiments that investigate whether frugal and EC consumers respond differently to consumption-related messages. To the author's knowledge, this dissertation represents the first work to simultaneously investigate the psychological characteristics of the frugal and the EC.

Findings and Conclusions: The results reveal that EC and frugality, as measured by tightwadism, are different constructs, and that their antecedent traits and consequent behaviors differ. Study 2 reveals that materialism is negatively related to frugality and unrelated to EC, while a need for learning is unrelated to frugality and positively related to EC. In addition, liberal values are positively related and conservative values are negatively related to EC, while both liberal and conservative values are positively related to frugality. Finally, while both EC and frugality are positively related to green buying behaviors, EC is positively related to recycling, and frugality is positively related to modest living behaviors. The experiments in Study 3 reveal that messages based upon traits predictive of EC and frugality impact consumer evaluations of advertisements. These findings are important to marketers and public policy makers because of their implications for the segmentation of the marketplace as well as the development of a better understanding of sustainability and environmentalism.

ADVISER'S APPROVAL: Dr. John C. Mowen