KIM, GWIA, M.S. Investigating Older Female Consumers' Environmentally Sustainable Apparel Consumption through Socioemotional Selectivity Theory and Advertising Appeals (2018)
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During recent decades, the importance of environmentally sustainable apparel consumption has been emphasized by researchers and marketers because the apparel industry is responsible for several concerns related to the environment. However, despite numerous studies on environmental apparel consumption, current research on the behavior of older consumers is limited. Older consumers have recently grown in their collective purchasing power and are increasingly consuming more apparel; thus, for the purpose of sustainable development, it is important to examine their environmentally sustainable apparel consumption.

The purpose of this study is to explain the consumption of environmentally sustainable apparel among elderly consumers. Built on socioemotional selectivity theory (SST) and the positivity effect, this study attempts to discover whether the time perspective of elderly consumers explains their environmentally sustainable apparel consumption. Moreover, by comparing advertisement appeal types, the study further examines how purchase intentions toward environmentally sustainable apparel may be enhanced.

This research was conducted with female participants who were 65 years of age or older at the time of this study. A survey questionnaire obtained information about the respondents' environmentally sustainable apparel consumption, time perspective, fashion

consciousness, and purchase intention toward shirts shown in environment-related advertisement stimuli.

In order to test the ten proposed hypotheses, a total of 154 usable responses were collected from members of organizations (e.g., churches, YMCAs, and senior centers) in North Carolina. The findings showed that older female adults with expansive time perspectives were more likely to behave sustainably when purchasing apparel (H1), with their fashion consciousness moderating this relationship between time perspective and environmental apparel consumption (H1a).

Although emotional appeals did not have stronger effects on purchase intention than rational (H2a) or control appeals (H2b), it was discovered that rational advertisements can encourage the environmental purchase intentions of elderly consumers more effectively than advertisements with no environmental messages (H2c). Positive emotional messages were not more persuasive than negative emotional messages (H3a), but they nevertheless enhanced environmental purchase intentions more than control advertisements (advertisements with no messages about environmental sustainability) (H3b). There were no significant differences between negative emotional and control appeals (H3c).

These results offer several implications. The time perspective of elderly women is shown to have considerable influence on their environmental behavior. Expansive time perspective is correlated with higher environmentally sustainable apparel consumption than limited time perspective, likely because expansive time perspectives emphasize future-oriented goals, which align strongly with the concept of sustainability. Thus,

apparel retailers are advised to consider time perspective as well as age when encouraging environmental consumption; furthermore, their clothing items would benefit from higher levels of fashion consciousness. Environmental messages containing rational information and eliciting positive emotions can also encourage purchase intentions toward environmentally sustainable apparel among elderly consumers. The limitations of the study and suggestions for future studies are discussed as well.

INVESTIGATING OLDER FEMALE CONSUMERS' ENVIRONMENTALLY

SUSTAINABLE APPAREL CONSUMPTION THROUGH

SOCIOEMOTIONAL SELECTIVITY THEORY

AND ADVERTISING APPEALS

by

Gwia Kim

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CHAPTER I

INTRODUCTION

This chapter contains the following sections: (1) Research Background, (2) Statement of Research Gaps, (3) Research Purpose, (4) Importance of the Study, (5) Limitations of the Study, (6) Definitions of Key Terms, and (7) Organization of the Thesis.

Research Background

This section presents brief background information and an explanation of market trends regarding elderly consumer behavior, concepts of environmental sustainability and advertising appeal, and a theory used in this study to examine the environmentally sustainable apparel consumption of elderly consumers and its psychological context.

Elderly Consumer Market

According to McKinsey Global Institute (2016), persons over 60 years of age are predicted to account for nearly 30% of the population in advanced economies and 13% in emerging economies by 2025 in the global context. In developed countries, the number of retiring and elderly people over 60 years of age will increase by over 33% by 2030, i.e., from 164 million in 2015 to 222 million in 2030. This growing elderly population will likely increase the overall consumption of older adults. The global population above 60 years of age is projected to cause a $4.4 trillion growth in urban consumption until 2030.

In particular, adults over 75 years old are expected to have a compound annual rate of 4.5% in urban consumption between 2015 and 2030. The purchasing power of older adults stems not only from their increasing numbers but also from the average individual consumption within the 60-plus group, which is higher than that of younger consumers. Elderly consumers account for a per capita consumption of about $39,000 per year in developed economies, while consumers between 30 and 44 years of age spend $29,500 per year (McKinsey Global Institute, 2016).

The growing population and consumption of elderly people will likely create opportunities for markets and industries (Kohlbacher & Herstatt, 2011). Most categories, such as healthcare, personal care, housing, transportation, entertainment, and food and beverages, will benefit people in the U.S. who are 60 years or older because their consumption is predicted to grow by 40% or more between 2015 and 2030 (McKinsey Global Institute, 2016). Consumers at or above the age of 65 attribute 18.6% of apparel expenditures (Foster, 2015), presenting new opportunities for the apparel industry. Specifically, retired elderly consumers in developed countries such as the U.S. contribute to about 38% of consumption in the apparel and related service industries (Foster, 2015).

When older consumers retire, they become one of the largest consumer groups because they tend to have more free time and extra money. People often enjoy this period of life by shopping and spending money on themselves (Kohlbacher & Herstatt, 2011). Those who are 65 years or older in the U.S. will spend 195 million hours per day on leisure and sports by 2030, a large number considering that the total time for all age groups is expected to be 210 million hours (McKinsey Global Institute, 2016).

Because of the unique characteristics and consumer needs that distinguish them from other age demographics (Gunter, 2012; Kohlbacher & Herstatt, 2011), it is important to investigate the behavior of elderly people as consumers. Aging causes both physical and psychological change (Kohlbacher & Herstatt, 2011), thus prompting changes in desires and demands over time. For example, older people tend to be more health-conscious, as reflected by their participation in activities such as purchasing organic foods (Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007) and seeking high-quality health services (Kohlbacher & Herstatt, 2011). This study's primary aim entails observation of purchasing behavior on environmentally sustainable apparel, as the consumption power of elderly people may substantially affect the environment.

Environmental Sustainability in Apparel Industry and Consumption

Environmental sustainability is a critical issue for the apparel industry, as the industry often encounters more environmental sustainability issues than other industries. The apparel industry uses raw materials and harmful substances during production, such as fabric dye, in addition to generating water and air pollution during distribution-stage activities, such as transportation and packaging (Hiller Connell & Kozar, 2014). For example, the apparel industry utilizes heavy-metal dyes that pollute water during the manufacturing process (Rarick & Feidman, 2008), and companies also tend to employ chlorine and formaldehyde in the finishing process (Stern & Ander, 2008). Apparel consumption often harms the environment further via disposable packaging, discarding of products, and use of deleterious chemicals for cleaning clothing (Hiller Connell & Kozar, 2014).

The objective of environmental sustainability entails minimizing the use of non-renewable resources (e.g., pollutants such as plastic and depleting energy sources) and reducing the waste emissions of renewable resources (e.g., recyclable materials, renewable and alternative energy) (Goodland & Daly, 1996). However, consumer clothing consumption conflicts with the concept of environmental sustainability because it gives rise to environmental concerns regarding the purchase of products made with limited natural resources and regarding post-consumer waste and pollution (Hiller Connell & Kozar, 2014). Therefore, environmentally sustainable apparel consumption should be encouraged in the industry and actively practiced by consumers.

Because of the greater consumption power of older consumers, their apparel consumption can greatly affect the environment. However, there is currently a lack of research investigating the environmentally sustainable consumption of older adults. Previous studies have found that environmental knowledge (Hansen & Skytte, 1998; Simmons & Widmar, 1990; Kang et al., 2013), environmental concern (Kim & Damhorst, 1998), and various other factors are related to environmental consumption, such as organic cotton (Fletcher, 2008), eco-friendly apparel (Joergens, 2006; Lee, Choi, Youn, & Lee, 2012; Niinimäki, 2010), recyclable products or the recycling of products (Daneshvary, Daneshvary & Schwer, 1998; Domina & Koch, 2002; Niinimäki, 2010), second-hand apparel (Hiller Connell & Kozar, 2014), and slow fashion products (Jung & Jin, 2014). Especially, the Theory of Planned Behavior (Ajzen & Fishbein, 1980) is commonly cited in such investigations of environmental apparel consumption and purchase intention toward environmental products and apparel, based on the variables of

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attitude, subjective norms, and perceived behavioral control. However, previous studies of sustainable apparel consumption tended to focus on younger consumers, especially college students (Hustvedt & Bernard, 2008; Kang et al., 2013; Kim & Damhorst, 1999; Kim, Lee, & Hur, 2012; Ko, 2012; Ko & Jin, 2017; Lundblad & Davies, 2015). Thus, their findings are typically not applicable to elderly consumers, who often possess different motivations and goals (Carstensen, 1992, 2006; Carstensen, Isaacowitz, & Turk-Charles, 1999).

This study uses socioemotional selectivity theory (SST, detailed in Chapter II) (Carstensen, 1992) to consider the motivations and goals of people based on their time perspectives. Utilizing SST, this study examines the environmentally sustainable apparel consumption of older women and further explores effective advertising methods for generating higher purchase intention toward environmentally sustainable apparel.

Emotional versus Rational Appeal Types in Advertisements

Advertisements attempt to appeal to consumers by sending different kinds of messages, and the most commonly used methods are rational and emotional appeals. Rational appeals assume that consumers make logical decisions after considering product quality, economy, value, or performance; thus, such advertisements strive to convey messages related to these functions and benefits when persuading consumers to buy (Kotler & Armstrong, 1999). In comparison, emotional appeals attempt to evoke positive or negative feelings that can motivate consumers to make certain purchase decisions (Kotler & Armstrong, 1999). Positive emotional appeals elicit emotions that people wish to maintain, such as love, humor, pride, and joy, whereas negative emotional appeals

stimulate emotions that people prefer to avoid, such as fear, guilt, and shame (Kotler &

Armstrong, 1999). After noticing the effectiveness of emotion-based advertising (Edell &

Burke, 1987), researchers attempted to compare emotional and rational appeals.

However, neither method is absolutely superior over the other, for their success depends

on particular contexts and situations related to consumer goals (Drolet, Williams, & Lau-

Gesk, 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005), cultural backgrounds

(Albers-Miller & Stafford, 1999), personal traits (Zhang, Sun, Liu, & Knight, 2014), or

product and service categories (Zhang et al., 2014). This research explores strategies that

may enhance environmentally sustainable consumption in older adults through

advertising. Advertising can be used to direct the attention of older adults toward

sustainability and persuade them to exhibit purchase intentions toward environmentally

sustainable apparel. This study compares the effectiveness of different advertising appeal

types in terms of promoting environmentally sustainable apparel consumption.

Statement of Research Gaps

A literature review targeting studies on elderly consumers and environmental

sustainability indicates the presence of several research gaps. First, despite the strong

influence of older consumers on the apparel market—accounting for 18.6% of total

expenditures (Foster, 2015)—relevant academic studies are limited. Existing research on

clothing consumption generally focuses on young consumers (Ellis, McCracken, &

Skuza, 2012; Hustvedt & Bernard, 2008; Kang et al., 2013; Kim & Damhorst, 1999; Kim

et al., 2012; Park & Cho, 2012; Xu & Paulins, 2005; Zhang et al., 2014) even though

older people generate more consumption and have higher spending power.

Research on environmentally sustainable consumption, such as purchasing organic cotton and recycling, and research on the underlying reasons or motivations behind sustainable consumption have been conducted primarily on younger participants, especially college students (Hustvedt & Bernard, 2008; Kang et al., 2013; Kim & Damhorst, 1999; Kim et al., 2012; Ko & Jin, 2017; Lundblad, & Davies, 2015). However, older adults have also been observed to behave in environmentally conscious ways, so there is compelling interest for further research on environmentally sustainable consumption to be conducted. Younger people have been noted to use more sustainable means of transportation, such as public transportation, bicycles, and carpools, yet older generations often prefer convenience and tend to use less sustainable means (Thøgersen & Ölander, 2006). On the contrary, these older people are also more actively involved in recycling and saving energy by installing energy-efficient windows in their homes (Dolnicar & Grun, 2009). These findings imply that environmentally sustainable behaviors among older consumers are contingent upon specific situations and individual actions. Examining the consumption and purchase intentions of older consumers toward environmentally sustainable apparel can provide more insight into their behavior. Therefore, this research investigates the sustainable behavior of older consumers as well as strategies to induce their participation in environmentally sustainable development.

Second, although a commonly used approach, the Theory of Planned Behavior (Ajzen & Fishbein, 1980) as well as personal values or motivation (Kennedy, Best, & Kahle, 1988; Schwartz, 1994; Woodruff, 1997) can provide insight into the reason why consumers behave sustainably or not; however, older consumers have not received

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enough attention on the subject (Hustvedt & Bernard, 2008; Kang et al., 2013; Kim & Damhorst, 1999; Kim et al., 2012; Lundblad, & Davies, 2015). Because older consumers possess distinct characteristics, their behavior should be examined using theoretical frameworks relevant to older adults. This study incorporates a psychological lifespan theory called the socioemotional selectivity theory (SST, detailed in Chapter II) in an effort to elucidate the motivation and goals of elderly consumers pertaining to environmentally sustainable purchase intentions.

The third gap is the lack of study concerning the way in which elderly consumers respond to advertising, especially environmental sustainability advertising. Marketing executives can encourage elderly consumers to purchase environmentally sustainable products, but previous research investigating the responses of older adults to such advertisements is limited. According to previous research on apparel products, the effectiveness of environmental advertising varies according to factors related to the message of the advertisement, such as self-relevance, but elderly subjects were not included in these respondent samples (Kim & Damhorst, 1999). To address this gap, this study examines the response of older consumers to environmental advertisements by incorporating emotional versus rational advertising appeals as well as positive versus negative emotional appeals. In particular, purchase intentions toward environmentally sustainable apparel will be explored as part of the responses to advertising.

Research Purpose

Two research questions are presented as follows to bridge this research gap: (1) What is the psychological explanation for environmentally sustainable apparel

consumption levels among elderly people? (2) What kind of marketing messages would be effective in persuading older consumers to engage in environmentally sustainable apparel consumption? The general purpose of this study is to explain the consumption of environmentally sustainable apparel among elderly consumers. In order to answer these research questions, there are two additional goals addressed in this study.

The first goal of this research is to investigate older women's environmentally sustainable apparel consumption from the time perspective, which is the core concept of the SST. The time perspective and the SST are chosen because one's perception of one's lifespan can be related to aging and behavioral intentions (Carstensen, 1992). In order to understand elderly consumers' consumption and perspectives on time, this study conducted a survey with existing scales.

Second, this study explores ways of enhancing older consumers' purchase intentions toward environmentally sustainable apparel by identifying successful advertising appeal types. For this purpose, the study compares emotional versus rational appeals in advertisements as well as the effectiveness of positive versus negative emotional appeals in order to provide practical marketing implications. In measuring this effectiveness, the study conducts an experiment that manipulates the appeal type of the given message (i.e., emotional versus rational appeal and positive versus negative emotional appeal) and observes the responses of older women to each advertising appeal. Considered together, the research objectives of this study are to understand the impact of time perspective on the environmentally sustainable consumption of elderly consumers

and to examine the effective advertising appeal types concerning purchase intention toward environmentally sustainable apparel.

Contributions of the Study

The findings of this study will provide both academic and practical implications. First, the study explains the reasoning behind the environmentally sustainable behavior of older female consumers based on the socioemotional selectivity theory. Previous studies have concentrated on the explanation of psychological backgrounds or the motivation behind environmentally sustainable consumption among younger generations (Kang et al., 2013; Kim & Damhorst, 1999; Kim et al., 2012; Lundblad, & Davies, 2015). Because this study posits that the environmentally sustainable apparel consumption of older consumers is related to their time perspectives (i.e., how long they consider the rest of their life will be), it incorporates SST, a lifespan theory commonly applied in developmental psychology. By including the SST, this study provides a more insightful explanation of environmentally sustainable apparel consumption.

Second, this research explains how older consumers consider messages about environmental sustainability in their purchases of environmentally sustainable apparel. It presents new findings and fills the research gap pertaining to the study of older consumers, especially older women's environmental consumer behavior.

Third, by investigating effective appeals in the advertisement of environmentally sustainable apparel, the findings of this study can provide practical implications for promotional strategy. The study aims to discover the appeal types in advertisement that are more successful in conveying messages regarding environmental sustainability and in

persuading older consumers to have higher purchase intentions toward environmentally sustainable apparel. This research suggests the effectiveness of emotional appeals and further investigates the superiority of positive over negative emotional appeals. In response to the increasing population of elderly consumers, these implications concerning advertisements can suggest practical ways to induce the contribution of older consumers to the environmental sustainability movement.

Limitations of the Study

First, this study defines older consumers as those over 65 years of age (when one traditionally retires) based on the literature review. Although this is the most commonly accepted criterion of elderly consumers utilized by other researchers in the fields of psychology and gerontology (Drolet et al., 2007; Greco, 1986; John & Cole, 1986; Williams & Drolet, 2005; Yoon et al., 2005; Yoon, Cole, & Lee, 2009), there is no consensus on the absolute standard of 'older' or 'elderly.' There are numerous standards in academic and market contexts. Some researchers consider people over 60 years or even over 50 years as senior consumers (Yoon et al., 2009). Others set the boundary at over 70 years of age (Kotter-Grühn & Smith, 2011). The older market is also subdivided into age groups of 50–59 years old (youngest olds), 60–74 (younger olds), 75–84 (older olds), and 85 and over (oldest olds) (Yoon et al., 2009). However, this study considered elderly consumers to be over 65 years of age because of the popularity of this standard in academic research. In addition, the terms 'older' and 'elderly' are used interchangeably in the literature (Greco, 1986), so this study adopts the same practice (Greco, 1986).

Second, this study investigates female consumers and excludes male participants. Many previous studies that observed older apparel consumers were conducted with female participants and revealed that older women can comprise a significant consumer group of their own. For example, Kozar (2005) found that older women show interest in fashionable clothing, for the importance of appearance remains strong despite the aging process. It was also found that older women actively purchase apparel for self-expression purposes (Lee, 2011). In the online fashion market, older women over 65 accounted for 552 million dollars in online apparel sales between 2008 and 2009 (Binkely, 2009). Therefore, as this study focuses on female consumers, its findings may not be applicable to older male consumers.

Third, this study is conducted with a Southeastern U.S. sample; thus, the findings may not be generalized to other regions in the USA. Because of the growing importance of older consumers and their impact on environmental sustainability, further studies should conduct cross-cultural examinations to generalize the findings.

Fourth, the experimental stimuli of this study are limited to the classic style of shirt. A shirt was selected as the experimental stimuli because the casual style as well as garments fitted to maximize comfort are among the most-worn apparel items by older women (Shim & Bickle, 1993). In order to gain more thorough knowledge about the purchase intentions of environmentally sustainable apparel, further research on various styles and more diverse items should be conducted.

Definitions of Key Terms

- Elderly Consumer Market: The market of older consumers who are over 65 years of age, based on common precedent in the literature (Drolet et al., 2007; Fung & Carstensen, 2003; John & Cole, 1986; Williams & Drolet, 2005; Yoon et al., 2005).

- Sustainable Development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (United Nations, 1987).

- Sustainability: Ability to enable sustainable development in terms of economic, environmental, and social sustainability (Adams, 2006; United Nations, 2005).

  - Environmental Sustainability: The ability to balance the extraction and regeneration of renewable resources for human needs and to minimize the extraction of non-renewable resources for human welfare (Goodland, 1995; Goodland & Daly, 1996).

  - Environmentally Sustainable Apparel Consumption: The consumption of apparel in keeping with the definition of environmental sustainability through both the material and process aspects, such as organic cotton, eco-friendly apparel, recycling, and second-hand clothing (Hiller Connell & Kozar, 2014; Council for Textile Recycling, 2014; Fletcher, 2008; Joergens, 2006; Muthu, 2014).

  - Organic Cotton: Cotton harvested without the use of chemical pesticides or fertilizers (Fletcher, 2008).

  - Eco-friendly Apparel: A shortened term for 'ecologically friendly' apparel. These are garments that are produced while minimizing the use of non-renewable

resources, energy, and waste in terms of environmental impact on the production

process, replacing harmful materials and processes with less harmful substitutes

where possible (Joergens, 2006; Muthu, 2014).

- Recycling: One of the environmental behaviors that entails reuse or donation

  instead of wastage or discarding (Council for Textile Recycling, 2014).

- Second-Hand Clothing: Clothing acquired through second-hand sources, such as

  consignment stores, garage sales, family, and friends, among others (Hiller

  Connell & Kozar, 2014).

- Socioemotional Selectivity Theory: A lifespan theory of motivation, which argues

  that the time perspective influences the formation of or change in people's

  motivations and goals (Carstensen, 1992).

  - Time Perspective: The perception of how much time is left in one's life.

  - Expansive Time Perspective: A time perspective that perceives an expansive

    remaining lifespan.

  - Limited Time Perspective: A time perspective that perceives a limited remaining

    lifespan.

  - Positivity Effect: An age-related tendency among older adults to prefer, pay

    attention to, and better remember positive over negative information during

    cognitive processing, as compared to younger adults (Turk-Charles, Reynolds, &

    Gatz, 2001; Isaacowitz, Wadlinger, Goren, & Wilson, 2006; Kennedy, Mather, &

    Carstensen, 2004, 2005, 2003; Reed & Carstensen, 2012)

- Rational Appeals: A type of appeal in advertising based on the belief that consumers make logical decisions; it presents messages about product quality, economy, value, and performance (Kotler & Armstrong, 1999).

- Emotional Appeals: A type of appeal attempting to evoke either negative or positive feelings to motivate a purchase decision (Kotler & Armstrong, 1999).

  - Positively Emotional Appeals: A type of emotional appeal in advertisements that attempts to elicit emotions that people want to keep, such as love, humor, pride, and joy (Kotler & Armstrong, 1999).

  - Negatively Emotional Appeals: A type of emotional appeal in advertisements that attempts to elicit emotions that people want to avoid, such as fear, guilt, and shame (Kotler & Armstrong, 1999).

Organization of the Study

This thesis comprises five chapters. Chapter I provides a brief background for the study, discussing the importance of studying environmentally sustainable apparel consumption among elderly consumers. Subsequently, research questions based on the identified research gaps are stated to help guide the study. Afterwards, the academic and practical contributions of this research are proposed in addition to its limitations. Finally, the definitions of key terms are outlined. Chapter II provides a general literature review of current trends and consumer behaviors in the elderly consumer market, findings from previous studies relevant to environmental sustainability, the socioemotional selectivity theory, and emotional versus rational appeals. Based on this review, ten research hypotheses are posited. Chapter III illustrates the research methodology that is utilized in

this study. The sample description, experiment stimuli, survey measurement, and data collection procedure are presented. Chapter IV provides the findings of hypotheses testing. Chapter V offers the conclusions of the study. It includes the discussion of the results of data analyses and hypotheses, their implications, limitations of the study, and suggestions for future research.

CHAPTER II

LITERATURE REVIEW

This chapter contains a literature review of the theoretical framework and major concepts used in this study. First, major concepts about older consumers and environmentally sustainable consumption are reviewed with an emphasis on the importance of the research theme. Second, the theoretical framework of socioemotional selectivity theory is discussed. Third, regarding advertisements, the concepts, comparison, and application of emotional versus rational appeals are examined. Then, the method of observing responses to advertising appeals is reviewed. Afterwards, based on the literature review, the hypotheses of the study are developed.

Older Consumers

The growing size of the elderly consumer market and its economic importance have amplified in response to the increasing population of older adults (Kohlbacher & Herstatt, 2011). Figure 1 presents the projected increase of older consumers over 65 years (U. S. Census Bureau, 2017). In 2017, they accounted for 15.63% of the population; in 2007, they only comprised 12.56%. In 2027, this number is expected to increase to 19.72%, which would comprise almost 20% of the population. As people live longer, a higher proportion of aged people now exists in the U.S. compared to that of past generations; thus, an aging society has emerged (Gunter, 2012; Kohlbacher & Herstatt, 2011). This aging society creates many opportunities for markets and industries, as older

consumers tend to exhibit high rates of consumption (Kohlbacher & Herstatt, 2011). Older consumers are described as a group of consumers with considerable spending power due to their active consumption in various sectors (Gunter, 2012; Kohlbacher & Herstatt, 2011; Rice, 1988; Solomon, 2013). According to Forster (2015), the incomes of people over 65 years accounts for 21.6% of the total income made in US, and their expenditures account for 24.2% of total expenditures. Specifically, about 18.6% of total dollars spent on clothing are spent by the 65-plus market. This portion is as large as that of any other age-based group.

In summary, the population of aged people over 65 is increasing, and as a result, these consumers spend large amounts of money and have become an important part of the consumer market. Given that people are living longer, there is a growing number of people over 65 who have money to spend; consequently, the older consumer market presents a new marketing opportunity for many industries (Kohlbacher & Herstatt, 2011; Moschis, 2003). This encourages researchers and marketers to focus on the distinct characteristics of older adults to devise effective marketing practices (Kohlbacher & Herstatt, 2011; Moschis, 2003). Therefore, the next section reviews the psychological characteristics and consumer behaviors of older adults.
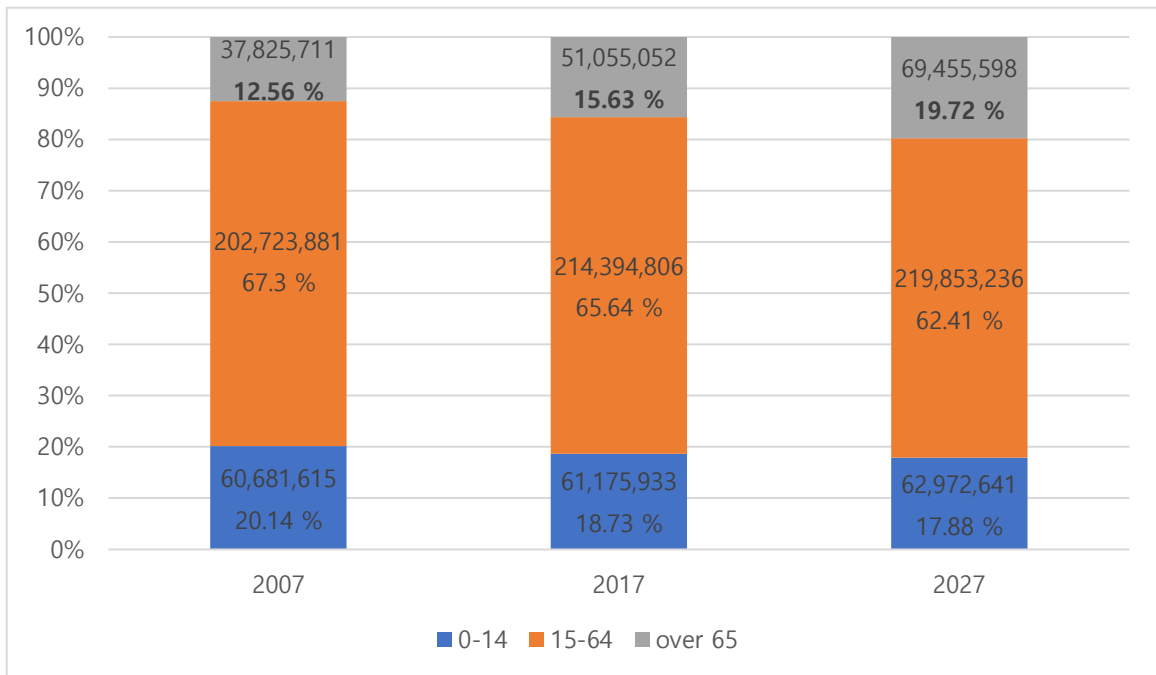
Figure 1. *Percentage of Age Population in 2007, 2017, and 2027*.

Developed by author based on U.S. Census Bureau (2017) data.

Psychological Changes by Aging

As people grow older, they confront various psychological as well as physical changes in terms of motivation and goals (Carstensen et al., 1999), cognition (Cabeza, 2002; Yoon et al., 2005), information processing and decision making (Yoon et al., 2005), and cognitive age (Wilkes, 1992). In this section, these factors are reviewed because they explain the behaviors of older consumers and their responses to advertising (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005; Yoon et al., 2005). This review illustrates the discernable traits of older consumers in terms of aging compared to younger generations.

Motivation and Goals

Motivation and goals can change with age because older adults experience different environments and situations over time (Carstensen, 2006). The motivation of older adults tends to be more emotionally-meaningful and present-oriented than that of younger adults (Carstensen, 1992). This type of motivation results in goals focused on achieving emotional meaning rather than acquiring useful information for the future (Carstensen, 1992; Carstensen et al., 1999). For example, older adults are less concerned with future goals; instead, they are motivated by meaningful messages and activities that offer relatively immediate benefits (Fung & Carstensen, 2003; Williams & Drolet, 2005). Accordingly, they pay attention to personal meaning, conveyed through time with close family and friends, positive feelings, or avoidance of depressing events (Carstensen et al., 1999). Because of their priority on personal meaning, they are more sensitive and skeptical about persuasive messages when the messages are personally relevant (Yoon et al., 2009). Because motivation and goals affect memory (Blaney, 1986), the next section discusses changes in memory and recall due to aging.

Memory and Recall

In psychological studies, changes in cognitive ability among older adults have been frequently examined; thus, memory and recall, which are included within the category of cognitive abilities, have been investigated as well. One of the main results of the research stream is that cognitive functions decrease due to aging because reduced hemispheric asymmetry occasions less lateralized activity of the prefrontal part, which results in older adults showing reduced cognitive ability (Cabeza, 2002). For example,

age-related decline of memory and recall, which are components of cognitive ability, has

been found (Cole & Houston, 1987; John & Cole, 1986). Long-term memory, which

consists of episodic and semantic memory, typically decreases with age (Park et al.,

1996). In particular, episodic memory, i.e., event-based memory that stores memories

related to experiences and personal episodes, presents age-related decline in the ability to

remember (Light, 1991).

However, subsequent studies on aging discovered that not all cognitive abilities

decline, and that memory and recall are influenced by emotions (Carstensen & Turk-

Charles, 1994). The ability to remember depends on the type of memory and the

situations in which they are created. Semantic memory, which refers to informational

facts and knowledge, is preserved because well-trained information, such as that involved

when typing or playing an instrument, remains intact despite aging (Krampe & Ericsson,

1996; Light, 1991). In terms of shopping condition, it is shown that older consumers can

remember products and prices as well as younger consumers can because of their

extensive experience and familiarity with grocery shopping contexts (Castel, 2005).

More recent studies have found that older adults exhibited better memory when

information was conveyed in more social and emotional ways (Rahhal, May, & Hasher,

2002). This can be explained by their motivations and goals, which influence memory

(Blaney, 1986). Older adults remember messages evoking emotions better than messages

offering information because of their goals that are oriented toward emotional meaning

(Fung & Carstensen, 2003). In other words, they tend to remember and recall affective

content better than informative content (Rahhal et al., 2002). The messages that evoke

emotions can include both inspiring positive feelings and cautionary negative feelings (Turk-Charles, Mather, & Carstensen, 2003; Mather & Carstensen, 2003; Mather & Carstensen, 2005). In particular, positive emotions are better preserved with age because older adults often do not desire to remember negative emotions, so they regulate these negative emotions better than younger adults (Turk-Charles et al., 2003; Turk-Charles et al., 2001; Gross, Carstensen, Pasupathi, Tsai, Skorpen, & Hsu, 1997; Mather & Carstensen, 2003, 2005).

Information Processing and Decision Making

Psychological changes in information processing and decision-making due to aging are discussed next. Previous research suggests that older adults devote more resources and time to the processing of emotions, thus showing higher consideration of emotions during information processing than younger adults (Carstensen, 1992). In other words, older adults tend to adopt more subjective and emotional information than do young adults, who are likely to engage in more objective and factual processing (Isaacowitz et al., 2000). Because older adults tend to experience some cognitive and performance-related limitations, they are more likely to depend on schema-based processing, or experience-based processing, compared to younger adults (Yoon, 1997). Accordingly, older adults often choose to rely on their own experiences and acquaintances rather than factual information when making decisions (Castel, 2005).

During their decision-making process, older adults tend to show higher avoidance of negative feelings. They are able to detect and estimate risks similarly to younger adults but show more avoidance with regard to perceived risks (Blanchard-Fields, Jahnke, &

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Camp, 1995), often preferring to postpone or devolve problems to avoid negative feelings, whereas younger adults tend to focus more immediately on solving such problems (Blanchard-Fields et al., 1995).

Cognitive Age

A noticeable feature among older adults is their perception of their own age. Cognitive age, which is a psychological concept, differs from chronological age, instead referring to how people perceive their age (Solomon, 2013). Researchers measure cognitive age based on six dimensions: how old one feels, how one looks, what one does, the interests that one has, how healthy one is, and how one thinks of his or her age (Wray & Hodges, 2008). Wilkes (1992) noted that cognitive age or self-perceived age may contribute more to explaining and understanding older consumers than chronological age.

Older adults are inclined to see and think of themselves as younger than their actual age, and this younger cognitive age consequently influences their consumer behavior. It has been observed through survey and analysis that the majority of elderly female participants perceive themselves as being at least five years younger than their chronological age (Wray & Hodges, 2008), and as a result, these older consumers often behave more like younger consumers (Lin & Xia, 2012). Older consumers who possess younger cognitive ages tend to avoid products for "old" people, perhaps as a self-defense mechanism against aging (Wilkes, 1992).

It has been found that the cognitive age of older consumers influences their fashion consumption as well. Lin and Xia (2012) studied the topic of cognitive age and purchase intent in terms of consumer fashion attitude and fashion behavior, both of which

were found to be related to cognitive age. Younger cognitive age often causes consumers to search more actively for fashion information, purchase more fashion products, and adopt new fashion products more quickly (Lin & Xia, 2012). When buying luxury fashion products, it was found that older people with younger cognitive ages exhibited more extrinsic motivation (e.g., seeking the latest fashion items, public self-consciousness, and status consciousness) than intrinsic motivation (Ki & Kim, 2016).

Elderly Consumer Behavior

Most older consumers are nearing retirement or have already retired, and their children have often moved out, meaning that the parents have fewer expenses to spend on their children (Kohlbacher & Herstatt, 2011). Accordingly, they now possess more free time and extra money to pursue new experiences, express themselves, and enjoy their lives. (Gunter, 2012; Kohlbacher & Herstatt, 2011; Solomon, 2013). In addition, over time, they tend to feel more relaxed and less concerned about how others may perceive them (Parment, 2013). They aspire to spend money on themselves and participate in various social and outdoor activities, hobbies, etc. (Kohlbacher & Herstatt, 2011; Gunter, 2012; Solomon, 2013). For example, they often choose high-quality health care services, participate in leisure and outdoor activities, and purchase more clothing (Kohlbacher & Herstatt, 2011). They often enjoy their lives by shopping for themselves as well (Kohlbacher & Herstatt, 2011).

Regarding purchasing behavior, older consumers are typically more skeptical and complex than younger consumers. They hold less favorable attitudes toward marketing and advertisements than members of younger generations (Roberts & Manolis, 2000).

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Furthermore, they are less likely to exhibit brand loyalty and more likely to evaluate carefully the quality of products (Dychtwald & Flower, 1989). They value the retail experience and in-store service more than younger adults, so their first act when purchasing usually involves meeting a trustworthy retailer (Parment, 2013) through whom they may obtain advice for optimal decision making; by contrast, for younger adults, the purchase process typically begins with selection of a product (Parment, 2013).

Although older consumers comprise one of largest demographics responsible for purchasing clothing and even though their consumption patterns differ from those of younger consumers, research on the clothing industry and consumption has primarily targeted younger consumers. Elderly consumers can easily be misjudged as showing little interest in fashion, but one prior study has suggested that they still pursue beauty and youth by expressing themselves and seeking social activities (Lee, 2011). Because they do not perceive themselves as elderly and because they tend to define their own identities with this pursuit, elderly consumers frequently purchase apparel to express their identity and look younger and more beautiful (Lee, 2011). This provides an academic justification for older adults being considered important consumers in the apparel industry. This study focuses on understanding their consumption of environmentally sustainable apparel based on their psychological background because their increased consumption power can have a greater effect on the environment than that of the younger adults.

Environmental Sustainability

The most commonly cited definition of sustainability is the ability to meet the needs of the present without compromising the ability of future generations to meet their

own needs, according to the Brundtland report (United Nations, 1987). Researchers have reached an agreement that sustainability comprises three pillars: environmental, social, and economic (Adams, 2006). Environmental sustainability considers limited resources and contemplates future livelihoods (Goodland, 1995; Goodland & Daly, 1996). Furthermore, it is suggested that environmental sustainability can include protection of raw material sources that are used to fulfill human needs as well as reduction of waste and pollution for the sake of human welfare (Goodland, 1995). From this perspective, environmental sustainability is defined as the ability to reduce waste emissions through balance between extraction and regeneration of renewable resources, for instance through the use of recyclable materials and renewable or alternative energy, and the minimized extraction of non-renewable resources, such as pollutant substances and depletable energy sources (Goodland & Daly, 1996).

Both industry and consumption are responsible for using limited natural resources and generating waste and pollution, which counteract the goals of environmental sustainability (Hiller Connell & Kozar, 2012). Industries use raw and harmful chemical materials to manufacture products and distribute them to consumers (Hiller Connell & Kozar, 2012). Consumption generates solid waste, such as disposable packaging and the discarded products themselves (Hiller Connell & Kozar, 2012). For certain products, chemical materials may be used by consumers to preserve or maintain good condition (Hiller Connell & Kozar, 2012). For example, apparel consumers often use chemical materials when cleaning their apparel items (Gwilt, 2014; Hiller Connell & Kozar, 2012; Strähle & Müller, 2017).

The next section discusses how the apparel industry and its consumption release high quantities of pollutants and emissions into the environment (Strähle & Müller, 2017). Fashion markets typically exhibit the following characteristics: short life cycles, high volatility, low predictability, and high impulse purchasing (Christopher, Lowson, & Peck, 2004). As a result, the apparel business must confront several environmental concerns. Figure 2 presents these issues according to each stage of the apparel supply chain, from raw materials to final consumption and disposal. Specific explanations of the issues are provided by stage in the next section.
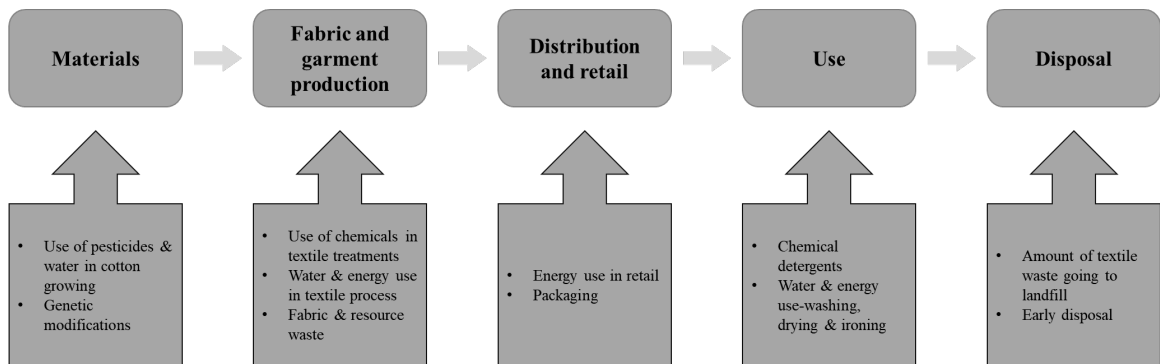
Figure 2. Clothing Supply Chain and Consumption and Its Environmental Issues.
Modified from Gwilt (2014), p. 14-15.

Environmental Sustainability in Apparel Industry

The apparel industry generates a large amount of pollution and waste throughout the supply chain (Gwilt, 2014; Strähle & Müller, 2017). The first three processes in Figure 2 explain how the supply side of the apparel industry is associated with environmental issues (Strähle & Müller, 2017). For example, growing cotton requires water and pesticides, and some natural fibers are grown through DNA modification

(Gwilt, 2014; Strähle & Müller, 2017). When producing textiles and garments, materials such as water and energy are utilized in high quantities, and the remaining fabric and resources are wasted (Gwilt, 2014; Strähle & Müller, 2017). Not only production but also retailing causes pollution and waste because product packaging and energy use are required in retail (Gwilt, 2014; Strähle & Müller, 2017).

The key characteristics of apparel products—short life cycles, high volatility, and low predictability—causes this damage to the environment to occur more rapidly (Christopher et al., 2004; Strähle & Müller, 2017). Because of these short life cycles and high volatility, some apparel companies attempt to provide an agile response to customers by offering fast-fashion products (Jung & Jin, 2014). However, it is difficult to precisely predict consumer needs and to offer agile and appropriate responses, so the gap between prediction and actual customer needs can result in unsold products that become waste (Strähle & Müller, 2017).

The apparel industry has attempted to become more environmentally sustainable by using eco-friendly materials, reducing consumption volume, and promoting recycling (Hiller Connell, 2011). Recently, textile and apparel companies have endeavored to become more environmentally sustainable and eco-friendly by developing sustainability strategies and implementing strategic energy sourcing (Strähle & Müller, 2017). For example, VF Corporations (VF Corporations, 2015), a lifestyle apparel, footwear, and accessories company with more than 30 brands, has already implemented sustainable supply chain and retailing to increase energy efficiency, reduce waste, and source materials locally.

Another example is Patagonia, an American outdoor clothing company. This company focuses on sustainable activities that affect environmental impact, auditing the materials and processes used when manufacturing products and taking responsibility for the entire lifecycle of its products and the use of all resources in its facilities (Patagonia, n.d.). Specifically, it has organized a Worn Wear program to provide customers with opportunities to keep their gear in use for longer periods of time through repair, reuse, and recycling. Patagonia demonstrates efforts to develop new ecological fabrics, such as hemp, 100% organic cotton, 100% recycled fabric, recycled man-made fabric, etc. The company additionally uses non-GMO materials, no synthetic fertilizers, no pesticides, and no herbicides when growing natural fibers and producing textiles (Patagonia, n.d.). This highly advanced technology expands and varies its footprint, allowing for high-quality fabric without creating waste or overuse of materials (Patagonia, n.d.). Based on these practices, Patagonia promotes sustainability not only on the materials side in production but also on the retailing side. Two Patagonia retail stores have been retrofitted with LED lighting, saving 25 percent energy in Ventura and 35 percent in Denver (Patagonia, n.d.). Its new store in Chicago has been established with installed LED lighting as well (Patagonia, n.d.).

Environmental Sustainability in Apparel Consumption

The last two procedures detailed in Figure 2 summarize how environmental issues emerge in the consumption side. Investigations of environmentally sustainable apparel consumption have focused on the material and consumption sides. The material side includes consumer purchases of organic cotton or other originally grown fabrics and eco-

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friendly garments, whereas the consumption side consists of consumer use of recycled fabric, second-hand clothing, and long-lasting classic style apparel. Previous studies on environmentally sustainable apparel consumption are organized in Table 1.

Table 1

Previous Studies on Environmentally Sustainable Consumption of Apparel and Textiles

	Materials		Consumption	
	Organic Cotton	Eco-friendly	Recycling	Others
Researchers (year)	Ellis et al. (2012) Fletcher (2008) Gam et al. (2010) Hustvedt & Dickson (2009) Kang et al. (2013)	Niinimäki (2010) Lee et al. (2012) Kim et al. (2012)	Daneshvary et al. (1998) Domina & Koch (2002) Niinimäki (2010)	Hiller Connell (2011) Gam (2011) Kozar & Connell. (2013) Jung & Jin (2014)

Source: Developed by the author.

Organic Cotton Consumption

Some researchers observed environmental consumption through organic cotton (Ellis et al., 2012; Fletcher, 2008; Gam, Cao, Farr, & Kang, 2010; Hustvedt & Bernard, 2008; Kang et al., 2013). Among organic textiles and apparel, there is no use of chemical pesticides or fertilizers when nurturing 100% organic cotton. About 93% of toxicity can be reduced when converting to organic cotton from non-organic cotton (Fletcher, 2008). Moreover, attitudes toward environmentally sustainable apparel and textiles can be predicted by consumer knowledge about, perceived consumer effectiveness of, and perceived personal relevance to 100% organic cotton (Kang et al., 2013).

It is indicated that consumers are willing to pay more for environmentally sustainable clothing with organic cotton. For example, consumers are willing to pay premium prices for organic socks (Hustvedt & Bernard, 2008) and up to 25% more for an organic cotton shirt compared to a conventional shirt (Ellis et al., 2012).

Eco-friendly Apparel Consumption

Eco-friendly (short for ecologically-friendly) materials reduce harmful chemicals and negative environmental impact (Kim & Damhorst, 1999; Niinimäki, 2010). In other words, eco-friendly apparel can refer to garments that are produced with minimal use of non-renewable resources, energy, and waste and by replacing harmful materials and processes with less harmful substitutes when possible (Joergens, 2006; Muthu, 2014). Natural fabric dye can be one way to avoid the use of non-renewable resources, such as artificial dyes, which are problematic for the environment (Muthu, 2014).

Some studies investigate environmentally sustainable consumption though eco-friendly apparel. Cowan and Kinley (2014) found that when consumers feel social pressure to be environmentally conscious and/or guilty when they make non-environmentally friendly choices, they are more likely to purchase eco-friendly apparel. The effectiveness of the green campaign as a marketing strategy has been established by measuring consumer responses to eco-friendly apparel consumption (Lee et al., 2012). Some researchers have attempted to discover the barriers to eco-friendly apparel consumption, one of which is the possibility that eco-friendly apparel is not enough to express a consumer's identity or satisfy his or her aesthetic preferences (Butler & Francis, 1997; Niinimäki, 2010; Hiller Connell & Kozar, 2012). For example, Gam (2011) found

that consumers were more interested in their clothing being fashionable than eco-friendly. An important implication of this finding is that eco-friendly designers also need to account for consumer interest in contemporary fashion.

Recycling

The material side, however, may not be sufficient to measure or investigate consumer behavior toward environmentally sustainable apparel and textile because such behavior may be more frequently linked to health, as consumer purchase intentions toward organic products are often related to well-being and health (Magnusson, Arvola, Hursti, Aberg, & Sjödén, 2003). The degree to which people recycle and value recycling may reflect their overall behavior toward environmental sustainability. According to Council for Textile Recycling (2014), approximately 15% of post-consumer textiles in terms of clothing, footwear, accessories, bedding, towels, etc., are donated, reused, or recycled; this means that the remaining 85% of post-consumer textile products are not recycled and face the end-of-life stage, often being sent to landfills.

Consumer recycling behavior is strongly linked to knowledge about and concern for the environment (Granzin & Olsen, 1991; McCarty & Shrum, 1994), and it has been shown that environmentally sustainable consumption is related to environmental quality value, which includes recycling behavior (Granzin & Olsen, 1991; Poortinga, Steg, & Vlek, 2004). Granzin and Olsen (1991) found that environmental knowledge about protections can predict behavior in terms of recycling household waste. Poortinga et al. (2004) found that respondents who consider environmental quality to be important through activities such as recycling showed higher levels of participation in positive

environmental behavior, such as energy-saving consumption. It is indicated that this subjective norm is the key factor for motivating recycling behavior by stimulating positive attitudes toward recycling (Wan, Shen, & Choi, 2017).

Other Environmentally Sustainable Consumption Choices

In this section, other methods of consuming environmentally sustainable apparel, consuming second-hand clothing, purchasing high-quality and long-term classic style garments, and considering purchases from environmentally conscious brands are reviewed. First, the acquisition of clothing through second-hand sources, such as second-hand shops, garage sales, family, or friends, can be another form of environmentally sustainable apparel consumption because this method reduces waste by re-using apparel (Connell & Kozar, 2014).

Second, purchasing high-quality and limited-quantity clothing is another environmentally sustainable practice (Connell & Kozar, 2014) in addition to slow fashion consumption, which emphasizes the high quality of products that last longer (Jung & Jin, 2014). To ensure that the clothing lasts long enough to satisfy consumer demand, some researchers assert that classic designs are important regardless of particular trends or fashion (Jung & Jin, 2014; Kozar & Connell, 2013).

The third method involves indirect ways of purchasing clothing, for instance by acquiring clothing from environmentally conscious brands (Hiller Connell, 2011). Purchasing apparel while considering environmentally sustainable brands that utilize recyclable and organic materials or reduce the use of chemical substances can be a subsidiary method of participating in sustainable consumption (Hiller Connell, 2011).

In summary, environmentally sustainable apparel consumption can be achieved through consumption of naturally grown fabric, recycling or recyclable apparel, eco-friendly garments, and other environmental consumption choices (e.g., second-hand clothing or slow-fashion products). In order to fully understand environmentally sustainable apparel consumption, all these components should be examined. In this research, the survey questions that address environmentally sustainable consumption include the components reviewed in this section. The next section discusses the identified variables related to purchase intentions toward environmentally sustainable apparel.

Factors Related to Environmentally Sustainable Apparel Products

Purchase intentions for environmentally sustainable apparel products have been studied based on the Theory of Planned Behavior (TPB) (Ajzen, 1985; Ajzen & Fishbein, 1980). The variables in TPB—attitude, subjective norm (SN), and perceived behavioral control (PBC)—can predict environmentally sustainable consumption through purchase intention (de Lenne & Vandenbosch, 2017; Kang et al., 2013; Ko, 2012; Ko & Jin, 2017).

First, environmental attitude can predict purchase intention for environmentally sustainable products, including apparel goods (Barber, Taylor, & Deale, 2010; Kang et al., 2013; Kim & Damhorst,1998; Shim, 1995; Suki & Suki, 2015;). Especially for apparel products, Shim (1995) showed that consumer clothing disposal patterns can be predicted by their general environmental attitudes and waste recycling behaviors. Kang et al. (2013) found that college students who have more positive attitudes toward environmental apparel show higher purchase intentions toward apparel products made with organic cotton.

Second, regarding subjective norms, it has been examined whether social pressure induces purchase intention toward eco-friendly apparel and whether guilt moderates the relationship between social pressure and purchase intention toward environmentally sustainable apparel (Cowan & Kinley, 2014). For American consumers, subjective norms are less important than other factors, such as hedonic value and uniqueness of second-hand clothing purchase intention (Xu, Chen, Burman, & Zhao, 2014).

Third, perceived behavior control, which is related to self-efficacy beliefs, can predict intentions to purchase sustainable apparel (de Lenne & Vandenbosch, 2017; Kang et al., 2013; Ko & Jin, 2017). Especially for US consumers, external PBC created significantly more influence than internal PBC in terms of purchase intention toward environmentally sustainable clothing (Ko & Jin, 2017). Through the TPB, other variables are found to be associated with or predict purchase intention toward environmentally sustainable apparel. In particular, it is observed that purchase intention toward environmentally sustainable apparel can be increased by environmental knowledge as it relates to attitude, SN, and PBC of TPB (Kang et al., 2013). Accordingly, pre-education about the environmental can help consumers behave in more eco-friendly ways (Hansen & Skytte, 1998; Simmons & Widmar, 1990). In terms of market implications, offering knowledge through green campaigns can encourage consumers to purchase eco-friendly apparel (Lee et al., 2012).

Furthermore, self-relevance and self-effectiveness can also predict sustainable consumption (Kang et al., 2013). It is examined that environmentally sustainable

consumption increases when consumers perceive that the environmental issues are self-related and that their behaviors affect environmental sustainability (Kang et al., 2013).

Environmental knowledge is also positively related to environmental behavior and behavioral intention (Kang et al., 2013; Kozar & Hiller Connell, 2013). Environmental knowledge is the ability to understand environmental issues and/or eco-friendly choices, such as organic cotton and recycling (Haron, Paim, & Yahaya, 2005; Kang et al., 2013; Kim & Damhorst, 1998; Kozar & Hiller Connell, 2013). If consumers are aware of environmental issues, they are likely to have stronger behavioral intention to act in environmentally friendly ways, such as purchasing sustainable apparel (Kang et al., 2013; Kozar & Hiller Connell, 2013). Despite the disconnect between environmental knowledge and actual environmental consumption, consumers are often concerned about environmental consumption if they are knowledgeable about similar issues (Kim & Damhorst, 1998). Consumers indicated that their main sources of environmental knowledge come from the media, and their activities could certainly enhance environmental knowledge (Haron et al., 2005).

Environmental concern is another variable that relates to purchase intention toward environmentally sustainable clothing. Consumers with high levels of concern about environmental production show greater willingness to pay more for environmentally friendly apparel (Kim & Damhorst, 1998).

Fashion consciousness also functions both as a predictor and barrier of purchase intention toward environmentally sustainable apparel (Cho, Gupta, & Kim, 2015; Gam, 2011). In terms of its role as a predictor, researchers have identified that fashion

conscious consumers are more likely to have stronger purchase intentions toward environmentally sustainable apparel (Cho et al., 2015; Gam, 2011). However, other previous research has found that sustainable clothing can be negatively perceived as less fashionable, requiring an internal intervention to purchase environmentally sustainable clothing (Hiller Connell, 2010). Based on these findings, in this study, fashion consciousness will be used a moderator that can influence the relationship between the time perspective and environmental apparel consumption of older consumers in H1a. Also, it will be controlled as a covariate in H2, H2a-H2c, H3, and H3a-H3c, for fashion consciousness can impact the differences among consumer purchase intentions through several advertising appeal types.

While TPB and other diverse factors have been studied, no particular factors have been found to explain the environmentally sustainable consumption and purchase intentions of older adults toward environmentally sustainable apparel products. This study therefore investigates a specific theory for use in describing this concept. The next section introduces the theory and its relevant research.

Socioemotional Selectivity Theory (SST)

To understand older consumers and the effect of their environmentally sustainable consumption on apparel, the socioemotional selectivity theory is used in the design of the study. Furthermore, the positivity effect, which has been identified in studies of SST, is also used for hypothesis development. This section reviews these concepts and then extensively cites previous studies detailing each concept.

Socioemotional selectivity theory (SST) was developed by Carstensen (1992) and elaborated by Carstensen et al. (1999). SST is a lifespan developmental theory about motivation and goals and is mainly used for understanding psychological and developmental behavior, especially among older adults (Carstensen et al., 1999; Carstensen, 1992). Lifespan development is defined as the physical and cognitive changes that occur throughout a person's life, and the lifespan developmental theory provides a framework for understanding human aging (Damon & Lerner, 2006). Therefore, SST offers a framework for understanding human motivation by aging.

The essence of SST is that time perspective has an influence on forming or changing people's motivation and goals (Cartstensen, 1992). Time perspective, the key concept of SST, entails how people perceive the rest of their lives, and SST categorizes time perspective in two ways: limited versus expansive. For example, time perspective influences the reason why people value making social connections (Carstensen, 1992; Carstensen et al., 1999).

Table 2 organizes the concept of SST by comparing limited and expansive time perspectives. People with limited time perspectives tend to set present-oriented and emotionally-meaningful goals, defined as "goals related to feelings, such as balancing emotional states or sensing that one is needed by others," whereas people with expansive time perspectives tend to set future-oriented or knowledge-related goals, defined as "goals that optimize the future, often through acquisition of new information" (Carstensen, 1992; English & Carstensen, 2014; Fung & Carstensen, 2003; Hogan, Mata, & Carstensen, 2013).

According to SST, the pursuit of goals centered on emotional meaning is connected to improved emotional experiences, and the process of behaving based on emotionally meaningful goals is regarded as a form of selection in developmental psychology because people structure their lives according to these socioemotional goals (Sims, Hogan, & Carstensen, 2015). In terms of social selectivity, when making social connections, people with limited time perspectives choose to spend time with close family or friends to pursue emotionally meaningful and present-related goals. On the contrary, people with expansive time perspectives are more likely to choose to meet and become acquainted with others for social networking purposes to enhance personal growth or future development, which is a knowledge-related and future-oriented goal (Carstensen et al., 1999; Carstensen, 1992; English & Carstensen, 2014). Regarding cognition, people with limited time perspectives focus on emotion-based messages, whereas people with expansive time perspectives are drawn to knowledge-based information because people harboring expansive time perspectives tend to prepare for the future (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005). Fung and Carstensen (2003) showed that people with limited time perspectives often remember more effectively using emotions and are more easily persuaded by emotionally meaningful messages, while people with expansive time perspectives often have better memories using reason and are more easily persuaded by rational appeals. Furthermore, people with limited time perspectives typically recall emotional statements better than knowledge-related content, whereas people with expansive time perspectives show stronger aptitude with recalling informational sentences than emotionally meaningful

messages (Drolet et al., 2007; Williams & Drolet, 2005). These previous studies that observed responses to advertisement appeal types discovered that people with limited time perspectives were attracted more to emotional appeals, whereas rational appeals worked more effectively on people with expansive time perspectives (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005).

SST also explains how people make decisions based on their perceived lifespan. People with limited time perspectives rely more on past experiences when making choices (Berg, Meegan, & Klaczynski, 1999; Gilinsky & Judd, 1994). Because they prefer to avoid negative experiences in order to maintain their current feelings, they may not seek to obtain new information or undergo new experiences (Berg et al., 1999; Gilinsky & Judd 1994). On the contrary, people with expansive time perspectives show a desire to secure a guarantee of a better future life than that of the present, so they pursue satisfaction from expected situations in the future more than from current feelings (Drolet et al., 2007; Carstensen, 1992). They attempt to collect as much data as possible when making decisions to plan for an optimal decision; as a result, they may use past negative experiences as lessons for the future (Berg et al., 1999; Gilinsky & Judd 1994).

Previous studies found that older adults are likely to have more limited time perspectives, so they tend to invest in emotionally meaningful behavior and prefer to spend more time with close family and friends (Carstensen, 1992). In addition, prior studies established that older adults are more likely to pursue emotion-based behavior, whereas younger adults tend to pursue knowledge-based behavior (Drolet et al., 2007; Williams & Drolet, 2005; Carstensen, 1992).

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Furthermore, researchers found that older adults often show a "positivity effect" during tests of SST (Mather & Carstensen, 2005). The "positivity effect" refers to an age-related difference in preference for positive over negative stimuli in cognitive processing, with older adults remembering more positive than negative information when compared to younger adults (Turk-Charles et al., 2001; Isaacowitz et al., 2006; Kennedy et al., 2004; Mather & Carstensen, 2005; Mather & Carstensen, 2003; Reed & Carstensen, 2012). In other words, older adults often attend to and remember positive emotions over negative emotions. For example, older adults may manifest this positivity effect through long-term autobiographical memories that show positivity bias by regulating current negative emotions (Kennedy et al., 2004). Older adults often prefer to avoid situations of social conflict that would cause them to experience negative affect (Birditt, Fingerman, & Almeida, 2005). Furthermore, older adults tend to remember and recall negative situations and feelings to a lesser degree than younger adults after confronting and experiencing such situations (Luong & Turk-Charles, 2014). By showing more effective regulation of negative feelings, older adults show their ability to maintain positive feelings longer than younger adults during tedious tasks (Levenson, Carstensen, Friesen, & Ekman, 1991). SST is therefore chosen for this study to provide explain the environmentally sustainable apparel consumption of older consumers and their response to advertising appeals. In the next section, advertising appeal types and responses to such advertising are reviewed.

Table 2

Comparison of Limited and Expansive Time Perspective in SST

	Time Perspective	
	Limited	**Expansive**
Definition	Perceive rest of their lifespan is 'limited'	Perceive rest of their lifespan is 'expansive'
Mostly perceived by	Older adults	Younger adults
Preference of Social Relationship	Close family and friends	Personal connections for future
Motivation & Goals	Emotionally meaningful goals Present-oriented goals	Knowledge-related goals Future-oriented goals
Information Processing	Focus on emotion-based messages	Focus on knowledge-based messages
Appeals in Ads	Emotional appeals	Rational appeals
Response to Negative Experience	Avoid negative experience to keep current feeling	Take negative experience as a lesson for the future
Decision Making	Based on their own existing experience	Try to collect as much data as possible for better decision

Source: developed by the author based on literature review.

Appeals in Advertisements

In this section, a literature review of advertising appeals is provided. Specifically, emotional versus rational appeals in advertising are introduced and compared. Cognitive and behavioral responses to these advertising appeals are also mentioned.

Appeal Types of Advertisements

Advertisement messages can communicate in several ways, primarily through emotional and rational appeals. Rational appeals are based on the belief that consumers make logical decisions; accordingly, these appeals provide information related to a

product's quality, economy, value, or performance (Kotler & Armstrong, 1999).

Emotional appeals evoke either positive or negative feelings that induce consumer

purchases (Kotler & Armstrong, 1999). Positive emotional appeals attempt to evoke

feelings that people desire to have, such as love, humor, pride, and joy (Kotler &

Armstrong, 1999). Negative emotional appeals attempt to arouse feelings that people

desire to avoid, such as fear, guilt, and shame, such that consumers feel inclined to

purchase a product to avoid feelings that would be caused by its lack (Kotler &

Armstrong, 1999).

Environmental appeals can be expressed by both emotional and rational messages

in advertisements. Emotional messages in environmental advertisements include feelings

that consumers may gain or avoid by purchasing and owning the products (Banerjee,

Gulas, & Iyer, 1995; Edell & Burke, 1987; Williams & Drolet, 2005). Positive emotional

appeals can be expressed through feelings of warmth, touch, sentiment, happiness, joy,

and delight, that consumers may obtain through purchasing items (Edell & Burke, 1987;

Williams & Drolet, 2005). Negative emotional appeals can include down-heartedness,

depression, sadness, fear, and guilt, which consumers may wish to avoid through such

purchases (Banerjee, Gulas, & Iyer, 1995; Edell & Burke, 1987; Williams & Drolet,

2005). Rational appeals involve information about product benefits in terms of

environmental sustainability (Kim & Damhorst, 1999).

Because Edell and Burke (1987) established the effectiveness of feelings in

advertisements by observing attitudes, researchers have compared the effectiveness of

emotional versus rational appeals. However, there is a consensus that both are operative

and that neither is absolutely superior over the other. Researchers have found that the degree of success of emotional versus rational appeals differs according to consumers' goals (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005), cultural backgrounds (Albers-Miller & Stafford, 1999), personal traits (Zhang et al., 2014), and the product category involved (Zhang et al., 2014).

Fung and Carstensen (2003) specifically observed the relationship between goals and the relative effectiveness of emotional versus rational appeals. They found that people with emotionally meaningful goals (e.g., "balancing emotional states or sensing that one is needed by others") are more easily persuaded by emotional appeals than people with knowledge-related goals (e.g., acquisition of new information) because they show better memory and preference for the emotional appeals conveyed by slogans with product images. As this experiment incorporated gender-neutral apparel products, it was discovered that people's goals can impact their affinity toward emotional versus rational advertising appeals in the context of apparel products. Williams and Drolet (2005) reached similar conclusions. They showed that people seeking emotionally meaningful goals, such as love and care, were more attracted by and exhibited better recall of emotional appeals, whereas people with knowledge-related goals, such as gathering new information, had positive attitudes toward and better recall of rationally appealing statements. Drolet et al. (2007) further compared hedonic versus utilitarian product categories and found that the relationship between emotional versus rational appeals and consumer goals did not show any differences in terms of hedonic (greeting cards and cologne) versus utilitarian product categories (investment services and pain relievers). In

other words, the consumer goals influenced their responses to advertisement appeal types regardless of product category. This literature review demonstrates how the two advertisement appeal types perform differently according to a consumer's particular motivation and goals (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005; Zhang et al., 2014).

Response to Advertising Appeals

Regarding how advertising works, Vakratsas and Ambler (1999) constructed a framework based on literature review. They summarized that advertising appeals can affect consumer behaviors through intermediate types of cognitive response, such as awareness, memory, attitude, and so on (Vakratsas & Ambler, 1999). In other words, exposure to advertisements can cause certain behavioral responses, like purchases, through cognitive response (Vakratsas & Ambler, 1999). In addition, they found that these individual cognitive and behavioral responses to advertising appeals are also mediated by one's motivation and ability to process information (Petty & Cacioppo & 1984; MacInnis & Jaworski 1989).

In accordance with the findings of Vakratsas and Ambler (1999), researchers have investigated the relationship between consumer cognition and response to advertising appeals (Drolet et al., 2007; Fung & Carstensen, 2003; Stout & Leckenby, 1986; William & Drolet, 2005). For example, memory or recall (Drolet et al., 2007; Stout & Leckenby, 1986; William & Drolet, 2005), persuasion (Clary et al., 1994; Fung & Carstensen, 2003), and information processing (Mitchell, 1980) are shown to be associated with the consumer response to advertising appeals. Furthermore, consistent with the framework of

Vakratsas and Ambler (1999), which found that advertising appeals ultimately impact consumer behavior and behavior intention, the observation of purchase intention is prevalent throughout the literature (Ruiz & Sicillia, 2004; Stout & Leckenby, 1986). This study investigates the effect of advertising appeals by inquiring about purchase intentions toward apparel products that appear in stimulated advertisements.

Hypotheses Development

Ten hypotheses were devised through literature review of each concept and the theoretical framework. Figure 3 represents the research framework and the hypotheses that show how the variables are related to each other.
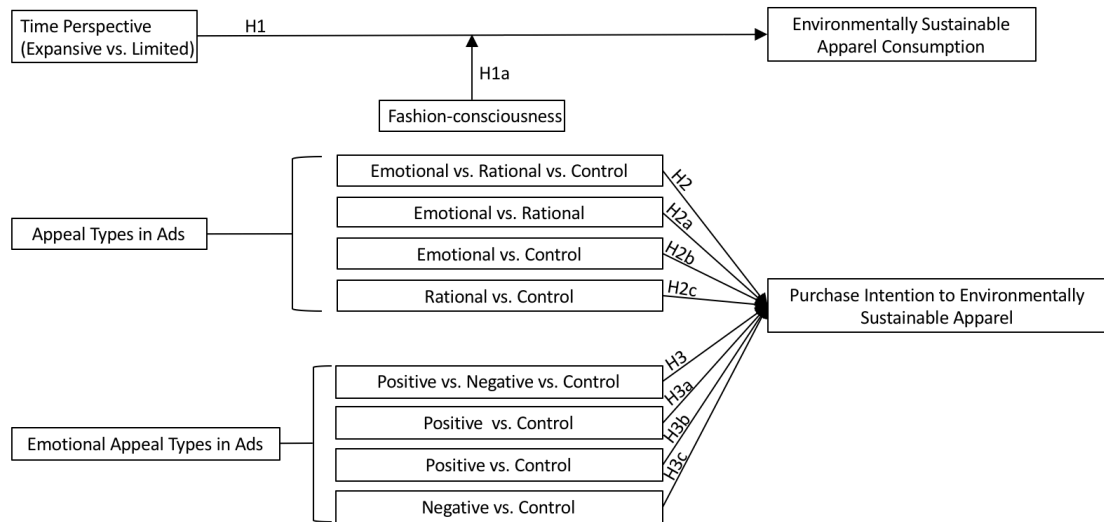

Figure 3. *Proposed Research Frameworks and Hypotheses*

Time Perspective and Environmentally Sustainable Apparel Consumption

Based on SST, this study predicts that time perspective impacts environmentally sustainable apparel consumption. More specifically, people with expansive time

perspectives will show higher levels of environmentally sustainable apparel consumption than people with limited time perspectives because of their different goals. SST categorizes time perspective as either limited or expansive, and this difference impacts people's goals. People with limited time perspectives tend to possess emotionally meaningful or present-oriented goals, while people with expansive time perspectives possess knowledge-related or future-oriented goals. This study anticipates that the perception of a longer lifespan and future-oriented goals influences people to view environmentally sustainable consumption more favorably.

Specifically, this study posits that people with an expansive time perspective will be more likely to consume environmentally sustainable apparel because sustainability, by definition, encompasses concern for the future (United Nations, 1987). Environmental sustainability embraces elements that benefit the future through reduced use of limited natural resources (Goodland & Daly, 1996). Accordingly, behavior such as protecting the environment and showing concern for limited natural resources is maintained and continued into future generations (Kortenkamp & Moore, 2006). Indeed, people who perceive that they can actively engage with their future lives often consider environmental sustainability more than people who think that they are less connected to their future lives (Joireman, Van Lange, & Van Vugt, 2004). Furthermore, people who possess a stronger perspective of the future exhibit more responsible environmental attitudes and behaviors compared to people who focus on the present; this is typically manifested through the abnegation of immediate benefits in favor of long-term interests for future generations (Joireman et al., 2004; Milfont, Wilson, & Diniz, 2012).

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On the contrary, it is assumed that the limited time perspective is less associated with environmentally sustainable apparel consumption because it generates present-oriented goals that focus on benefits for today rather than the future (Carstensen, 1992; Carstensen, 1996; Carstensen et al., 1999). Therefore, people with limited time perspectives may exhibit lower levels of environmentally sustainable apparel consumption.

Based on the above discussion, this research predicts that older female consumers with expansive as opposed to limited time perspectives will show more environmentally sustainable behavior because of their future-oriented goals and will therefore exhibit higher levels of consumption of environmentally sustainable apparel. Therefore, H1 is constructed as follows:

H1. Older female consumers who have expansive time perspectives show higher levels of environmentally sustainable apparel consumption than those who have limited time perspectives.

Moderating Effect of Fashion Consciousness between Time Perspective and Environmentally Sustainable Apparel Consumption

The literature review revealed that fashion consciousness has a positive relationship with eco-friendly clothing (Cho et al., 2015; Gam, 2011). That is, fashion conscious consumers purchase environmental apparel more than those who show less concern about fashion (Cho et al., 2015; Gam, 2011). Similarly, consumers show weaker desire to buy eco-friendly apparel when the items do not look fashionable, for

unfashionability functions as a barrier against purchasing sustainable clothing (Cho et al., 2015; Gam, 2011). This is because consumers often feel that they cannot sufficiently express themselves or satisfy their aesthetic preferences through eco-friendly clothing (Butler & Francis, 1997; Niinimäki, 2010; Hiller Connell & Kozar, 2012).

This study, therefore, hypothesizes that fashion consciousness moderates the relationship between the time perspective and environmentally sustainable apparel consumption of older consumers. Although elderly consumers with expansive time perspectives tend to consume environmentally sustainable apparel because of their future-oriented goals, they may not desire to purchase items that they consider unfashionable. Likewise, their intent to purchase environmentally sustainable apparel would increase when apparel items are more fashion conscious. Accordingly, H1a was proposed.

H1a. The positive relationship between time perspective and environmental apparel consumption will be moderated by fashion consciousness.

Appeal Types in Advertisements and Purchase Intention for Environmentally Sustainable Apparel

H2 is grounded on the literature review of eco-friendly marketing and advertising appeals. First, emphasis on eco-friendly products can encourage higher purchase intention toward apparel products among consumers (Cowan & Kinley, 2014; Lee et al., 2012). Second, the superiority of emotional versus rational advertising appeals depends on the specific consumer (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005; Zhang et al., 2014) and product category (Zhang et al., 2014).

Environmental appeals are effective when they elicit positive responses in consumers (Lee et al., 2012). These consumers' eco-friendly choices become more pronounced when they perceive pressure or guilt related to environmental-consciousness (Cowan & Kinley, 2014). This study thus assumes that people show greater purchase intention toward apparel products if they are exposed and attracted to environmental messages. These messages can involve emotional or rational appeals, similar to general advertising messages. Emotional appeals in environmental advertisements can target feelings that consumers desire to obtain and/or avoid by purchasing the products, such as love, guilt, and so on (Banerjee et al., 1995; Edell & Burke, 1987; Williams & Drolet, 2005). Rational messages can attract consumers by explaining product information and benefits in terms of environmental sustainability (Kim & Damhorst, 1999). According to the literature review, which revealed that environmental appeals are influential to purchase intention and conveyed with emotional and/or rational messages, the diverse types of advertisements operate to varying degrees. In particular, emotional messages, rational messages, and control messages with no environmental appeals have differing levels of influence on the consumer purchase intentions toward environmentally sustainable apparel. Thus, H2 is developed as follows:

H2. Emotional, rational, and control advertising appeals impact purchase intention toward environmentally sustainable apparel to varying degrees.

H2 suggests that emotional, rational, and control advertising appeals impact purchase intention to varying degrees; by extension, H2a–H2c were proposed, each

comparing two advertisement appeals against one another. H2a, which compares emotional and rational appeals, is based on SST and literature review. This study hypothesizes that older consumers have higher purchase intention toward environmentally sustainable apparel when they are exposed to emotional appeals rather than rational appeals in advertisements. Previous studies of SST discovered that older adults tend to have limited time perspectives (Carstensen, 1992, Carstensen, 1996; Carstensen et al., 1999). Because the limited time perspective is related to emotionally meaningful goals (Carstensen, 1992, Carstensen et al., 1999), they are likely to be more reactive to emotional than rational appeals. Goals affect cognitive responses such as attention (Blaney, 1986; Zaichkowsky, 1986), memory (Blaney, 1986), persuasion (Zaichkowsky, 1986), and information processing (Petty & Cacioppo, 1984). As these cognitive functions relate to responses to advertisements (Vakratsas & Ambler, 1999), it is expected that consumer goals can also affect responses to advertising appeals.

Indeed, researchers have found that, using time perspective, they can predict responses to advertising appeals by examining peoples' different goals (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005). People with limited time perspectives tend to have emotionally meaningful goals, so they are typically more attracted to emotional appeals (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005). They prefer, are more persuaded by, and better remember emotional advertising appeals over both rational advertising appeals and control appeals with no messages (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005). On the contrary, people with expansive time perspectives show more affinity toward rational

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messages in advertisements because of their knowledge-related goals (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005).

The literature review of older consumers' psychological changes and of advertising appeals support this hypothesized idea. Cognitive factors influence responses to advertising appeals (Vakratsas & Ambler, 1999), and cognitive ability becomes more connected to emotions in diverse ways over the span of one's life (Löckenhoff, 2017). In other words, people devote more resources and manage cognition toward emotional processing as they age (Carstensen, 1992), so their responses to advertising appeals are often related to emotions (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005). Therefore, older adults can be influenced more by emotional appeals in advertising than rational appeals due to their cognitive tendencies. For instance, older adults remember emotionally meaningful information better than other types of information (Carstensen & Turk-Charles, 1994), causing better memory or recall of emotional messages in advertising. In summary, because older consumers pursue emotionally meaningful time, experiences, behaviors, and so on, messages addressing present happiness or avoidance of sadness will be more effective than information related to product features or benefits. As older consumers who have emotionally meaningful goals are influenced by emotions in their cognitive responses, they are expected to exhibit higher purchase intentions toward emotional appeals than rational appeals. Behavioral response is mediated by cognitive response toward advertising (Vakratsas & Ambler, 1999); the purchase intentions of older consumers, therefore, can be related to emotions. This study, therefore, presumes that emotional appeals enhance the purchase intentions of

older consumers toward environmentally sustainable apparel more than rational appeals. Accordingly, H2a is stated below:

>*H2a*. Emotional appeals with messages addressing environmental sustainability will impact the purchase intentions (PI) of older female consumers toward environmentally sustainable apparel more than rational appeals.

H2b, which compares emotional and control appeals, is also based on SST and literature review and suggests that environmental appeals can effectively persuade consumers to have positive responses toward products (Lee et al., 2012). Previous research on SST has discovered that older consumers are more likely to have limited time perspectives and emotionally meaningful goals (Carstensen, 1992). Hence, they are attracted to messages that appeal to emotions (Fung & Carstensen, 2003; Williams & Drolet, 2005; Drolet et al., 2007). In addition to H2, which discusses the differing impact levels of the three advertisement types on purchase intentions toward environmental apparel, H2b posits that elderly consumers respond to emotional messages because they are motivated by emotionally meaningful implications. In terms of environmental appeals, people show stronger desire to purchase apparel products if they are exposed and attracted to the environmental messages (Cowan & Kinley, 2014; Lee et al., 2012); thus, these messages must appeal to emotions in order to enhance purchase intentions. Thus, H2b is developed as follows:

H2b. Emotional appeals with environmentally sustainable messages will impact

the purchase intentions (PI) of older female consumers toward environmentally

sustainable apparel more than control appeals.

H2c investigates the comparative usefulness of rational versus control advertising

appeals. Rational appeals are grounded upon the belief that consumers make decisions

logically using knowledge related to the products, so they attract consumers by offering

information about product quality, economy, value, or performance (Kotler & Armstrong,

1999). Environmentally rational appeals offer messages related to the product itself and

its benefits in terms of environmental sustainability (Kim & Damhorst, 1999).

Environmental knowledge—that is, an understanding of environmental issues

and/or choices, such as the use of organic cotton and recycling (Haron et al., 2005; Kang

et al., 2013; Kozar & Hiller Connell, 2013)—can enhance purchase intentions toward

environmentally friendly apparel (Kang et al., 2013; Kozar & Hiller Connell, 2013).

Previous research has found that consumers learn about environmental issues from

media, and their environmental knowledge increases when they are exposed to

environmental activities (Haron et al., 2005). Therefore, advertising would be an

effective way to enhance environmental knowledge. When consumers become more

aware of environmental issues and consumption choices, they exhibit higher purchase

intentions toward eco-friendly apparel (Kang et al., 2013; Kozar & Hiller Connell, 2013),

so providing information about the environmental aspects of apparel products to

consumers would encourage purchase intentions toward environmentally sustainable apparel, compared to providing no information (i.e., control).

> *H2c*. Rational appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older female consumers toward environmentally sustainable apparel more than control appeals.

Emotional Appeals Types in Advertisements and Purchase Intentions toward Environmentally Sustainable Apparel

Following H2, this study compares positive emotional, negative emotional, and control advertising appeals in the environmental context. H3 is grounded on the positivity effect in SST and the literature review of emotional advertising appeals. Emotional appeals evoke either positive or negative feelings related to consumer purchases (Kotler & Armstrong, 1999) and can be further framed positively or negatively. In the context of environmental advertisements, positive emotional appeals include messages that evoke positive feelings, such as joy, that people desire to maintain (Edell & Burke, 1987; Williams & Drolet, 2005). On the contrary, negative emotional appeals can include environmental messages that arouse unpleasant feelings, such as sadness and guilt, and persuade consumers to avoid these feelings by purchasing environmentally friendly products (Banerjee et al., 1995; Edell & Burke, 1987; Williams & Drolet, 2005). Previous research shows that the pressure of environmental-consciousness and guilt over purchasing non-environmentally friendly products can enhance purchase intention toward environmentally friendly items (Cowan & Kinley, 2014).

Older consumers are motivated by emotionally meaningful goals according to SST, and they aim to maintain their positive emotions and regulate negative feelings because of the positivity effect (Turk-Charles et al., 2001; Isaacowitz et al., 2006; Kennedy et al., 2004, 2005, 2003; Reed & Carstensen, 2012). As positive emotional appeals help preserve positive moods and negatively emotional appeals assist with regulating negative feelings, older consumers may be persuaded to purchase environmentally friendly products. However, the effectiveness of advertising appeals differs by consumer (Drolet et al., 2007; Fung & Carstensen, 2003; Williams & Drolet, 2005; Zhang et al., 2014). It is revealed that both positively and negatively framed environmental advertising could provoke physiological responses, but the degree of physiological change due to positive and negative images may be different (Gam, Ko, & An, 2016). Therefore, three types of advertisements—with no environmental messages, positively framed environmental messages, and negatively framed environmental appeals—operate differently on purchase intention toward environmentally sustainable apparel. Accordingly, H3 is constructed as follows:

H3. Positive emotional, negative emotional, and control advertising appeals produce different degrees of impact on purchase intentions toward environmentally sustainable apparel.

Detailed in H3 and based on the positivity effect in SST, H3a–H3c were developed. This research expects that positive emotional appeals work more effectively to enhance the purchase intentions of older consumers toward environmentally

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sustainable apparel than negative emotional appeals. The positivity effect indicates the tendency of older adults to focus on, prefer, remember, and recall positive over negative emotions (Turk-Charles et al., 2001; Isaacowitz et al., 2006; Kennedy et al., 2004; Mather & Carstensen, 2005; Mather & Carstensen, 2003; Reed & Carstensen, 2012). Previous studies have found the positivity effect manifested in the context of memory, recall, and attention in information processing (Isaacowitz et al., 2006; Kennedy et al., 2004; Mather & Carstensen, 2005; Mather & Carstensen, 2003; Reed & Carstensen, 2012), and so it can be inferred that positivity effect can influence the response of older adults to advertisements.

Decision-making is driven by the process of reducing negative emotions and acquiring positive emotions (Anderson, 2003). Particularly, older adults express a stronger desire to avoid negative feelings than to acquire positive emotions by regulating the emotion process (Gross, 1998); as a result, they may react sensitively to negative feelings by actively regulating and making decisions to avoid them (Kennedy et al., 2004; Levenson et al., 1991). Because environmental issues are related to negative situations, such as exhaustible and limited resources, mineral depletion, lack of unpolluted nature, and loss of diversity (Kasser & Kanner, 2004), it is possible that older adults desire to avoid negative emotions by ignoring these issues or devolving the situations (Blanchard-Fields et al., 1995) so that these negative messages can be less prominent in their memory (Turk-Charles et al., 2003; Mather & Carstensen, 2003, 2005).

In short, as older adults tend to forget negative emotions and are better at regulating them due to the positivity effect (Turk-Charles et al., 2003; Gross, Carstensen,

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Pasupathi, Tsai, Skorpen, & Hsu, 1997; Kennedy el al., 2004; Mather & Carstensen, 2003, 2005; Reed & Carstensen, 2012), it is expected that evoking positive feelings is more effective at increasing purchase intentions of older consumers toward environmentally sustainable apparel. Therefore, older adults may show higher purchase intentions toward environmentally sustainable apparel when encountering positive emotional appeals compared to negative emotional appeals. Based on the above discussion, H3a is established as follows:

> *H3a*. Positive emotional appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older female consumers toward environmentally sustainable apparel more than negative emotional appeals.

Similar to the comparison between positive emotional and negative emotional messages, positive emotional appeals are expected to induce higher purchase intentions toward environmentally sustainable apparel than control advertising appeals. The positivity effect encourages older consumers to focus on and remember these positive emotional appeals (Isaacowitz et al., 2006; Kennedy et al., 2004; Mather & Carstensen, 2005; Mather & Carstensen, 2003; Reed & Carstensen, 2012), so advertisements that engender positive emotions with their environmental messages would be better remembered than advertisements with no environmental messages. The responses to the advertisements were observed through consumer cognitive reactions (Stout & Leckenby, 1986; Fung & Carstensen, 2003; Drolet et al., 2007; William & Drolet, 2005); these cognitive responses, in the form of awareness and memory, affect consumer behaviors

(Vakratsas & Ambler, 1999). Also, these responses ultimately impact purchase intentions (Ruiz & Sicillia, 2004; Stout & Leckenby, 1986). Therefore, as positive emotional advertising appeals successfully cause cognitive responses because of the positivity effect, older consumers would likely show greater purchase intentions toward sustainable apparel in response to positive emotional appeals with messages about sustainability than advertisements with no environmental messages (i.e., control appeals).

> *H3b*. Positive emotional appeals with environmentally sustainable messages will
>
> impact the purchase intentions (PI) of older female consumers toward
>
> environmentally sustainable apparel more than control appeals.

H3c compares the success of negative emotional and control appeals through the positivity effect in SST. Because of the positivity effect, negative emotions are regulated (Kennedy et al., 2004; Levenson et al., 1991). Basically, the decision-making process is managed by regulating negative emotions and acquiring positive emotions (Anderson, 2003). In particular, older adults show stronger desire to avoid negative feelings (Gross, 1998), so they actively regulate negative emotions and make decisions to avoid them (Kennedy et al., 2004; Levenson et al., 1991).

Negative emotional advertising appeals include messages implying that consumers can avoid negative feelings by purchasing the products in question (Banerjee et al., 1995; Edell & Burke, 1987; Williams & Drolet, 2005). In other words, consumers perceive that buying the products would help them prevent unpleasant emotions.

Accordingly, H3c investigates the effectiveness of negative emotional advertisements compared to those with no appeals (i.e., control appeals).

H3c. Negative emotional appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older female consumers toward environmentally sustainable apparel more than control appeals.

CHAPTER III

METHODOLOGY

This chapter explains the methods of testing the hypotheses (H1, H1a, H2, H2a-H2c, H3, and H3a-H3c) developed in Chapter II. These methods include stimuli development, survey instrument development, and data collection. First, the stimuli development process conducted through the pilot interview and manipulation check is illustrated. Second, the development of the measurements is described. Then, the results of data collection through a pretest and main survey are reported.

Stimuli Development

Pilot Interview

The purpose of the pilot interview was (1) to select the final stimuli set and statements to measure emotional, rational, positive emotional, and negative emotional appeals and (2) to evaluate the appropriateness and readability of advertisements that will be used in the pretest and experiments. As the purpose of this study is to investigate the purchase intentions of older consumers toward environmentally sustainable apparel, older female adults aged 65 years and above were selected for the data collection process.

Two female adults over 65 years old were recruited via flyers after Institutional Review Board (IRB) approval was received (see Appendix A for the IRB official letter) for participation in the pilot interview. One participant identified as a Caucasian/white woman between 75 and 79 years old. She worked as a part-time employee after retiring

from her previous job. The other participant was between 65 and 69 years old, identified as black/African American, and worked as a full-time employee. As compensation for participation, a $10 retail gift card was provided to each participant.

Each of two interviews was conducted in person for about 15 to 20 minutes in a public library or cafeteria. The participants were informed about the purpose of the study, IRB review, and the procedure of the interview. Before the interview, permission to audio-record the interview conversation was attained. The participants completed the demographic information form before the conversation. Then, each of the participants was shown the ten stimuli advertisements, i.e., two sets of neutral, emotional, rational, positive emotional, and negative emotional advertisements (see Appendix B). The researcher asked questions such as "How does the left advertisement (i.e., emotional) differ from the right advertisement (i.e., rational)?" and "Which do you prefer and why?" The sample questions asked during the pilot interview are provided in Appendix C, and the audio-recorded conversation of the interview was transcribed verbatim (see Appendix D).

Regarding the apparel selection, casual clothing was selected to explore the consumption and purchase intention of elderly consumers toward environmentally sustainable apparel because casual wear is comfortable and commonly worn by older adults (Shim & Bickel, 1993). A contradictory discovery regarding the preference between fashion and classical items has been made, with approximately 80 percent of elderly participants aged 65 years or older reporting that they prefer stylish clothes, although approximately 75 percent of elderly participants actually chose the classic style

(Chowdhary, 1988). Accordingly, two shirts were selected to fill this gap (sources of the images are provided in Appendix B). Shirt 1 is a monocolored shirt with no patterns that resemble the classic style of the basic item. Shirt 2 is a patterned shirt that resembles fashion items with a flower pattern. Images of each shirt were obtained online (see Appendix B), and the models' faces in the photographs were removed from both sets to ensure neutrality.

The results of the pilot interview showed that the participants preferred classic style shirts with no patterns because they looked comfortable and were more common. This outcome is consistent with that of a previous study, which found that elderly consumers over 65 years purchase classic over fashion items because of the more practical applications of such clothing, although they profess to like the stylish items (Chowdhary, 1988).

The advertising appeals consisted of five manipulated advertisements, and all of the stimuli except the control appeal required appeal statements. Therefore, to accompany the chosen set of shirt images in the pilot interview, different types of appeal messages (i.e., emotional, rational, positive emotional, and negative emotional) were offered. There were two sets of each appeal message, resulting in a total of eight that were asked to participants.

The participants correctly explained the differences among the four advertisement types (emotional, rational, positive, and negative) after being exposed them as the researchers intended. For example, they regarded emotional statements as more

emotional than rational and vice versa after being exposed to both sets of advertisements. They also reported positive and negative messages correctly in both sets.

Because the participants recommended emphasis on how consumers can "feel" by purchasing and wearing the shirts, many of the statements were modified to add the word "feel." General statements included in all types of stimuli except for the control stimulus were modified to include the following terms: eco-friendly, recyclable, naturally grown, and high-quality clothing. For the emotional, rational, positive emotional, and negative emotional statements, which are labeled in green under the images of the shirts, the participants particularly focused on and perceived some adjectives as key words, such as delighted, happy, enjoyable, afraid, no worries, practical, and realistic; some could not understand the meaning of certain words, such as "hedonic." Accordingly, the statements were revised to retain the key words and remove words that were more difficult to understand based on their answers. Regarding layout, it was suggested that important statements should be more centered for readability purposes. Based on the pilot interview results, five types of advertisements were finalized. The selected stimuli together with the finalized statements from the pilot interview are indicated in Table 3.

Table 3

Selected Stimuli Advertisements

Stimuli advertisements	Testing
Neutral (Control)	H2–3

Emotional	Rational	H2

Table 3

Selected Stimuli Advertisements (Cont'd)

Stimuli advertisements		Testing
Positively Emotional	Negatively Emotional	H3
Apparel industry makes the land and the ocean sick. However, our shirt is eco-friendly and sustainable. **Feel delighted and happy** We use only naturally grown fibers and recyclable fabric *No GMOs. No Toxins. Just Clothes.*	Apparel industry makes the land and the ocean sick. However, our shirt is eco-friendly and sustainable. **Feel less worried and guilty** We use only naturally grown fibers and recyclable fabric *No GMOs. No Toxins. Just Clothes.*	

Manipulation Check Survey

Following the pilot interview, a manipulation check survey was conducted to examine whether the manipulated stimuli were well perceived by the respondents. Table 4 shows measurements for manipulation check. A total of six items, each of three items, measuring emotional versus rational appeals in stimuli advertisements were borrowed from previous studies. Four items were borrowed from Williams and Drolet (2005), and two items were borrowed from Zhang et al. (2014). The items were modified into the study's context of shirts instead of brands or products. For example, one item from Williams and Drolet (2005), "This advertisement made me focus on my feelings about the brand," was revised as follows: "This advertisement made me focus on my feelings about the shirt." After being exposed to a stimulus, respondents answered how much they thought the stimulus indicated an emotional or rational appeal using a 7-point Likert scale (1 = "strongly disagree" to 7 = "strongly agree").

In order to measure positive versus negative emotional appeals, a total of four items, each of two items, was used. The items were borrowed from Williams and Drolet (2005) and are indicated in Table 4. The respondents answered how much they felt positive emotions or how much they felt they could avoid negative emotions after being exposed to each stimulus using a 7-point Likert scale (1 = "not at all" to 7 = "extremely").

The 40 respondents were recruited in person by contacting churches and senior centers in North Carolina after IRB approval was received (see Appendix E for the IRB official letter). The respondents were exposed to one of four advertisements (i.e.,

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emotional, rational, positive emotional, and negative emotional appeals); ten people were randomly assigned to each of the advertising appeals. They explained how much they agreed with each statement indicated in Table 4 after being exposed to the advertisements. All of the survey questionnaires with IRB stamp are attached in Appendix F. The manipulation check survey took approximately 3–5 minutes per respondent, and four out of forty randomly chosen participants received gift cards valued at $10 as incentives after the survey.

It was confirmed that each stimulus (emotional, rational, positive emotional, and negative emotional) decided by the pilot interview was regarded as intended. In the independent sample t-test shown in Table 5, the emotional and rational advertisements were significantly different in that the emotional advertisement was regarded as emotional and the rational advertisement was perceived as rational to the respondents ($\bar{X}_{emotional} = 4.83$, $\bar{X}_{rational} = 3.20$, $t = 2.36$, $p < .05$). The positive and negative advertisements also significantly differed from each other such that the respondents agreed that the positive advertisement appealed to positive emotions ($\bar{X}_{positive} = 5.10$) and that the negative advertisement appealed to avoiding negative feelings ($\bar{X}_{negative} = 3.25$). The difference between the positive and negative appeals was significant, supporting the selection of advertising appeals ($t = 2.36$, $p < .05$) (see Table 5)

Table 4

Summary of Manipulation Check Measures, Scale Items, Sources, and Testing

Measures/scale and examples of scale items		Source
Emotional vs. Rational Appeals/7-pt Likert		Modified from Williams & Drolet (2005); Zhang et al. (2014)
Emotional	1. This advertisement made me focus on my feelings about the shirt.	
	2. This advertisement is directed at making me feel something about the shirt.	
	3. This advertisement has a very strong appeal to my emotions.	
Rational	1. This advertisement is directed at making me think something about the shirt.	
	2. This advertisement made me focus on my thoughts about the shirt.	
	3. This advertisement contained a lot of rational information.	
Positively vs. Negatively Emotional Appeals/7-pt Likert		Williams & Drolet (2005)
Positively Emotional	1. This advertisement focused on how I could feel positive emotions.	
	2. This advertisement focused on how I could feel pleasant emotions.	
Negatively Emotional	1. This advertisement focused on how I could avoid feeling negative emotions.	
	2. This advertisement focused on how I could avoid feeling unpleasant emotions	

Table 5

Manipulation Check Results: T-Tests for Advertising Appeals Validation

Group	Mean	SD	t-value	df	p-value
Emotional	4.83	1.18	2.36	18	.03*
Rational	3.20	1.85			
Positive	5.10	2.10	2.36	18	.03*
Negative	3.25	1.34			

Note: *p<.05

Survey Instrument Development

For the manipulation check, four measurements were used: emotional, rational, positive emotional, and negative emotional advertising appeal items. The main survey included four measurements: environmentally sustainable apparel consumption, future time perspective (FTP), purchase intention, and fashion consciousness. The measurement items, scales, and sources of all measurements in the pretest and the main survey are summarized in Table 6.

Environmentally Sustainable Apparel Consumption

Ten items measuring environmental apparel consumption scale were borrowed from Kim and Damhorst (1998) because these items represented the definition of environmentally sustainable apparel consumption in this study. The scale items, which included questions about organic cotton, eco-friendly apparel, recycling, and second-hand clothing apparel, were selected based on the definition of environmentally sustainable apparel consumption in this study, i.e., consumption of apparel in keeping with the definition of environmental sustainability through both the material and process aspects, such as organic cotton, eco-friendly apparel, recycling, and second-hand clothing (Hiller

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Connell & Kozar, 2014; Council for Textile Recycling, 2014; Fletcher, 2008; Joergens, 2006; Muthu, 2014). For example, in terms of recycling, one item stated, "I buy apparel made from recycled material." Each item was measured on a 7-point Likert scale (1 = "strongly disagree" to 7 = "strongly agree").

Future Time Perspective

Ten items related to the future time perspective (FTP) scale developed by Carstensen (1995) and Carstensen and Lang (1996) assessed the individual's perception of his or her remaining time to live (Carstensen, 1995). Respondents were asked to answer how each statement about time perspective felt true for them. Future time perspective was measured on a 7-point Likert scale ranging from "very untrue" (1) to "very true" (7).

Fashion Consciousness

Fashion consciousness was considered a moderator in H1a and a control variable in H2–H3. To measure consumer fashion consciousness, a scale was borrowed from Tigert, Ring, and King (1976). The scale consisted of six items, through which the respondents could express how much they agreed with the statements.

Purchase Intention

Purchase intention, which is defined as a consumer's objective behavioral intention toward a product (Ajzen & Fishbein, 1980), has been measured in various ways. In this study, two scales were selected and combined to measure purchase intention, with each scale consisting of three items. The measurements were taken from Madden, Ellen, and Ajzen (1992) and Putrevu and Lord (1994) and modified to fit the context of shirts.

The first scale, borrowed from Madden et al. (1992), was used because it is based on the theory of planned behavior (TPB), which has been actively applied and researched for investigations of environmentally sustainable apparel consumption and purchase intention (de Lenne & Vandenbosch, 2017; Kang et al., 2013; Ko & Jin, 2017). The scale from Putrevu and Lord (1994) was utilized because it was developed to analyze purchase intention in an advertising context, which is similar to this study. In addition, these two scales indicate future willingness to purchase, not intent to repurchase. As the items were modified to fit the context of shirts, one of the items, for example, was stated as follows: "It is very likely that I will buy this shirt." The entire modified scale composed of six items asked how much the respondents agreed with each statement using a 7-point Likert scale (1 = "strongly disagree" to 7 = "strongly agree").

Demographic Variables

Demographic variables included age, race, employment status, education level, and income level. The respondents offered their specific ages, but other demographic questions asked them to choose from the options provided. Among the items, education level was used as a covariate in H2–H3. It has been revealed that education is positively related to environmental behavior across cultures (Chankrajang & Muttarak, 2017; Meyer, 2015). Because respondent education level can influence environmental purchase intentions and prevent investigation of purchase intention by advertisements, education level was controlled in H2 and H3.

Table 6

Summary of Main Survey Measures, Scale Items, Sources, and Testing

Measures (# of items) Scale	Examples of scale items	Source
Future Time Perspective (10) 7-pt Likert	Many opportunities await me in the future.	Carstensen & Lang (1996)
	I expect that I will set many new goals in the future.	
	My future is filled with possibilities.	
	Most of my life lies ahead of me.	
	My future seems infinite to me.	
	I could do anything I want in the future.	
	There is plenty of time left in my life to make new plans.	
	I have the sense time is running out.	
	There are only limited possibilities in my future.	
	As I get older, I begin to experience time as limited.	
Environment-ally Sustainable Apparel Consumption (8) 7-pt Likert	I buy apparel made from recycled material.	Modified from Kim & Damhorst (1998)
	I buy second-hand apparel.	
	I purposely select fabrics that require cooler washing temperature, shorter drying time, or less ironing.	
	I avoid an apparel product because of environmental concerns.	
	I select apparel that you can wear over a longer term compared to trendy apparel that goes out of style quickly.	
	I buy clothing made of organically grown natural fibers.	
	I buy apparel with low impact or no dye processing.	
	I buy apparel with environmentally friendly labeling or packaging techniques.	
Fashion consciousness (6) 7-pt Likert	I usually have one or more outfits of the very latest style.	Tigert et al. (1976)
	An important part of my life and activities is dressing smartly.	
	I like to shop for clothes.	
	I like to think I'm a bit of a swinger.	
	For my fashion needs, I am increasingly shopping at boutiques or fashion specialty stores rather than department stores.	
	When I must choose between the two, I usually dress for fashion, not comfort.	
Demographics	Age, race, employment, education level, and income	Author

Pretest

Following the manipulation check, the pretest survey was performed in order to identify unexpected problems in survey design issues before the actual survey was released. A total of 25 female older adults recruited in North Carolina did not report any problems related to the survey. Thus, the questionnaire was used in the main survey with no changes. The next section describes the procedure taken for the main survey.

Main Survey

Data Collection

For the actual experiments, a total of 200 respondents were recruited from senior centers, senior resource centers, churches, retirement communities, and YMCAs in North Carolina. The recruitment was conducted after IRB review, and each site approval letter was submitted to the IRB (see Appendix G for the IRB official letter). Data were collected from organizations across race, income level, and education level. The main survey was conducted to test the hypotheses. The survey took approximately 10–15 minutes per respondent, and after the survey, five out of 200 randomly selected participants were provided with gift cards valued at $10 as incentives. Appendix H shows the questionnaire with IRB stamp used in the main survey.

Regarding procedure, each respondent was asked to complete the questionnaires about environmentally sustainable apparel consumption, FTP scale, and fashion consciousness. Next, the respondents were exposed to advertisements as part of the experiment. They were randomly assigned to one of the advertising appeal types, i.e., emotional, rational, positive emotional, negative emotional, or neutral (control).

Afterwards, the respondents answered questions about purchase intention for the shirts shown in the advertisements. Lastly, the respondents provided demographic information about their age category, race, income level, and education level.

Descriptive Analysis

Among the 200 responses that were randomly assigned to one of the five cells (emotional, rational, positive emotional, negative emotional, and control), 46 were deleted because they were incomplete (missing data) or inattentive (e.g., 1, 1, 1, 1, 1, ... for all questions), as these responses could have influenced the normality of our data (Dillman, Smyth, & Christian, 2008). Thus, 154 responses were used for testing the hypotheses. Table 7 explains the number of responses and the descriptive statistics of the study. Each cell has between 30–33 usable responses, which is higher than the recommended minimum of 30 responses per cell suggested by Hair, Black, Babin, and Anderson (2010). Overall, 116 out of 154 participants were white, and 133 out of 154 were retired participants, which was relatively skewed. Both income and educational level showed normal distributions.

Table 7

Summarizes the Descriptive Statistics for Each Group

Variable	Emotional (30)		Rational (30)		Positive (33)		Negative (30)		Control (31)		Total (154)
	n	%	n	%	n	%	n	%	n	%	n
Race											
White	12	50	21	70.0	30	93.8	26	86.7	27	87.1	116
Black	15	40	7	23.3	2	6.1	3	10.0	4	12.9	31
Asian	3	10	0	0.0	0	0.0	1	3.3	0	0.0	4
Hispanic	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	2	6.7	0	0.0	0	0.0	0	0.0	2
Missing	0	0	0	0.0	1	3.0	0	0.0	0	0.0	1
Total	30	100	30	100.0	33	100.0	30	100.0	31	100.0	154
Employment											
Full time	0	0.0	0	0.0	1	3.0	1	3.3	1	2.2	3
Part time	2	6.7	2	6.7	5	15.2	0	0.0	2	6.5	11
Retired	25	83.3	25	83.3	27	81.8	29	96.7	27	87.1	133
Not employed	3	10.0	2	6.7	0	0.0	0	0.0	0	0.0	5
Others	0	0.0	1	3.3	0	0.0	0	0.0	1	3.2	2
Missing	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Total	30	100.0	30	100.0	33	100.0	30	100.0	31	100.0	154
Income level											
Less than $20,000	5	16.7	7	23.3	3	9.1	3	10.0	2	6.5	20
$20,000 to $49,999	7	23.3	13	43.3	7	21.2	6	20.0	11	35.5	44
$50,000 to $79,999	8	26.7	1	3.3	8	24.2	6	20.0	8	25.8	31
$80,000 to $100,000	1	3.3	0	0.0	4	12.1	5	16.7	3	9.7	13
More than $100,000	3	10.0	1	3.3	5	15.2	3	10.0	3	9.7	15
Missing	6	20.0	8	26.7	6	18.2	7	23.3	4	12.9	31
Total	30	100.0	30	100.0	33	100.0	30	100.0	31	100.0	154

Table 7

Summarizes the Descriptive Statistics for Each Group (Cont'd)

Variable	Emotional (30)		Rational (30)		Positive (33)		Negative (30)		Control (31)		Total (154)
	n	%	n	%	n	%	n	%	n	%	n
Education											
Less than high school	1	3.3	4	13.3	0	0.0	0	0.0	0	0.0	5
High school	8	26.7	11	36.7	3	9.1	9	30.0	9	29.0	40
College	14	46.7	11	36.7	18	54.5	11	36.7	17	54.8	71
Masters	6	20.0	3	10.0	9	27.3	7	23.3	4	12.9	29
Ph.D.	1	3.3	1	3.3	2	6.1	3	10.0	1	3.2	8
Missing	0	0.0	0	0.0	1	3.0	0	0.0	0	0.0	1
Total	30	100.0	30	100.0	33	100.0	30	100.0	31	100.0	154

CHAPTER IV

DATA ANALYSIS AND RESULTS

In this chapter, the results of the hypothesis testing are reported. First, reliability

checks for each survey instrument are provided. Afterwards, data analysis for the ten

hypotheses is provided, and a summary of all hypothesis testing is provided at the end of

this chapter.

Reliability Test

The reliability for all measurement scales was examined before testing the

hypotheses. Table 8 indicates that the reliability results of the measurement scales were

acceptable by showing that the Cronbach's α-values ranged from .78 to .94.

Table 8

Results of Reliability Test for Scales

Scale (Items)	*Mean*	*SD*	*Cronbach's α*
Environmental Apparel Consumption (8)	4.48	1.85	.78
Future Time Perspective (10)	4.22	1.88	.82
Purchase Intention (6)	3.80	1.93	.94
Fashion Consciousness (6)	3.49	1.92	.81
Manipulation Check for Emotional (3)	4.83	1.18	.75
Manipulation Check for Emotional (3)	3.20	1.85	.87
Manipulation Check for Emotional (2)	5.10	2.10	.99
Manipulation Check for Emotional (2)	3.25	1.34	.74

The discriminant validity of the constructs was tested to ensure that they were

unrelated. Table 9 displays the mean, standard deviation, and Pearson correlations among

the constructs in the hypotheses. The correlation coefficient of any two constructs should

be below .80 to substantiate discriminant validity (Hair et al., 2010). As shown in Table

9, the discriminant validity of the constructs is established because all correlations

between any two constructs were below .80. Thus, the constructs are not related.

Pearson's product correlations were also used to test for potential multicollinearity, which

causes less accuracy in predicting the dependent variable using the independent variable

if an outcome variable can be explained by variables other than the independent variable.

Potential multicollinearity was determined by examining if correlations were below

+/- .90 (Hair et al., 2010). The correlations among the measures ranged from -.13 to .38,

meaning that multicollinearity was not present.

Table 9

Means, Standard Deviations, and Pearson Correlations among the Variables used in

Hypotheses Testing

Variables	Mean	SD	Correlation			
			1	2	3	4
Environmental Apparel Consumption	4.48	1.5	1			
Fashion consciousness	3.49	1.37	.23**	1		
Education Level	2.97	.89	-.10	-.13	1	
Time Perspective	4.22	1.16	.19*	.38***	-.08	1

Note: *$p<.05$, **$p<.01$, ***$p<.001$

Results of Hypothesis Testing

Regression analyses were utilized to test H1, which examines the relationship between time perspective and environmentally sustainable apparel consumption, and H1a, which investigates the moderating effect of fashion consciousness. ANCOVA (Analysis of Covariance) tests were used to test H2, H2a–H2c, H3, and H3a–H3c. The hypotheses compared the effectiveness of different advertising appeals with covariates of fashion consciousness and education level. SPSS was used to test all proposed hypotheses.

Testing the Effect of Time Perspective on Environmentally Sustainable Apparel Consumption (H1) and the Moderating Effect of Fashion Consciousness (H1a)

First, H1 hypothesized that female older consumers who have expansive time perspectives would participate more in environmentally sustainable apparel consumption, and this was tested by simple regression analysis. Then, H1a tested the moderating effect of fashion consciousness on the relationship between time perspective and environmentally sustainable apparel consumption. To test the effect of a moderator that affects the direction and/or strength of the relation between independent variables (i.e., time perspective) and a dependent variable (i.e., environmentally sustainable apparel consumption) (Baron & Kenny, 1986), a moderated regression analysis was proposed. The main effect and moderating effect interaction terms between independent variables and the moderating variable (i.e., fashion consciousness) were built in the three regression equations as follows:

Model 1: $y = b_0 + b_1 X$

Model 2: $y = b_0 + b_1 X + b_2 Z$

Model 3: $y = b_0 + b_1 X + b_2 Z + b_3 XZ$

y = dependent variable (i.e., environmentally sustainable apparel consumption)

x = independent (predictor) variable (i.e., time perspective)

z = independent (moderator) variable (i.e., fashion consciousness)

xz = interaction between predictor (i.e., time perspective) and moderator (i.e., fashion consciousness)

b_0 = intercept

b_1 = regression coefficient

Model 1 indicates the relationship between time perspective and environmentally sustainable apparel consumption, and Models 2 and 3 are related to moderating effect. The results of the analyses are summarized in Table 10. To assess the degree of multicollinearity, the VIF (i.e., variance inflation factors) values were checked. The values were much lower than the proper criterion of 10 (Hair et al., 2010), which means that there is no multicollinearity issue in the analyses. In the regression model (see Model 1 in Table 10), environmentally sustainable apparel consumption was well predicted by time perspective with $F = 5.64$ at $p = .019$. Time perspective positively affected environmentally sustainable apparel consumption. In other words, female older consumers with expansive time perspectives are more likely to consume environmentally friendly apparel. Therefore, H1 was supported.

Table 10

Regression Results for H1 and H1a

Independent variable	β	t	VIF
Model 1			
Time perspective	.19	2.38*	1
R^2=.036, F-value=5.64, p-value=.019			
Model 2			
Time perspective	.12	1.40	1.17
Fashion consciousness	.19	2.19*	1.17
R^2=.065, F-value=5.283, p-value=.006, F change= 3.93, Sig. F change=.01			
Model 3			
Time perspective	.11	1.26	1.19
Fashion consciousness	.19	2.25*	1.17
Time perspective*Fashion consciousness	-.09	-1.09	1.02
R^2=.04, F-value=3.926, p-value=.01, F change= 5.28, Sig. F change=.006			

Note: *p<.05

The significance of *F* change between Models 2 and 3 determines the moderating effect. If the significance of the *F* change is less than .05, it is determined that there is a moderating effect. Based on the results, it was concluded that there is a significant moderating effect caused by fashion consciousness between time perspective and environmentally sustainable apparel consumption ($F = 3.926, p = .01$) because the significant *F* change revealed in the time perspective of Model 3 (independent variable) was less than .05. Therefore, H1a was supported.

Additionally, a sub-group analysis was performed to address fashion consciousness. This study categorized fashion consciousness into two groups (low fashion consciousness versus high fashion consciousness) based on the mean value of fashion consciousness (X=3.49). H1 was analyzed separately for each group to observe how fashion consciousness moderates H1. These results are summarized in Table 11,

which shows that the positive relationship between time perspective and fashion consciousness is statistically significant only among low fashion consciousness respondents ($F = 4.98$, $p = .03$). On the other hand, fashion consciousness is not positively related to time perspective within the high fashion consciousness group ($F = .170$, $p = .21$).

Table 11

The Results of Regression Analyses: Relationship between Time Perspective and Fashion

Consciousness

	β	*Sig.*	R^2	*F*
Low fashion consciousness (n=74, mean=3.82, SD=.86)	.39	.03*	.07	4.98
High fashion consciousness (n=80, mean=4.60, SD=.77)	.17	.21	.02	1.60

*p<.05

Comparing the Effects of Emotional, Rational, and Control Advertising on Purchase Intention (H2)

H2 was proposed to compare the effectiveness of emotional, rational, and control advertising appeals on purchase intentions toward environmentally sustainable apparel. For this purpose, ANCOVA was performed to find the mean difference between emotional, rational, and control appeal types toward purchase intention with covariates of fashion consciousness and education level. To assess the homogeneity of variance, Levene's test was conducted. The result exhibited that the variances are equal across the groups at the significant level of .05 ($F = .439$, $p = .646$). Table 12 displays the significant mean difference among emotional, rational, and control advertising appeals on

purchase intention toward environmentally sustainable apparel [$\bar{X}_{emotional} = 3.82$, $\bar{X}_{rational} = 4.32$, $\bar{X}_{control} = 2.82$, $F_{(2,86)} = 5.06$, $p < .01$]. Thus, H2 was accepted.

Table 12

ANCOVA Results for H2

Type of Appeal	Purchase Intention			
	Observed Mean	*Adjusted Mean*	*SD*	*n*
Emotional	3.82	3.81	1.83	30
Rational	4.32	4.31	1.87	30
Control	2.82	2.84	1.67	31
Source	*SS*	*df*	*MS*	*F*	*Sig.*
Fashion consciousness	2.01	1	2.01	0.62	0.44
Education level	0.46	1	0.46	0.14	0.71
Appeal type	32.97	2	16.48	5.06	0.008**
Error	280.42	86	3.26		

Note: **p<.01

Multi-comparison was conducted to test H2a, H2b, and H2c, summarized in Table 13. Test results showed that there is no significant difference between emotional and rational advertising appeals, so H2a was rejected ($p = .90$). H2b was also not supported because no significantly different results are revealed between emotional and control advertising appeals ($p = .12$). H2c was accepted because there was a significant difference between rational and control advertisements ($p = .008$) (see Table 13).

Table 13

Multi-comparison Test for H2a, H2b, and H2c

Comparison	Mean Difference	Std. Error.	Sig.	Bonferroni Adjusted95% CI
Emotional vs. Rational (H2a)	-0.50	0.48	0.90	-1.66, .67
Emotional vs. Control (H2b)	0.97	0.46	0.12	-.16, 2.11
Rational vs. Control (H2c)	1.47	0.47	.008**	.32, 2.63

Note: **p<.01

Comparing the Effects of Positive Emotional, Negative Emotional, and Control Advertising on Purchase Intention (H3)

H3 compares positive and negative emotional advertisements on purchase intention. A one-way ANCOVA was conducted to compare the effectiveness of positive emotional, negative emotional, and control advertisements with covariates of fashion consciousness and education level. The result of Levene's test convinced the homogeneity of variances across the respondents at the significant level of .05 ($F = .789$, $p = .457$). There was a significant difference in mean difference [($\bar{X}_{positive} = 4.20$, $\bar{X}_{negative} = 3.83$, $\bar{X}_{control} = 2.82$, $F_{(2,88)} = 6.04$, $p < .01$] among the three advertising appeals; thus, H3 was accepted. Table 14 summarizes the ANCOVA results for H3.

Table 14

ANCOVA Results for H3

Type of Appeal	Purchase Intention				
	Observed Mean	*Adjusted Mean*	*SD*	*n*	
Positive	4.20	4.18	1.30	32	
Negative	3.83	3.82	1.52	30	
Control	2.82	2.86	1.67	31	
Source	*SS*	*df*	*MS*	*F*	*Sig.*
Fashion consciousness	2.01	1	2.01	0.88	0.35
Education level	0.99	1	0.99	0.43	0.51
Appeal type	27.59	2	13.80	6.04	0.003**
Error	201.06	88	2.29		

Note: **$p < .01$

A multi-comparison test was conducted to investigate H3a, H3b, and H3c. Table 15 shows the results of the multi-comparison test. H3a was rejected because the positive emotional and negative emotional appeals are not significantly different from each other ($p = 1.0$). Because there is a significant difference between positive emotional and control ($p = .003$) advertising appeals, H3b was supported. H3c was not supported, as there is no significant difference between negative emotional and control appeals ($p = .05$).

Table 15

Multi-comparison Test for H3a, H3b, and H3c

Comparison	*Mean Difference*	*Std. Error.*	*Sig.*	*Bonferroni Adjusted 95% CI*
Positive vs. Negative	0.36	0.39	1.00	-.58, 1.30
Positive vs. Control	1.32	0.39	.003**	.37, 2.27
Negative vs. Control	0.95	0.39	0.05	-.002, 1.91

Note: **$p < .01$

Summary of Hypothesis Testing

In summary, H1 and H1a were supported by discovering the relationship between time perspective and environmental apparel consumption among older consumers. H2 was accepted because emotional, rational, and control environmental appeals influence purchase intention toward environmentally sustainable apparel in different ways. However, H2a and H2b were rejected. H2c was supported, meaning that rational appeals can encourage higher purchase intentions than control appeals. H3 was also supported, but H3a and H3c were rejected. H3b was accepted, indicating that positive emotional appeals are more effective at producing higher purchase intentions than control appeals. A summary of findings is shown in Table 16.

Table 16

A Summary of Hypotheses Testing

	Hypothesis	*Results*
H1	H1: Older consumers who have expansive time perspectives show higher levels of environmentally sustainable apparel consumption than those who have limited time perspectives.	*Supported*
	H1a: The positive relationship between time perspective and environmental apparel consumption will be moderated by fashion consciousness.	*Supported*
H2	H2: Emotional, rational, and control advertising appeals impact purchase intention toward environmentally sustainable apparel to varying degrees.	*Supported*
	H2a: Emotional appeals with messages addressing environmental sustainability will impact the purchase intentions (PI) of older consumers toward environmentally sustainable apparel more than rational appeals.	*Rejected*
	H2b: Emotional appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older consumers toward environmentally sustainable apparel more than control appeals.	*Rejected*
	H2c: Rational appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older consumers toward environmentally sustainable apparel more than control appeals.	*Supported*
H3	H3: Positive emotional, negative emotional, and control advertising appeals produce different degrees of impact on purchase intentions toward environmentally sustainable apparel.	*Supported*
	H3a: Positive emotional appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older consumers toward environmentally sustainable apparel more than negative emotional appeals.	*Rejected*
	H3b: Positive emotional appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older consumers toward environmentally sustainable apparel more than control appeals.	*Supported*
	H3c: Negative emotional appeals with environmentally sustainable messages will impact the purchase intentions (PI) of older consumers toward environmentally sustainable apparel more than control appeals.	*Rejected*

CHAPTER V

CONCLUSIONS

This last chapter presents a summary of the findings and discusses them with mention of relevant theories and literature. Based on this discussion, the theoretical and managerial implications of this study are presented. Lastly, the limitations of the study and suggestions for future study are explained.

Summary of Findings

The purpose of this study was to investigate the environmentally sustainable apparel consumption of older adults through socioemotional selectivity theory (SST). Furthermore, the study sought to examine how to enhance purchase intentions toward environmentally sustainable apparel by comparing advertising appeal types. This research proposed ten hypotheses (H1, H1a, H2, H2a–H2c, H3, and H3a–H3b) based on SST, the positivity effect, and a relevant literature review.

In order to test these hypotheses, a total of 154 usable responses were collected through in-person approach from female participants of age 65 or older living in North Carolina. The findings showed that older female adults who have expansive time perspectives are more environmentally sustainable when they consume apparel (H1), and their fashion consciousness strengthens the relationship between their time perspective and their environmental apparel consumption (H1a). Regarding how to enhance purchase intention toward environmentally sustainable apparel, it was found that rational

advertisements (H2c) and positive emotional messages (H3b) can encourage environmental purchase intentions more than control advertisements (advertisements with no messages about environmental sustainability). However, there were no significant differences between emotional and rational advertising appeals (H2a) or between emotional and control appeals (H2b). Similarly, there were no significant differences between positive emotional and negative emotional appeals (H3a) or between negative emotional and control appeals (H3c).

Discussion of Findings

First, the data analysis of H1 showed that the time perspectives of older consumers can positively predict their environmental apparel consumption. In other words, older consumers who perceive that they have a long time to live will be more likely to consume environmentally sustainable apparel than those who think their lifespans are limited. This supports the literature, which posits that the time perspective of older consumers can impact their goals and behavior, causing people with expansive time perspectives to have more future-oriented goals and people with limited time perspectives to have more present-oriented goals (Carstensen, 1992; English & Carstensen, 2014; Fung & Carstensen, 2003; Hogan et al., 2013). As sustainability is concerned with future generations, people with expansive time perspectives who harbor future-oriented objectives show higher levels of consumption of environmentally sustainable apparel.

Second, H1a, which tested the moderating effect of fashion consciousness on the relationship between environmentally sustainable apparel consumption and time

perspective, was accepted. Previous research has discovered that fashion consciousness is a predictor of eco-friendly clothing consumption such that consumers who are more fashion conscious consume more eco-friendly clothing (Cho et al., 2015; Gam, 2011). This study further investigated whether fashion consciousness significantly moderates time perspective in predicting environmental apparel consumption.

The results of the sub-group analysis revealed that the relationship between fashion consciousness and time perspective was significant only within the low fashion consciousness group. That is, only low fashion consciousness respondents showed higher levels of environmentally sustainable apparel consumption when exhibiting an expansive time perspective, whereas highly fashion-conscious respondents did not consume apparel in more environmentally sustainable ways even though they possessed an expansive time perspective. This may mean that fashionable consumers tend to purchase apparel regardless of time perspective and that time perspective may not matter for them when purchasing environmentally sustainable apparel goods.

Third, H2, which tested whether emotional, rational, and control advertising appeals have varying levels of impact on purchase intentions toward environmentally sustainable apparel, was accepted. However, there were no differences between emotional and rational appeals, and emotional and control appeals did not differ from each other, thus offering grounds for rejecting H2a and H2b. H2c was supported by confirming the superior effectiveness of rational advertising appeals compared to control appeals on purchase intentions toward environmentally sustainable apparel. One possible reason for this is that respondent characteristics might have impacted the insignificant

outcomes of H2a and H2b. Based on the literature review, older consumers are more likely to have limited than expansive time perspectives, so it was assumed that they would be more persuaded by emotional than rational messages (Fung & Carstensen, 2003; Williams & Drolet, 2005; 2007). However, the findings of the study imply that rational appeals, which are related to knowledge-related goals (Fung & Carstensen, 2003; Williams & Drolet, 2005; 2007), were more effective than control appeals. This outcome is not consistent with the results of Fung and Carstensen (2003) and Williams and Drolet (2005; 2007). The data of this study were collected from churches, YMCAs, and senior centers in North Carolina, many of which are places that may promote physical activity. Previous research has found that older adults' perception of their lifespan affects their physical activity (Stahl & Patrick, 2012). In particular, when older adults consider their future life to be expansive rather than limited, they tend to engage in higher levels of physical activity. Therefore, it is possible that the respondents of this study may have possessed relatively expansive time perspectives that are more related to rational appeals (Fung & Carstensen, 2003; Williams & Drolet, 2005), compared to the general population of older adults that typically possesses more emotionally meaningful goals (Carstensen, 1992). Accordingly, for the respondents in this study, rational appeals could encourage higher purchase intentions than advertisements with no messages.

Lastly, H3, which compared effects of positive emotional, negative emotional, and control advertising appeals on purchase intention toward environmentally sustainable apparel, was supported, for a significant difference among the three appeals was discovered. However, there was no clearly superior option between positive and negative

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appeal advertisements, thus offering grounds to reject H3a, or between negative emotional and control appealing advertisements, thus providing grounds to reject H3c. In terms of H3b, positive emotional messages were more effective at increasing purchase intentions toward environmentally sustainable apparel than the control group.

The overall results of H3 and H3a–c support the positivity effect (Carstensen, 1992; English & Carstensen, 2014; Fung & Carstensen, 2003; Hogan et al., 2013). Because of the positivity effect, older adults focus on acquiring and remembering information to maintain positive emotions (Carstensen, 1992; English & Carstensen, 2014; Fung & Carstensen, 2003; Hogan et al., 2013) and regulate negative emotions (Turk-Charles et al., 2003; Turk-Charles et al., 2001; Gross et al., 1997; Mather & Carstensen, 2003, 2005). Supporting the literature, the positive emotional appeals were more effective than the control appeal, whereas the negative emotional message and the control appeal (i.e., no environmental message) were not significantly different in terms of persuasiveness. Accordingly, positive emotional messages are effective at encouraging purchase intentions toward environmentally sustainable apparel.

Implications

The findings of this study provide theoretical and practical implications. First, theoretical implications for academics are explained. Then, managerial implications for business applications are suggested by describing how the findings can be used by marketing and advertising practitioners.

Theoretical Implications

This study provides several academic implications, as it proposes empirical evidence for socioemotional selectivity theory (SST) and addresses research gaps found in previous studies. First, this study added to an existing theory, SST, by applying it to environmental sustainability behavior among elderly consumers. By linking environmental sustainability with SST, this study extended SST as an underlying theory that can explain the motivation of elderly consumers' environmentally sustainable apparel consumption. Because older consumers who have expansive time perspectives showed higher levels of environmentally sustainable consumption, which is often associated with future-oriented goals, this finding coincides with existing results of SST.

This finding from H1 can also fill the research gap by explaining why older adults consume environmentally sustainable apparel. This study focused on older consumers, who have not yet been spotlighted in previous studies on environmental sustainability. Previous studies have typically focused on younger participants, so there is a lack of understanding of the environmentally sustainable behavior of older consumers. The findings revealed that the more older consumers perceive their lifespans as expansive, the more they tend to consume environmentally sustainable apparel. Thus, it is possible to conclude that time perspective is a factor that affects environmental apparel consumption.

Second, this study contributes to discovering the moderating effect of fashion consciousness in predicting environmental apparel consumption using time perspective. Previous research has found that fashion consciousness is a predictor that has a positive relationship with eco-friendly apparel consumption (Cho et al., 2015; Gam, 2011).

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Furthermore, this study treated fashion consciousness as a moderator between time perspective and environmentally sustainable apparel consumption, confirming that only low fashion consciousness moderates the relationship between time perspective and environmentally friendly apparel consumption. Specifically, if older adults with expansive time perspectives are less fashion-conscious, they tend to engage in more frequent environmental apparel consumption.

Third, the findings of H2c and H3b explained that rational and positive emotional appeals for environmentally friendly apparel are more persuasive than having no environmental messages. There is limited research on how to enhance the environmentally sustainable consumption of older consumers, and this study addresses this research gap by approaching the traditional forms of advertising appeals: emotional and rational appeals. This study offers empirical evidence of the effectiveness of rational and positive emotional environmental messages over a lack of environmental messages.

Managerial Implications

Along with these theoretical implications, this study also offers practical implications. First, the results of H1 testing discovered that the time perspective of older consumers influences their environmentally sustainable apparel consumption. This means that to increase purchases of environmentally friendly apparel within this demographic, time perspective can be more effective to consider than actual age. Apparel retailers, therefore, must allocate more marketing and funding toward leveraging the expansive lifespan perspectives of older adults rather than emphasizing actual age in order to expand environmentally sustainable clothing consumption. For example, companies

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might appeal to elderly consumers with statements appealing to the expansive time perspective, such as 'Your life is longer than you think' and 'Enjoy your life.'

Furthermore, H1a revealed the moderating effect of fashion consciousness between the time perspective and environmentally sustainable apparel consumption of older consumers. In particular, this finding revealed that older female consumers with high levels of fashion consciousness were concerned about the fashionability of environmentally sustainable apparel regardless of their time perspective. Therefore, the apparel industry should develop environmentally sustainable apparel that can be considered fashionable. In addition, since it was found that expansive time perspective enhances environmentally sustainably apparel goods consumption only in low fashion-conscious group, fashion consciousness level of target consumers should be considered when marketing environmentally sustainably apparels in relation to time perspective.

Next, even though additional studies with larger and more regionally extensive samples are needed, this study suggests that rational appeals and positive emotional appeals with messages about environmental sustainability can encourage purchase intentions over those with no messages. Therefore, advertisers and marketers are encouraged to create environmental advertisements that include rational information and positive emotional messages to increase purchase intentions toward environmentally sustainable apparel. This study defines environmentally sustainable apparel broadly as clothing that includes organic fabric, eco-friendly apparel, recycling, second-hand clothing, and so on (Hiller Connell & Kozar, 2014; Council for Textile Recycling, 2014;

Fletcher, 2008; Joergens, 2006; Muthu, 2014); therefore, findings can be used by apparel

retailers who intend to encourage older female adults to purchase such products.

Limitations and Future Studies

Despite the many academic and practical contributions of this study, it also has

certain limitations that would require further study to address. First, the sample size of

each stimulus was on par with the minimum number suggested for statistical analyses,

i.e., 30 participants (Hair et al., 2010), but this may not be sufficient for generalizable

results.

Second, this study employed respondents who were largely from about ten

organizations in North Carolina, which may create issues regarding generalization.

Therefore, the findings of the study may not be applicable to the entire demographic of

older consumers, so future studies are advised to collect their data from more diverse

regions to help generalize these results.

Third, this study examined only female adults as respondents. Previous research

has found that gender has considerable influence on environmentally sustainable behavior

(Schahn & Holzer, 1990). Accordingly, future research may include male older adults in

order to examine the moderating effect of gender on the relationship between time

perspective and environmentally sustainable apparel consumption.

Lastly, this study utilized only images of basic shirt products as stimuli. Although

shirts were selected because casual items are most commonly worn by older female

adults (Shim & Bickle, 1993), this item may not represent all clothing items and

categories. It is possible that the personal clothing preferences of the respondents may

influence purchase intention. Thus, future research may include other types of clothing for more generalizable results. For example, outer garments, like jackets and cardigan, may last and be worn longer than T-shirt, so time perspective, especially expansive time perspective, can affect more on purchasing environmentally sustainable outer clothing than t-shirt.

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APPENDIX A

IRB OFFICIAL LETTER: PILOT INTERVIEW

THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

To: Gwia Kim
Cons, Apparel, and Ret Stds
Cons, Apparel, and Ret Stds

From: UNCG IRB

Date: 11/02/2017

RE: Determination that Research or Research-Like Activity does not require IRB Approval
Study #: 17-0516
Study Title: Older consumers' purchase intention to environmentally sustainable apparel depends on appeal types of advertisement.

This submission was reviewed by the above-referenced IRB. The IRB has determined that this submission does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (d or f)] and does not require IRB approval.

Study Description:

This research is for deciding experiment stimuli before main experiment. Below is the info of main study.

- Purpose of the study
  - This study observes how older adults show different level of purchase intention to environmentally sustainable apparel after seeing advertisements with different types of appeals Appeal types of advertisements depends on their time perspective.
- Time perspective: how people perceive the rest of their lifespan.
  - If people have 'limited time perspective', they think that they have only limited time to live from now on.
  - If people have 'expansive time perspective', they think that they have expansive time to live from now on.
- Emotional versus Rational
- Positively Emotional versus Negatively Emotional

This focus group interview or individual interview will be conducted to decide which advertisement will be used in the main experiment. Thus, the questions are focused on advertisements at this time.

- If your study protocol changes in such a way that this determination will no longer apply, you should contact the above IRB before making the changes.

CC:
Byoungho Jin, Cons, Apparel, and Ret Stds

STIMULI

\<Advertisements Set 1: Shirts Without pattern\>

Emotional	Rational
Be enjoyable. Don't be regrettable. You are to get emotionally meaningful and hedonic products. Our shirt is about more than high quality clothing. **We source our materials from only approved originally nature grown and recyclable fabric.** *No GMOs. No Toxins. Just Clothes.*	Be practical and realistic. You are to get functionally meaningful and utilitarian products. Our shirt is about more than high quality clothing. **We source our materials from only approved originally nature grown and recyclable fabric.** *No GMOs. No Toxins. Just Clothes.*

Positively Emotional	Negatively Emotional
Be happy and pleasant, you are to enjoy clean fabric and fresh materials. Our shirt is about more than high quality clothing. **It's is about eco-friendly and enduring clothing for you and your family.** *No GMOs. No Toxins. Just Clothes.*	Don't be sad and afraid, you are to flee from chemical fabric and dirty fabric. Our shirt is about more than high quality clothing. **It's is about eco-friendly and enduring clothing for you and your family.** *No GMOs. No Toxins. Just Clothes.*

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<Advertisements Set 2: Shirts With pattern>

Emotional	Rational
We promise you to be delighted and no worried. Our shirt is more about eco-friend and sustainability as well as fashion **We source our materials from only approved originally nature grown and recyclable fabric.** *No GMOs. No Toxins. Just Clothes.*	We promise you to be useful and pragmatic. Our shirt is more about eco-friend and sustainability as well as fashion **We source our materials from only approved originally nature grown and recyclable fabric.** *No GMOs. No Toxins. Just Clothes.*
Positively Emotional	**Negatively Emotional**
We make you be happy or delighted. Be joyful and touched with our shirt. Our shirt is more about eco-friend and sustainability as well as fashion **We ensure clean and fresh materials.** **We avoid using unhealthy and dirty fabrics.** *No GMOs. No Toxins. Just Clothes.*	We don't make you be afraid or anxious. Don't be depressed and sad with our shirt. Our shirt is more about eco-friend and sustainability as well as fashion **We ensure clean and fresh materials.** **We avoid using unhealthy and dirty fabrics.** *No GMOs. No Toxins. Just Clothes.*

Source of Shirts: Adapted from Buck & Buck (n.d.).

https://www.buckandbuck.com/womens-clothing/blouses-slacks/blouses.html

APPENDIX C

SAMPLE QUESTIONS FOR PILOT INTERVIEW

<Part 1> Preference between two shirts

Please answer the questions after observing and comparing two images of shirts.

- Which shirt do you prefer and why?

- Which shirt bring your purchase intention more than the other?

<Part 2> General Opinions of Second Four Advertisements

SET 1

Please answer the questions after observing it. (Show the Set 1_Emotional vs Rational)

- How do you feel about each advertisement?

- Which do you prefer, and could you please tell me why?

- What do you think of the statements in the advertisement?

- How these two advertisements differ from each other?

- What would you recommend to each statement to be revised?

SET 2

Please answer the questions after observing it. (Show the Set 2_Negativley emotional appeal versus positively emotional appeal)

- How do you feel about each advertisement?

- Which do you prefer, and could you please tell me why?

- What do you think of the statements in the advertisement?

- How these two advertisements differ from each other?

- What would you recommend to each statement to be revised?

\<Part 3\> Layout and Statements Selection

I am going to ask a couple more questions about the advertisements you have already discussed. Please answer my questions while keeping observing each.

- Would you recommend better way of layout to feel easy to read and understand?

- Please give your opinions how to emphasize the statements that I am pointing out. (Those statements are the things which include emotional, rational, negatively emotional, positively emotional meaning.)

- What do you think about the word? What words do you think as key words for each advertisement?

- What would you recommend to these advertisements to be revise?

PILOT INTERVIEW TRANSCRIPT

<Interview 1 with Female 1>

◦ **R: Researcher**

◦ **F1: Female participant 1**

R: Before doing the interview, please fill out this form first.

F1: Well, I am retired, but I work for school two days a week. So, what should I put for here?

R: Well, I think it's part-time, or?

F1: Should I do that? OK.

R: So, is this your second job?

F1: Yeah. I retired, and I am just working in Northern High school as a lunch lady. So, I am not big employment.

R: But, you work. Thank you. And then, I am going to show you some of advertisements that I developed, and you can share your opinion about them. So,

F1: My grand-daughter is in designing in UNCG. That's why I am asking you about

R: Oh, what grade she is in?

F1: She is a junior.

R: Oh, that's nice. Um... First of all,…

(showing pictures of two shirts without any statements)

Please compare those two sets. Which do you prefer?

F1: Which do I prefer? This one. (Picking the pink shirt)

R: The pink one? Why?

F1: (Pointing out the flower shirt) Because this is too busy.

R: Too busy. There are too many flowers?

F1: Right, right. So, I prefer this (pointing out pink shirt).

R: Ok, so you prefer this (pointing out pink shirt). Actually, those two products are made by environmentally sustainable materials, like organic cotton, and non-GMO, and non-toxic. Or no chemical material.

F1: Ok.

R: So, please see those two advertisements, and please read those all the sentences.

F1: Ok. I agree. I read it one and another, not across, right?

R: It depends on you.

F1: Whatever, ok.

R: Yep.

F1: Ok.

R: What do you think of the difference between those two advertisements?

F1: So far, that's pretty. I prefer this one. The words with enjoyable and don't be regrettable.

R: Ok. So, do you prefer those emotional sentences?

F1: I guess so. (Haha)

R: Do you feel this is really emotional (Pointing out Set1, Emotional)

F1: Well, just looking at the picture?

R: No, the sentences.

F1: Oh, yea. I think it's enjoyable. I mean you want to be joyful and happy about something.

R: Ok. Thank you. Then, please compare those next sets.   (showing Set1, Negative vs Positive).

F1: I like the happy and pleasant. (pointing out Set, Positive)

R: Happy and pleasant?

F1: Yes.

R: What do you think of the difference between those two advertisements?

F1: Well, this is up-beat (pointing out Set1, Positive) and this is down-beat (Set1, Negative).

R: Ok. It's like up and down. Yea. And, please recommend... I would like to get some recommendations from you about the layout. So, If I want to emphasize those green statements, how I can change that layout?

F1: Well, I think you're done well.

R: So, you can pretty much focus on green sentences?

F1: Um-hum.

R: Ok, and then. I have next sets although you said that you prefer pink shirt

F1: Yeah, ha-ha. I did it.

R: Yeap. please read those two advertisements, (showing Set 2, Emotional vs. Rational)

F1: So basically, comparing these two sentences? (pointing out Set 2, Emotional)

R: Yeah, yeah

F1: I like this one better

R: You like this one better?

F1: Um-hum

R: So, why you...why do you like this one better?

F1: I just like the word delighted

R: Yes, so you.

F1: I think that

R: Um-hum

F1: You know... what this busy delightful shirt

R: Hahaha

F1: Hahaha

R: How about the words no worries

F1: Okay, that's good

R: That's good?

F1: Yeah, you not need to worry ha-ha

R: Okay ha-ha

F1: Don't worry be happy ha-ha

R: Hahaha, yes that's what I want to tell. Yep

F1: Okay

R: How about those two advertisements? (showing Set2, Negative vs. Positive)

F1: Of course, this one. Cause it again it up...upbeat (pointing out Set2, Positive)

R: Okay. So, like delight, enjoyable thing

F1: Um-hum, I like upbeat other than downer

R: So...if you see those two advertisements, so which one make you feel more to buy?

F1: Just from the sentences?

R: Yeah

F1: Yeah, this (pointing out Set 2, Positive)

R: This one? So, see like to seek to happiness

F1: Um-hum

R: Enjoyable things?

F1: Um-hum

R: Okay. Thank you. And then, when you compare first set of pink shirts and then those second set of flower shirt and please read these black letters (showing each one of Set 1 and Set 2)

F1: I see. Um-hum. I like it, I just without reading it just looking it the...I like this (pointing out Set1)

R: Layout

F1: Layout better than that

R: Okay, this short one (pointing out Set1)

F1: Um-hum,

R: Okay

F1: I just like the shorter and you know you got -----

R: Short and simple

F1: Um-hum

R: Okay. How about the contents?

F1: Okay, I have to read it (reading again).   I still like this better (pointing out Set1)

R: You still like it shorter one

F1: I like the way that presented

R: Okay, why do you like it?

F1: why do I like it?

R: Why do you prefer the pink one?

F1: Well, I am not, I am not looking at the color, I am looking at this part (pointing out overall statements) of it

R: Yes, that's what I mean, why do like this shirt?

F1: I just like, I like the way it's laid out. I like the statement that more than high-quality clothing. Yes, I like the statement. So… (reading Set 2 again). This is sustainable well as fashion, nahh… you know that doesn't

R: Is not important for you?

F1: Not...not…

R: Oh...okay

F1: I like the way it's laid out what it says more...more than high quality clothing

R: Oh, Okay. So, and um...I have one more question, if I mix and match like this (acting like mixing the statements). How do you feel about it?

F1: What do you mean if you put this with this statement?

R: Yes.

F1: It will be, I like it

R: Oh… so you anyway you prefer this statement?

F1: I did...I did...I like this statement.

R: Okay.

F1: And Yeah and I have a have skirt kind a while like that too so

R: Um, ha-ha

F1: It's not that I oppose to

R: oh, okay, I see

F1: (It's too though a while). But, um...on a shirt that just kind a plain

R: Oh okay, plain thing

F1: But I like this

R: Um-hum okay

F1: The way you said that a

R: Um-hum. Then, how about those green sentences here? Like...among those greens sentences, in your opinion what words are the keywords? (showing Set 2 again)

F1: Promise

R: Promise? And then?

F1: Well...useful looks good

R: Okay.

F1: And but um...I...I first I like the delighted.

R: Yeah, delighted.

F1: Yeah,

R: Then, how about this down side?

F1: I don't care for it

R: Ha-ha

F1: Hahaha

R: So, you don't care since you don't like it? Ha-ha

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F1: Hahaha

R: Okay

F1: Well, like afraid, anxious, depressed, sad I mean you know

R: Yeah

F1: It doesn't appeal to me

R: Oh, okay I see. Thank you. And how about those pink shirt sets? (showing Set 1 again)

What do you think that keywords here?

F1: Keywords that all four of them?

R: Yeap.

F1: Well, I see. I oppose chemical, you know. Clean and fresh.

R: Yep. Okay.

F1: Practical, realistic (pointing Set1, Rational)

R: Practical, realistic? (showing Set 1, emotional again)

F1: You want to know what the keyword is?

R: Um-hum. For you

F1: For me, enjoyable

R: Enjoyable

F1: Um-hum

R: So, you like enjoyable, and then here, practical, realistic

F1: Um-hum

R: And here, enjoyable as well, and delight

F1: Um-hum, clean

R: Clean and fresh

F1: Fresh, um-hum

R: And here, chemical...?

F1: Um-hum

R: Okay. Thank you. And here you feel like a promise is the keyword (showing Set2 again)

F1: A promise?

R: Yes

F1: Yes

R: Okay, thank you.

F1: Um-hum

R: Again, for the flower shirt, can you give some recommendations to make it feel better in terms of the layout? Cause I would like to emphasize those green statements.

F1: Um...well...you...on this particular one? (pointing out green statements)

R: Yes

F1: You want me to do what? Just suggest what?

R: Oh...how can I emphasize the statements

F1: Um...

R: With color of green color?

F1: Um… you want a just change the color of one word? Two words?

R: Oh…

F1: Like that?

R: Not full sentences

F1: Yeah~

R: Okay

F1: Because I look, look enough.

R: Like joyful,

F1: Um-hum

R: Delighted? Okay. How about the positions?

F1: The positions of everything? Um...well I you know I like the one word you were more like

like

R: Centered?

F1: Yeah, more like this

R: Okay

F1: Maybe shorter you know like a pyramid or whatever.

R: Okay, so…

F1: If I make sense.

R: Okay, thank you. Yep, yeah actually the interview is pretty much done, and you have

anything... feeling or telling thing here? Do you have anything to tell me more?

F1: No, I think you've done

R: Okay.

F1: Very well

R: Okay, thank you.

F1:   Ha-ha, my opinion is good. Ha-ha

R: Ha-ha, I would like to collect as many as opinions to

F1: Um-hum

R: Develop my research and

F1: Sure

R: The advertisements. Thank you.

F1: Um-hum

R: And then, oh I have one more question here

F1: Oh

R: So, how much do you want to pay... up to which dollar?

F1: Oh, you know what? I'm not someone expense a lot of money on clothes.

R: Okay

F1: On clothing. So, I don't know that would be screwed into you or not

R: Okay.

F1: Um...I think $20

R: For both of them?

F1: Um-hum, yeah

R: Okay. Thank you.

F1: You know what would you really charge?

R: Oh...I didn't decide it

F1: You don't?

R: Yeah

F1: You don't decide, yeah but see I'm not somebody to likes,

R: Um-hum

F1: I'm not um...have we say...brand name, you know it's awfully says Ralph Lauren or that

R: Oh

F1: They mean anything to me ha-ha

R: Ha-ha

F1: I mean if I like it, I like it but it's not I'm not going to pay for somebody's name. So, I don't know if that turns you out or what but that's...that's way I am.

R: Okay. Thank you. And actually, my questions done here. And then I would like to express my appreciation

F1: Oh

R: I'm giving the gift card

F1: Okay

R: Thank you for participation

F1: Thank you

R: Thank you for coming here

F1: Thank you

R: By yourself

F1: I'm enjoyed

R: Thank you

F1: Thank you

R: Thank you so much,

F1: Okay

R: It was really helpful for me to develop my research and the advertisements

F1: Okay, well I hope you have a lot of other people to come and give their opinions

R: Oh. Thank you

<Interview 2 with Female 2>

◦   **R: Researcher**

◦   **F2: Females participant 2**

R: Yes. Thank you for your help and before we start can you please fill out this form first.

F2: (Filling out)

R: Thank you. And I'm going to show you some advertisement that I developed, and I would like you to share your opinion about my question and about my advertisements. So first, I'm going to show you um...set of one a shirt. Please see.

F2: (watching) you want...you want me had an opinion having look?

R: Yes, just look... look in and I will ask some questions, so…

F2: I like both of them.

R: yeah you like both of them? Which one do you prefer?

F2: I like the pink (without pattern)

R: The pink one? So, do you have any reasons for that?

F2: Um...I just like the color

R: The color?

F2: Um-hum

R: Okay. and actually, those products are made by environmentally sustainable way and materials. So, just keep in mind that the facts and please answer my questions. And… for the first set, the pink shirt I made two advertisements. And…please read all them through, those two... (showing Set1, Emotional vs. Rational)

F2: Um-hum. Okay.

R: Thank you. So, I would like to know… How do you think of the first practical and realistic advertisement? What do you think of it?

F2: Um… I think it's good, really you know...um…plus you know like I said um… I like the...I like the shirt I like long sleeve shirt stuff like that. I think is good it's good product

R: Okay. How about these sentences?

F2: It's about. It's same...um...shirt, right?

R: Yes, it's same and those are same. But those sentences are different. So please focus on here.

F2: Um… I think it's good

R: Yes. So….

F2: In my opinion.

R: Which sentence do you prefer?

F2: (Being close to the researcher by showing her ear, it seems like she wanted repeat)

R: Which sentence do you prefer?

F2: Um...this I like this (pointing out Set1, Rational)

R: You like the practical and realistic thing?

F2: Um-hum

R: Okay. Do you have any reasons for that?

F2: Um...this right here I guess, umm…emotional, drama--------like some emotion...you know and um...some emotional what this mean right here this word does

R: It's hedonic. and---- it's like it gives you some joyful, and enjoyable, and experience.

F2: Yes, it does comfortable, you comfortable I mean you comfortable by wear it or something. I'm go over this one. (pointing out Set1, emotional)

R: Oh, this emotional one

F2: Yes

R: So, you changed your mind

F2: Yeah, I am going here (pointing out Set1, Emotional)

R: Okay so...okay do you have reasons for changing?

F2: um-huh?

R: do you have any reasons about the change?

F2: Um...since you explain it to me. This knit I like...I just...I just change my mind by you ----I just like that one

R: Okay. Thank you. And then I have one more set for the pink shirt and then please read those sentences.

F2: It's all good (pointing out Set1, Positive)

R: How about this? (pointing out Set1, Negative)

F2: I like the first one (meaning Set1, Positive)

R: You like the be happy and pleasant…

F2: Um-hum

R: Okay. So, do you have reasons for that?

F2: Um...it just...I don't know it just sound um...well...you know family like I said.

R: Um-hum

F2: Um-hum. I...like that one

R: Okay and then, um...so I would like to get some recommendations about the layout. So, if I want to emphasize those green sentences how can I change the layout within advertisement? Do you have any suggestions?

F2: Um...I don't really apply to it

R: Oh okay. And then for the second set, please compare those two sets. (showing Set2, Emotional versus Rational)

F2: Um...it's eco-friend...friend it...friend something? Okay...basically says same thing though

R: How about the green sentences? Which do you prefer?

F2: huh…?

R: Which do you prefer? For the green sentences?

F2: I like uh….I like this one (pointing out Set1, Emotional)

R: Um...do you have any reasons?

F2: Well...it says is uh…you delighted

R: Um-hum

F2: Um...and um...it says promise of um...you enjoy wear it you know

R: So, you like emotional sentence?

F2: Huh...?

R: So, you like this emotional meaningful sentence

F2: Um-hum

R: Okay. Thank you. And then you have one more here. (showing Set2, Negative versus Positive) Can you compare those two?

F2: I like this (pointing out Set2, Positive).

R: Um....so do you have reasons for liking these emotions?

F2: Um...it is a...it is a make you feel uh...comfortable you...you are enjoying wear it and a you like a way it looks

R: Um-hum

F2: You know...that's why I like that one

R: So...um... if you get those two advertisements, you feel more to buy when you see this positive emotion right?

F2: Um-hum

R: Yes. Thank you. And then this is another question, so please read those black sentences below. So… (Showing one of Set1 and Set2 to compare background sentences)

F2: I mean you think this is good re….a...recycle material? You think that's a...that's good?

R: Yes.

F2: Um...Yes

R: So, actually those two have similar meanings

F2: Um-hum

R: Uh, I would like to know which one feel more attractive to you?

F2: (reading again) Yeah...I like this one, (pointing out Set2)

R: This? (pointing out Set2)

F2: It gets more information

R: Oh, more information about eco-friendly

F2: Um-hum

R: Okay. Thank you. And what do you think of that... when your opinion, what is the keywords here? What is the keyword here? (pointing out black sentences in two sets)

F2: (reading black sentences again) I mean, it just coming out and telling you...you know a....recycle a...rich area and um...didn't said coming out and get denying you using it in dirty a... material not the to a... make a... you know make a fabric though what are they do.

R: Okay. So, you feel like recycling is keyword.

F2: yeah!

R: Okay

F2: Um-hum

R: And then, can you see those four advertisements about the flower pattern shirt? And then green sentences. What is the keyword for you? (showing Set2 again)

F2: (Reading again) Um...by unhealthy, avoid an unhealthy dirty cloth, a fabric, you know. I like that.

R: Um-hum Okay. How about these other?

F2: And um...I guess recycle?

R: Um...recycle? Okay. how about these green sentences? Green color.

F2: Um…

R: What is the keyword in the first advertisement?

F2: Um...happy?

R: Happy? How about this second one? (pointing out Set2, Negative)

F2: Umm...afraid?

R: Afraid? And here? (Set2, Rational)

F2: And...this word right here (pointing out pragmatic)

R: Pragmatic, and how about the last one?

F2: Um...promise?

R: Promise? Okay, thank you. And this is my last question. So please select the keyword here as well. In the green sentences. (showing again Set 1)

F2: Um…practical? (pointing out Set1, Rational)

R: Practical?

F2: Um-hum

R: Okay, and then how about the second one? (Set1, Emotional)

F2: Um...regrettable?

R: Regrettable?

F2: Yes, regrettable

R: Yes, how about this?

F2: Um...how about sad (Set1, Negative)

R: Okay. So...sad. And the last sentence? (Set1, Positive)

F2: Um...happy

R: Happy? Thank you. Thank you for your participation and this will be really helpful for my research development.

F2: Okay

R: And then I have gift for you that...thank you for your participation.

F2: Okay. Thank you.

APPENDIX E

IRB OFFICIAL LETTER: MANIPULATION CHECK

THE UNIVERSITY *of* NORTH CAROLINA
GREENSBORO

To: Gwia Kim
Cons, Apparel, and Ret Stds
Cons, Apparel, and Ret Stds

From: UNCG IRB

Date: 1/12/2018

RE: Determination that Research or Research-Like Activity does not require IRB Approval
(modification)
Study #: 17-0516
Study Title: DO OLDER CONSUMERS CONSUME ENVIRONMENTALLY? AN
UNDERSTANDING OF ENVIRONMENTALLY SUSTAINABLE APPAREL CONSUMPTION
AND PURCHASE INTENTION THROUGH SOCIOEMOTIONAL SELECTIVITY THEORY

This submission was reviewed by the above-referenced IRB. The IRB has determined that this
submission continues to not constitute human subjects research as defined under federal regulations
[45 CFR 46.102 (d or f)] and does not require IRB approval.

Study Description:

This research is to investigate older consumers' environmentally sustainable apparel consumption
and purchase intention. Especially, this pretest will be conducted for the purpose of manipulation
check followed by pilot interview before the main experiment. Below is the info of main study.

- Purpose of the study
    - This study observes how older adults show different level of purchase intention to
      environmentally sustainable apparel after seeing advertisements with different types of
      appeals Appeal types of advertisements depends on their time perspective.
- Time perspective: how people perceive the rest of their lifespan.
    - If people have 'limited time perspective', they think that they have only limited time to
      live from now on.
    - If people have 'expansive time perspective', they think that they have expansive time to
      live from now on.
- Emotional versus Rational
- Positively Emotional versus Negatively Emotional

- If your study protocol changes in such a way that this determination will no longer apply, you
  should contact the above IRB before making the changes.

CC:
Byoungho Jin, Cons, Apparel, and Ret Stds

APPENDIX F

MANIPULATION CHECK SURVEY QUESTIONNAIRES

<A: IRB Stamp>

No. _____

Location: _____

Dear Participants,

     I am a master student at the University of North Carolina at Greensboro (UNCG), Gwia Kim. This is my thesis research guided by Dr. Byoungho Jin (b_jin@uncg.edu), the Putman and Hayes Distinguished professor at the UNCG. The purpose of the study is to understand older consumers' environmentally sustainable consumption. The respondents for this study are female adults living in the U.S. aged 65 and above. The survey will take about 1-3 minutes to complete, and you will not be compensated for your participation but there are 4 Starbucks gift card drawings selection you can participate at the end of the survey. Your answers will be kept confidential at all times. We hope you answer every question carefully because incomplete responses cannot be used for further analysis. If you have any questions on the survey, please contact Gwia Kim (336.930.3195, g_kim3@uncg.edu). This study has been reviewed by IRB (Institutional Review Board), and If you have any questions about IRB you can contact the UNCG Office of Research Inegrity (855.251.2351, ori@uncg.edu). I greatly appreciate your participation.

Sincerely,
Gwia Kim

<div align="center">1</div>

Approved IRB
2/15/18

<B: Emotional Advertisement Manipulation Check>

Please see an advertisement below and answer following questions.

After seeing the advertisement, please indicate how much you agree with each of the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
This advertisement has a very strong appeal to my emotions.	○	○	○	○	○	○	○
This advertisement is directed at making me feel something about the shirt.	○	○	○	○	○	○	○
This advertisement made me focus on my feelings about the shirt.	○	○	○	○	○	○	○

Please answer questions below.

1. **Please put your age: _____years old**

2. **What best describes your race?**
   o Caucasian / White
   o Black / African American
   o Asian
   o Hispanic / Latino
   o Other (Please indicate:)

3. **What best describes your employment status?**
   o Employed full time
   o Employed part time
   o Retired
   o Not employed
   o Others (Please indicate:)

4. **What best describes your income level?**
   o Less than $20,000
   o $20,000 to $49,999
   o $50,000 to $79,999
   o $80,000 to $100,000
   o More than $100,000

Thank you for your response.

If you want to participate in 4 Starbucks gift card drawings selection, please provide your email address. This email will only be used to contact you if you win the drawing.

Email: _____

Please see an advertisement below and answer following questions.

After seeing the advertisement, please indicate how much you agree with each of the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
This advertisement contained a lot of rational information.	○	○	○	○	○	○	○
This advertisement made me focus on my thoughts about the shirt.	○	○	○	○	○	○	○
This advertisement is directed at making me think something about the shirt.	○	○	○	○	○	○	○

Please see an advertisement below and answer following questions.

After seeing the advertisement, please indicate how much you agree with each of the following statements.

	Not at all						Extremely
	1	2	3	4	5	6	7
This advertisement focused on how I could feel pleasant emotions.	○	○	○	○	○	○	○
This advertisement focused on how I could feel positive emotions.	○	○	○	○	○	○	○

Please see an advertisement below and answer following questions.

Apparel industry
makes the land and the ocean sick.
However, our shirt is eco-friendly and sustainable.

Feel less worried and guilty

We use only
naturally grown fibers
and recyclable fabric

No GMOs. No Toxins. Just Clothes.

After seeing the advertisement, please indicate how much you agree with each of the following statements.

	Not at all						Extremely
	1	2	3	4	5	6	7
This advertisement focused on how I could avoid feeling unpleasant emotions.	○	○	○	○	○	○	○
This advertisement focused on how I could avoid feeling negative emotions.	○	○	○	○	○	○	○

APPENDIX G

IRB OFFICIAL LETTER: PRETEST

THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

OFFICE OF RESEARCH INTEGRITY
2718 Beverly Cooper Moore and Irene Mitchell Moore
Humanities and Research Administration Bldg.
PO Box 26170
Greensboro, NC 27402-6170
336.256.0253
Web site: www.uncg.edu/orc
Federalwide Assurance (FWA) #216

To: Gwia Kim
Cons, Apparel, and Ret Stds
Cons, Apparel, and Ret Stds

From: UNCG IRB

Date: 2/12/2018

RE: Notice of IRB Exemption (modification)
Exemption Category: 2.Survey, interview, public observation
Study #: 17-0516

Study Title: DO OLDER CONSUMERS CONSUME ENVIRONMENTALLY? AN UNDERSTANDING OF ENVIRONMENTALLY SUSTAINABLE APPAREL CONSUMPTION AND PURCHASE INTENTION THROUGH SOCIOEMOTIONAL SELECTIVITY THEORY

This submission has been reviewed by the IRB and was determined to be exempt from further review according to the regulatory category cited above under 45 CFR 46.101(b).

Study Description:

This research is to investigate older consumers' environmentally sustainable apparel consumption and purchase intention. Especially, this pretest will be conducted prior to main survey and followed by pilot interview and manipulation check before the main experiment. Below is the info of main study.

- Purpose of the study
    - This study observes how older adults show different level of purchase intention to environmentally sustainable apparel after seeing advertisements with different types of appeals Appeal types of advertisements depends on their time perspective.
- Time perspective: how people perceive the rest of their lifespan.
    - If people have 'limited time perspective', they think that they have only limited time to live from now on.
    - If people have 'expansive time perspective', they think that they have expansive time to live from now on.
- Emotional versus Rational
- Positively Emotional versus Negatively Emotional

Modification Information:

- After the manipulation check and before the main survey, this part will be pre-test.
- This survey will include the stimuli that are convinced by manipulation check.
- This pretest survey will ask environmental apparel consumption, time perspective, fashion-consciousness, environmental apparel attitude, and purchase intention to the

advertising apparel.
- This will be conducted with about 25 respondents.

Study Regulatory and other findings:

- If your study is contingent upon approval from another site (recruitment sites), you will need to submit a modification at the time you receive that approval.

Investigator's Responsibilities

Please be aware that any changes to your protocol must be reviewed by the IRB prior to being implemented. Please utilize the most recent and approved version of your consent form/information sheet when enrolling participants. The IRB will maintain records for this study for three years from the date of the original determination of exempt status.

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. **Stamped consent forms must be used unless the IRB has given you approval to waive this requirement.** Please notify the ORI office immediately if you have an issue with the stamped consents forms.

Please be aware that valid human subjects training and signed statements of confidentiality for all members of research team need to be kept on file with the lead investigator. Please note that you will also need to remain in compliance with the university "Access To and Retention of Research Data" Policy which can be found at http://policy.uncg.edu/university-policies/research_data/.

CC:
Byoungho Jin, Cons, Apparel, and Ret Stds

APPENDIX H

IRB OFFICIAL LETTER: MAIN SURVEY

THE UNIVERSITY *of* NORTH CAROLINA
GREENSBORO

OFFICE OF RESEARCH INTEGRITY
2718 Beverly Cooper Moore and Irene Mitchell Moore
Humanities and Research Administration Bldg.
PO Box 26170
Greensboro, NC 27402-6170
336.256.0253
Web site: www.uncg.edu/orc
Federalwide Assurance (FWA) #216

To: Gwia Kim
Cons, Apparel, and Ret Stds
Cons, Apparel, and Ret Stds

From: UNCG IRB

Date: 2/26/2018

RE: Notice of IRB Exemption (modification)
Exemption Category: 2.Survey, interview, public observation
Study #: 17-0516
Study Title: DO OLDER CONSUMERS CONSUME ENVIRONMENTALLY? AN
UNDERSTANDING OF ENVIRONMENTALLY SUSTAINABLE APPAREL CONSUMPTION
AND PURCHASE INTENTION THROUGH SOCIOEMOTIONAL SELECTIVITY THEORY

This submission has been reviewed by the IRB and was determined to be exempt from further
review according to the regulatory category cited above under 45 CFR 46.101(b).

Study Description:

This research is to investigate older consumers' environmentally sustainable apparel consumption
and purchase intention. Especially, this pretest will be conducted prior to main survey and followed
by pilot interview and manipulation check before the main experiment. Below is the info of main
study.

- Purpose of the study
    - This study observes how older adults show different level of purchase intention to
      environmentally sustainable apparel after seeing advertisements with different types of
      appeals Appeal types of advertisements depends on their time perspective.
- Time perspective: how people perceive the rest of their lifespan.
    - If people have 'limited time perspective', they think that they have only limited time to
      live from now on.
    - If people have 'expansive time perspective', they think that they have expansive time to
      live from now on.
- Emotional versus Rational
- Positively Emotional versus Negatively Emotional

Study Regulatory and other findings:

- If your study is contingent upon approval from another site (recruitment sites), you will need
  to submit a modification at the time you receive that approval.

Modification Information:
    1. I have uploaded letters of site approval for recruitment.
    2. I have modified survey questionnaire in order to conduct main survey followed by
       manipulation check and pretest.

3. The survey questionnaires are uploaded.

Investigator's Responsibilities

Please be aware that any changes to your protocol must be reviewed by the IRB prior to being implemented. Please utilize the most recent and approved version of your consent form/information sheet when enrolling participants. The IRB will maintain records for this study for three years from the date of the original determination of exempt status.

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. **Stamped consent forms must be used unless the IRB has given you approval to waive this requirement.** Please notify the ORI office immediately if you have an issue with the stamped consents forms.

Please be aware that valid human subjects training and signed statements of confidentiality for all members of research team need to be kept on file with the lead investigator. Please note that you will also need to remain in compliance with the university "Access To and Retention of Research Data" Policy which can be found at http://policy.uncg.edu/university-policies/research_data/.

CC:
Byoungho Jin, Cons, Apparel, and Ret Stds

APPENDIX I

MAIN SURVEY QUESTIONNARIES

<A: IRB Stamp>

No. _____

Location: _____

Dear Participants,

I am a master student at the University of North Carolina at Greensboro (UNCG), Gwia Kim. This is my thesis research guided by Dr. Byoungho Jin (b_jin@uncg.edu), the Putman and Hayes Distinguished professor at the UNCG. The purpose of the study is to understand older consumers' environmentally sustainable consumption. The respondents for this study are female adults living in the U.S. aged 65 and above. The survey will take about 10-15 minutes to complete, and you will not be compensated for your participation but there are 5 Starbucks gift card drawings selection you can participate at the end of the survey. Your answers will be kept confidential at all times. We hope you answer every question carefully because incomplete responses cannot be used for further analysis. If you have any questions on the survey, please contact Gwia Kim (336.930.3195, g_kim3@uncg.edu). This study has been reviewed by IRB (Institutional Review Board), and If you have any questions about IRB you can contact the UNCG Office of Research Integrity (855.251.2351, ori@uncg.edu). I greatly appreciate your participation.

Sincerely,

Gwia Kim

Approved IRB
2/28/18

Please indicate **how much you agree** with each of the following statement about apparel consumption. Shade the oval under the appropriate number on the scale, where **1** means you **strongly disagree** with the statement and **7** means that you **strongly agree** with the statement.

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
I buy apparel made from recycled material.	O	O	O	O	O	O	O
I buy second-hand apparel.	O	O	O	O	O	O	O
I purposely select fabrics that require cooler washing temperature, shorter drying time or less ironing.	O	O	O	O	O	O	O
I avoid an apparel product because of environmental concerns.	O	O	O	O	O	O	O
I select apparel that you can wear over a longer term compared to trendy apparel that goes out of style quickly.	O	O	O	O	O	O	O
I buy clothing made of organically grown natural fibers.	O	O	O	O	O	O	O
I buy apparel with low impact or no dye processing.	O	O	O	O	O	O	O
I buy apparel with environmentally friendly labeling or packaging techniques.	O	O	O	O	O	O	O

Read each item and, as honestly as you can, answer the questions: "How true is this of you?" Shade the oval under the appropriate number on the scale, where **1** means the statement is **very untrue** for you and **7** means that the statement is **very true** for you.

	Very Untrue						Very True
	1	2	3	4	5	6	7
Many opportunities await me in the future.	O	O	O	O	O	O	O
I expect that I will set many new goals in the future.	O	O	O	O	O	O	O
My future is filled with possibilities	O	O	O	O	O	O	O
Most of my life lies ahead of me.	O	O	O	O	O	O	O
My future seems infinite to me.	O	O	O	O	O	O	O
I could do anything I want in the future.	O	O	O	O	O	O	O
There is plenty of time left in my life to make new plans.	O	O	O	O	O	O	O
I have the sense time is running out.	O	O	O	O	O	O	O
There are only limited possibilities in my future.	O	O	O	O	O	O	O
As I get older, I begin to experience time as limited.	O	O	O	O	O	O	O

Please indicate **how much you agree** with each of the following statement about fashion. Shade the oval under the appropriate number on the scale, where **1** means you **strongly disagree** with the statement and **7** means that you **strongly agree** with the statement.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I usually have one or more outfits of the very latest style.	O	O	O	O	O	O	O
An important part of my life and activities is dressing smartly.	O	O	O	O	O	O	O
I like to shop for clothes.	O	O	O	O	O	O	O
I like to think I'm a bit of a swinger.	O	O	O	O	O	O	O
For my fashion needs, I am increasingly shopping at boutiques or fashion specialty stores rather than department stores.	O	O	O	O	O	O	O
When I must choose between the two, I usually dress for fashion, not comfort.	O	O	O	O	O	O	O

Please see an advertisement below and answer following questions at the next page.

Please indicate **how much you agree** with each of the following statements after being exposed to the advertisement. Shade the oval under the appropriate number on the scale, where **1** means you **strongly disagree** with the statement and **7** means that you **strongly agree** with the statement.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I will make an effort to buy this environmentally sustainable shirt in the future.	○	○	○	○	○	○	○
I will purchase this shirt the next time I need a shirt.	○	○	○	○	○	○	○
It is very likely that I will buy this shirt.	○	○	○	○	○	○	○
I will definitely try this shirt.	○	○	○	○	○	○	○
I will try to buy this environmentally sustainable shirt in the future.	○	○	○	○	○	○	○
I intend to buy this environmentally sustainable shirt in the future.	○	○	○	○	○	○	○

Please answer questions below.

1. Please put your age: _____years old

2. What best describes your race?
- o Caucasian / White
- o Black / African American
- o Asian
- o Hispanic / Latino
- o Other (Please indicate:)

3. What best describes your employment status?
- o Employed full time
- o Employed part time
- o Retired
- o Not employed
- o Others (Please indicate:)

4. What best describes your household income level?
- o Less than $20,000
- o $20,000 to $49,999
- o $50,000 to $79,999
- o $80,000 to $100,000
- o More than $100,000

5. What is the highest degree or level of school you have completed?
   (If currently enrolled, highest degree received.)
- o Less than high school degree
- o High school completed or graduate (includes equivalency)
- o Completed some college / Associate / Bachelor's degree
- o Master's degree
- o Ph.D. degree / Other advanced degree beyond a Master's degree

Thank you for your response.

If you want to participate in 5 Starbucks gift card drawings selection, please provide your email address. This email will only be used to contact you if you win the drawing.

Email: _____