EXPLORING THE ROLE OF PERSONALITY IN

CONSUMER ADOPTION OF SUSTAINABLE

APPAREL PRODUCT-SERVICE RETAIL (SAPSR)

MODELS

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Abstract:

According to the concept of Product-Service System (PSS), a new concept called Sustainable Apparel Product-Service Retail (SAPSR) was developed to minimize the environmental impact of consumption by lowering material consuming levels and increasing the life span of existing clothing products. Five retail-oriented SAPSR models are proposed in this study, including redesigned clothing, repair/alteration, renting, clothing swaps and consultancy. The primary goal of this research is to evaluate the influence of personality (fashion leadership, need for uniqueness, and materialism) on consumers' intention to adopt the new SAPSR models; and by applying the theory of planned behavior (TPB), to examine the indirect relationships between personality traits with the intention to adopt new SAPSR models.

An online survey was conducted to collect data among female populations in the United States. Data cleaning generated 431 valid responses. All the variables were measured by 6-point Likert scales. Structural equation modeling (SEM) was used in this research to test the proposed hypotheses. The results indicate that each personality trait has a different influence on consumers' intention to adopt the new SAPSR models, and the demographics, including age, income and education, have a moderate influence on the relationships between personality traits and the adoption of SAPSR models. The results of this study also uncover that the relationships between personality and SAPSR models are mediated by TPB variables, including past sustainable consumption behavior, internal perceived behavior control and attitude toward sustainable purchasing.

The implications in theory and practice of this study are discussed. The findings in this research allow scholars and managers to gain a comprehensive view of factors influencing consumers' intention to adopt the new SAPSR business models. The results will help SAPSR retailers to better evaluate their target consumers and to formulate and implement effective marketing strategies.

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CHAPTER I

INTRODUCTION

Research Background

In the past few decades, concerns about environmental issues, as they relate to consumption, have been growing on a global scale. Implementation of strategies and policies toward the realization of sustainable consumption have become of utmost importance in pursuit of a greener marketplace (Markkula & Moisander, 2012). Considering the production and consumption of apparel in today's marketplace, and how the process effects our natural environment, many challenges to sustainable consumption have begun to appear. The apparel and textiles (AT) sector plays a significant role in the global economy and has had a major impact on the development of sustainability as a whole (Markkula & Moisander, 2012). The environmental impact of AT industry has become increasingly harmful, because consumers are becoming more fashion sensitive and more demanding of new fashions (Ritch & Schroder, 2012).

A strategy known as fast fashion has become increasingly popular among many AT companies. Companies utilize this strategy so that they may reach and maintain profitability and competitiveness. Fast fashion relies on an increased rate of purchase frequency, focusing on more affordable garments, which are expected to be used for shorter periods of time (Birtwistle & Moore, 2007). Moreover, with the development of technology, more AT products are produced

and make their way onto store shelves in a much shorter period of time than ever before. Production levels in the apparel industry have increased dramatically and this has resulted in lower prices of the goods produced, thereby increasing material output and waste volumes (Pogutz & Micale, 2011).

Implementation strategies toward the realization of sustainable consumption have become a top priority in the past two decades. Fortunately, sustainability concerns in the AT sectors have led to a number of research studies and a movement towards more sustainable production and consumption patterns. Sustainable consumption has been classified into three categories in the AT industry: sustainable purchasing, using habits, and recycling behaviors (Liu, Wang, Shishime, & Fujistsuka, 2012). Even though consumers may be aware of the impact that some of their purchasing choices in apparel may have on the environment, there are many other aspects which may also have an impact on their decision-making processes. A study by (Pogutz & Micale, 2011) suggested that to approach a sustainable state, consumer consumption levels need to be reduced, and/or the production/consumption formats that are being employed need to be modified. The concept of sustainable consumption indicates the fact that it is necessary, not only for the production process of goods to be environmentally friendly, but also for consumer behavior to be environmentally friendly as well.

Programs for reducing consumption are becoming an important aspect of sustainable consumption as they attempt to change behaviors of consumers away from tangible products, towards product services (Heiskanen & Pantzar, 1997). A concept called Product-Service Systems (PSS) may provide options for the reduction of material consumption while also benefitting the environment (Catulli, 2012). The PSS may provide a variety of sustainable business models that utilize the ideas of renting products and redesigning products in order to reduce reliance on natural resources as well as increase product quality and longevity. The entire process may also better maintain and even increase consumer satisfaction (Rexfelt & Ornas, 2009).

A variety of PSS models have been implicated in some product categories, like car-sharing services (Yoon, Kim, & Rhee, 2012), transportation services and car rentals (Rexfelt & Ornas, 2009), washing services and sharing of power tools (Mont, 2004). Previous studies have investigated consumer acceptance of these types of PSS models. Two factors "uncertainties regarding risks" and "daily life impacted" were frequently discussed (Rexfelt & Ornas, 2009, P.677). Removal of personal ownership has also been identified as a notable challenge to consumer adoption (Catulli, 2012). Different from other products, apparel-purchasing behaviors have long been recognized as being influenced by fashion trends. The factors of ownership and fashion trends are particularly salient in the context of clothing when consumers consider the adoption of PSS models. A previous study by (Niinimaki & Hassi, 2011) has investigate that environmental concerns, social influence and emotional value were some of the factors that may increase consumer interest in PSS models related to apparel. But studies exploring the internal barriers or inner characteristics that lead to consumer concerns and interests are lacking.

Consumption practices are influenced by a number of factors beyond economics, including sociological, psychological, technological and environmental issues (Pogutz & Micale, 2011). Sheth, Sethia and Srinivas (2011, p.23) present a term "customer-centric sustainability," which indicates that conscientious consumption with a concern for the natural environment is critical in an effort to approach and maintain sustainable consumption. Although the amount of environmental knowledge a consumer holds has a direct influence on their purchase behavior practices in regard to such products like household goods, it does not have much of an impact on their apparel purchase behaviors (Gam, 2011).

Although AT companies have positive intentions and play active roles in the sustainable design, production, and distribution of apparel products, inconsistencies still exist in the actual implementation of environmentally responsible business practices. As for the consumer, the biggest inconsistency in daily environmentally conscious behavior is the gap between environmental

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awareness and consistent practice. A variety of factors, such as higher cost and lack of quality, are considered to impede consumer to pursue more sustainable consumption behaviors (Niinimaki, 2010). Although many consumers want a healthy environment with a sustainable consumption model in place, they simply need guidance and a comprehensive plan of action to follow, which is both attractive to their sense of fashion and beneficial to the environment. Therefore, there is a need to investigate new service models that may provide the industry an economic benefit while decreasing over-consumption among consumers as well as keeping consumer satisfied with fashion need and delivering an environmental benefit.

Research Objectives

Empirical research pertaining to sustainable consumption of apparel goods is lacking. Although there are plenty of studies concerning PSS models (Catulli, 2012; Cook, Bhamra, & Lemon, 2006; Mont, 2002; Rexfelt & Ornas, 2009), not many focus on apparel. According to the concept and the features of PSS, the present study developed the concept called Sustainable Apparel Product-Service Retail (SAPSR) model. The new concept of SAPSR models are strategies designed for the idea of dematerialization, by switching the focus from consuming apparel products to consuming apparel-related services. In highlighting the importance of personality traits as influential factors for the acceptance of SAPSR models, this study hopes to contribute to the broader literature that focuses on sustainable consumption in the AT field and to future strategies that may be developed to encourage environmentally conscious retail offerings and purchasing behaviors in the AT field.

The primary goal of this research is to evaluate the underlying determinants associated with inner characteristic— personality traits— that may influence consumers' intention to adopt the new SAPSR models; and to examine the structural relationship of personality traits, components of the theory planned behavior (TPB) and intention of SAPSR model. The study will develop a specific behavioral model to help scholars and marketers analyze and explain consumer behavior regarding SAPSR

models. The study also aims to explore the profiles of consumers who are willing to adopt SAPSR models. The specific objectives of the research are:

1) To explore the profile of consumers who are willing to adopt SAPSR models, with regards to personalities and demographic characteristics.

2) To investigate the direct influence of personality traits on SAPSR adoption, and how moderating variables, such as demographic factors, moderate personality traits and thereby influence adoption of SAPSR.

3) To investigate the relationship of personality, attitudinal and normative factors, past behavior, perceived behavior control, and consumers' intention toward SAPSR models.

4) To provide suggestions that the sustainable and retailers and marketers can take advantage of to develop potential target consumers.

Research Questions

This study will be framed by Ajzen and Fishbein's theory of reasoned action (TRA) and theory of planned behavior (TPB). Based on the objectives proposed above, three major research questions have been formulated. Each research question is followed by related sub-questions.

Table 1.1

Research Questions of the Study

Research questions	Research sub-questions
Q1: How do personality traits influence consumers' intention to adopt SAPSR models, and if demographic variables moderate the	Q1-1: If the personality traits, including materialism and fashion leadership influence consumers' intention of adopting each specific SAPSR models?

relationships.	Q1-2: If demographic variables have moderating influence on the relationship between personality traits and intention toward each SAPSR model?
	Q1-3: Whether or not personality traits and demographic characteristics directly affect consumers' intention to adopt overall SAPSR model?
Q2: What is the relationship of personality, attitudinal and normative factors, and consumers' intention toward SAPSR models?	Q2-1: Whether or not consumer's intention toward SAPSR model is following a hierarchical relationship between personalities, attitudinal and normative factors, and perceived behavior control?
	Q2-2: Does past sustainable consumption behavior have influence on consumers' intention to adopt SAPSR models?

By studying the research questions above, the present study would like to estimate to what degree these personality factors influence consumer action toward sustainable activities in AT purchasing. Implications of the study are expected to identify strategies that will be most effective in encouraging consumers to participate in sustainable purchasing behaviors without compromising their personal fashion needs and economic goals.

Contribution, Delimitations, and Limitations

At the beginning of the research, it is important to illustrate the contributions, boundaries and limitations. This study may offer two contributions to the goal of achieving sustainable consumption in the apparel and textiles (AT) field. From an academic perspective, this study broadens the theoretical research pertaining to sustainable consumption in the AT field by introducing and studying the specific SAPSR models. Further, this study will provide a better understanding of how personality traits influence consumers to make environmental-friendly consumption decisions in their AT

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products purchasing behavior with regards to SAPSR models. Although a number of studies have provided a research contribution in the improvement of habits and behaviors as it pertains to sustainable consumption (Dolan, 2002; Liu et al., 2012; Moraes, Carrigan, & Szmigin, 2012), and consumer acceptance of PSS (Catulli, 2012; Hirschl, Konrad, & Scholl, 2003; Mont, 2002; Rexfelt & Ornas, 2009), empirical research on new retail product-service models in AT fields is still lacking.

Moreover, existing research concentrates on the purchasing behaviors or intentions of consumers to buy environmentally-friendly AT products while very little empirical research has been directed towards sustainable product-service retail models. The intention of this study is to point consumer research in a new direction, away from only focusing on environmentally-friendly product purchases to sustainable product-service retail models. Utilizing Structural Equation Model based on collected quantitative data, this study will provide an in-depth understanding of the cause and effect relationships between the intention to adopt each specific SAPSR models and a variety of predicting variables, including personality, demographics, and past behavior. Further, the study will develop a specific behavioral framework to assist scholars and marketers in analyzing and explaining consumer behaviors regarding SAPSR model adoption. By applying Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB), the study will also examine the influence of subjective norms, perceived behavioral control and attitude on sustainable apparel purchasing behaviors.

From a practical perspective, the results of this study will provide suggestions to guide retailers in implementing SAPSR models that will appeal to consumers. The findings will provide managerial insights into devising marketing plans to promote the new sustainable retail models that may facilitate fashion retailers' development of sustainable supply chain initiatives. Sustainable apparel retailers will have a better understanding of consumers who would like to implement these models.

This study is designed to provide understanding and explanation of the influence of personality on adoption of SAPSR models. There are a variety of theories with regards to personality, such as Freudian theory, Neo-Freudian theory and Trait theory. This study adopts Trait theory and will focus on three personality traits: materialism, fashion leadership, and need for uniqueness. In addition, the new SAPSR models are developed based on established PSS categories from the literature. There are two specific categories: retail-oriented and design-oriented. This study will only focus on sustainable purchasing behaviors in the context of five retail-oriented PSS models.

The results of this study may not be appropriate for generalization to all sustainable purchasing behaviors. Further study could examine other personality traits and design-oriented types of SAPSR models to generate an increased breadth of knowledge about the relationship between personality traits and acceptance of SAPSR models. Moreover, women who are living in the United States and self-identifying as highly interested and involved in fashion-related consumption were recruited for this study. The results may not be able to be generalized to all populations. Further study could examine broader sample size.

Chapter Summary

This chapter has laid the foundation for the dissertation. The research background describes the problems existing in AT fields with regards to sustainability, and possible programs for sustainable consumption. It provides the practical implications that inspire this research to develop theoretical frameworks to address the personality influence on adoption of SAPSR models.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This chapter reviews the literature about the research problems to establish a theoretical

foundation for the stated research hypotheses. First, there is a review about the meaning of

sustainable consumption (2.2), and an introduction of new Sustainable Apparel Product-Service

Retail (SAPSR) models (2.3). Literature on personality and its relationship to sustainable

consumption adoption are reviewed (2.4), as personality, the inner characteristics, may influence

consumer behavior and adoption of the new SAPSR models. The theory of reasoned action and

theory of planned behavior are reviewed in order to achieve a comprehensive and evolutional

theoretical review (2.5). Finally, research hypotheses are proposed in 2.6, based on the relevant

literature review.

Sustainable Consumption

In the past few decades, there has been growing concern about environmental issues pertaining to

consumption. Scholars consistently research and test new methods and strategies to improve the

way in which humankind affects the natural environment. One of the most important factors to

consider when trying to strike a balance between humankind and nature is reaching the goal of

sustainable consumption. Sustainable consumption may be defined as consumption that meets the

needs of present generations, but does not compromise the resources needed or damage the environment of future generations (Pogutz & Micale, 2011). The practices involved in reaching a state of sustainable consumption may include buying environmentally friendly products, wise use of products, extending product life-cycles, and reducing waste and pollution.

Apparel and textile products are basic necessities of life. The AT sectors play a significant role in the global economy, and they have had a major impact on the development of sustainability as a whole (Markkula & Moisander, 2012). Although efforts to become more environmentally friendly in the manufacturing processes of apparel in the textile industry are underway, problems still exist. Fashion seasons are short, and consumers are increasingly encouraged to treat clothing as disposable, often wearing items only a few times (Birtwistle & Moore, 2007).

Seeking a way to deal with global environmental problems associated with industrial production and consumption habits is needed. Better understanding the inner characteristics of consumers may prove to be an effective way to approach sustainability as it pertains to purchasing behaviors, use habits, and disposal/recycling habits. When we consider the consumption of apparel and how the process effects our natural environment, many challenges to sustainable consumption begin to appear. This study hopes to break new ground in the research and development of effective models to decrease environmental damage and the raising of sustainable consumption behaviors of consumers.

The aspects of sustainable consumption behaviors may be classified into sustainable purchasing, sustainable use and recycling (Liu et al., 2012). Therefore, sustainable consumption refers to not only sustainability in purchasing, but it also includes activities in the post-purchase system, which involves using, re-using, recycling and discarding (Ha-Brookshire & Hodges, 2009). The increased demand of apparel products will certainly raise environmental impact.

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Sustainable purchasing is used to describe consumption activities as it pertains to the reduction of negative social and environmental impacts. Sustainable purchasing behavior not only refers to buying environmentally friendly products but also refers to a changed consumption model or even reducing consumption.

Sustainable use and recycling are considered to be the types of sustainable consumption in the stage of post purchase. A high importance has been placed on the aspects of using habits and recycling behaviors by researchers in an attempt to reduce waste (Bianchi & Birtwistle, 2010; Birtwistle & Moore, 2007). Sustainable use, as it pertains to apparel products, may include the behaviors like reducing laundry frequency, wearing old clothing in new ways, use the products longer (Tilikidou & Delistavrou, 2004) and shared use (Mont, 2004). Recycling advocates extending the life of products by reusing or redesign instead of throwing them into the landfill. Disposal of clothing occurs when the garment leaves the possession of an individual who anticipates no further wearing of it (Winakor, 1969). The fast fashion strategy makes it possible that more apparel products are produced and make their way onto store shelves in a much shorter period of time, which results in increased material output and waste volumes (Birtwistle & Moore, 2007). Therefore, recycling of apparel goods becomes one of the important ways to reduce the waste.

Often, a consumer's individual preferences hold an often over-looked and major impact on the natural environment (Pogutz & Micale, 2011). When we consider the consumption of apparel and how the process effects our natural environment, many challenges to sustainable consumption begin to appear. Fashion seasons are short, and consumers are encouraged to treat clothing as disposable with the expectation that garments only be worn a few times (Birtwistle & Moore, 2007). Many consumers continuously purchase fashion products that exceed their need or even their financial capacity. To approach a sustainable state, it will be required of consumers to reduce their level of consumption or modify the kinds of goods they consume (Pogutz & Micale,

2011). In the apparel industry, reducing the frequency of fashion consumption or modifying consumption patterns might be a viable approach in an attempt to achieve a sustainable consumption state. Some ideas to consider which may be helpful in the pursuit of sustainable consumption, might be conscientious disposal practices, clothing exchanges, clothing recycling, and more second-hand clothing usage.

The apparel industry introduced the strategy of increasing the number of fashion seasons paired with lower prices (Joung & Park-Poaps, 2013). Although this strategy makes it easier for consumers to purchase apparel products with a higher rate of frequency, it also brings pressure to them to follow the fast-changing trends. With the availability of more attractive clothing products and the desire of consumers to appear fashionable, style and fashion considerations have become major reasons for the presence of increased consumption of items such as apparel and many other fashion products. One problem facing sustainable consumption, as it pertains to apparel, is the fact that a great deal of clothing is discarded because of style or fashion considerations (Bianchi & Birtwistle, 2010; Birtwistle & Moore, 2007; Domina & Koch, 2002; Morgan & Birtwistle, 2009). Although increased consumption and sales are good for an economy, the downside is that it also produces more waste and pollution.

New Sustainable Apparel Product-Service Retail Models

To approach a sustainable state, consumers must reduce their level of consumption or modify the kinds of goods and services they consume (Pogutz & Micale, 2011). In the AT industry, reducing the frequency of fashion consumption or modifying consumption patterns, such as renting clothing instead of buying for a one-time event, might be a viable approach in an attempt to achieve a sustainable consumption state. A previous study in the UK identified five key opportunities for the apparel industry and consumers to become more sustainable: reduce environmental impact of production and laundry, extend the product's life, reduce landfill

disposal, and increase market supply and demand for used items (WRAP, 2011). With sustainable consumption in mind, the ways of clothing usage and recycling behaviors, which are considered to be more sustainable must be promoted and marketed by the AT industry. Some areas to consider which may be helpful in the pursuit of sustainable consumption, as it pertains to the AT industry, might be conscientious disposal practices, clothing exchanges, clothing reuse or resale, and donation. WRAP (2011) puts forth a number of opportunities for alternative revenue streams for the apparel industry; such as the sale of pre-owned apparel, services that offer consumers ways to gain greater use of items already owned, accessible and affordable alterations and repair services, and collection of used clothing for recycling and reuse.

An alternative sustainable concept for business is termed Product-Service systems (PSS). PSS is defined as the combination of tangible products and intangible services that satisfy consumer needs (Tukker, 2004). PSS utilize the concepts such as product renting or leasing, redesigning, maintaining, or sharing to reduce reliance on natural resources as well as increasing product quality, longevity and customer satisfaction (Heiskanen & Jalas, 2003; Tukker, 2004). The aim of PSS is to reduce the material resource consumption associated with current consumption levels and replace that with increased delivered utility of things. PSS support the reduction in the quantity of materials required to serve economic functions in society, called dematerialization. This offers a variety of other environmental benefits, such as reducing the material flows in production and consumption by creating product-service combinations that provide consumers with the same level of performance but with a lower impact on the environment (Catulli, 2012; Mont, 2002). However, by utilizing some concepts like renting or leasing, it may also lead to reduced personal ownership in some cases (Catulli, 2012).

Three categories of PSS concepts have been conceptualized: product-, use- and results-oriented models (Cook et al., 2006; Mont, 2002; Tukker, 2004). Product-oriented services sell not only a product but a product-related service that adds value to the sale, such as maintenance,

upgrading, return/exchange plans or consultancy. These services may result in a prolongation of the life span of products (Hirschl et al., 2003). Use-oriented services offer product leasing, renting/sharing or pooling systems, and are characterized by the lack of transfer in ownership of the products. Result-oriented services include activity management or outsourcing, pay per service units of sale or functional result. These services deliver a result rather than a product or the use of a product. Notably, PSS seek ways to encourage consumers for sustainable consumption in these various states. PSS concepts such as the sale of redesigned products, promote sustainable consumption via purchasing such concepts, but also by offering solutions in the use and disposal/recycling phases, such as product rentals, take back services, and swaps.

To assist in the development of PSS in the apparel retail industry, a collection of new sustainable consumption models called Sustainable Apparel Product-Service Retail (SAPSR) were formulated. The goal of SAPSR models is to minimize the environmental impact of consumption by lowering material consumption levels and increasing the life span of existing clothing products via various concepts the consumer may engage. For consumers, utilizing the SAPSR models will mean a shift from buying products to buying services. The system solutions have the potential to minimize the negative environmental impact of consumer needs and wants. Effectively implemented SAPSR models also have the potential to decrease the total amount of products consumed by introducing alternative scenarios of product use. For example, apparel items may be shared by or rented to the consumer as a service, which will not affect the over-all design and up-to-date fashion of the products (Mont, 2002).

PSS concepts, as well as the services that already exist in retail, such as apparel renting, apparel swaps, and styling services, were used to inspire the development of each specific SAPSR model. As the apparel industry is more product-focused, product- and use-oriented concepts were considered the most realistic application for this industry (Armstrong, Niinimaki, Kujala, Karell,

& Lang, in press); therefore, the SAPSR models in this study were developed based on product-and use-oriented PSS concepts. Five retail-oriented SAPSR models are conceptualized

The sale of redesigned clothing and repair/alteration services (S1 and S2) were inspired and are types of product-oriented PSS explored in the study. The potential objectives of these models are to increase product longevity, increase interest in reuse and to reduce landfill and material waste at the end of consumer interest in clothing items. Recycling and reuse are well understood concepts and may be perceived as methods to extend the lifespan of clothing. The renting, clothing swaps, and consultancy services (S3, S4, and S5) are types of use-oriented PSS explored in the study. The potential for dematerialization increases with the decrease in personal ownership and increase of product use intensity when multiple users are involved. Apparel swaps and consultancy also aim to increase interest in reuse of old clothing items thereby reducing landfill waste while transitioning consumption to a more social activity. Table 2.1 provides a brief description of each SAPSR model.

Unlike other household products, apparel purchasing behaviors have long been recognized as being influenced by a combination of fashion trends, seasonal changes, social groups and shopping values. The concept of SAPSR models is still theoretical, although there are some examples of SAPSR elements, which can be found in some retailers. These retailers are mainly driven by economic considerations but not environmental effects. Moreover, most of the research in existence focuses on sustainable consumption of everyday products, in general, while limited research has been conducted on the factors that have an influence on the acceptance of SAPSR models.

Table 2.1

The New Sustainable Apparel Product-Service Retail Models

SAPSR type	Model	Description	Sustainability features
Retail-related	S1	Sale of redesigned apparel product sourced from apparel take-back service	Increase product longevity; increase interest in reuse; and reduce landfill and material waste at the end of consumer interest in clothing items.
	S2	Providing clothing repair/alteration services	
	S3	Renting clothing product	Increase interest in reuse; elimination of material use for first-off goods; increase use intensity; and reduce landfill waste
	S4	Clothing swaps	
	S5	Consultancy service with or without the sale of an apparel product	

Personality and Its Relationship to Sustainable Consumption

Personality Traits and Sustainable Consumption

Personality has been defined as an "inner psychological characteristics that both determines and reflects how a person responds to his or her environment" (Schiffman & Kanuk, 2007, p.118). Personality traits have been extensively researched across a wide range of disciplines. Trait theory is one of the major theories in the study of personality that is focused on identifying and measuring these individual personality characteristics, enabling researchers to pinpoint individual differences. A trait is defined as "any distinguishing, relatively enduring way in which one individual differs from another" (Schiffman & Kanuk, 2007, p.122). The combination and interaction of various traits forms a personality that is unique to each individual, and is also considered to have causal influences on behavior (Johnson, Francis, & Burns, 2007).

Understanding how personality influences consumption behavior enables marketers to better understand the wants and needs of consumers and to segment and target those consumers who are likely to respond positively to their products or service (Schiffman & Kanuk, 2007).

As inner characteristics, personality traits distinguish one individual from another. They affect the way consumers respond to different market strategies and how they consume particular products or services. The identification of specific personality traits has proven to be highly useful for marketing strategies (Schiffman & Kanuk, 2007). Purchasing behavior, product choice, attitude change and a variety of other activities have been linked to personality (Kassarjian, 1971). Personality traits have been shown to influence consumer attitudes and behaviors associated with their social and environmental behavior (Hirsh, 2010), and they have also been identified as an avenue to effectively predict specific pro-environmental goals (Hirsh & Dolderman, 2007). Open-minded consumers are more likely to place importance in and to act on social and environmental concerns (Luchs & Mooradian, 2012). Price and Ridgway (1983) argued that use innovativeness is an important predictor of the chances of extending product lifecycles, furthering the product life cycle's growth phase and improving new product acceptance (Girardi, Soutar, & Ward, 2005)

Interest in how personality traits relate to consumer behavior has existed since marketing to consumers was first recognized (Haugtvedt, Petty, & Cacioppo, 1992). Internal and external barriers to sustainable consumption behavior have been studied. With regards to internal barriers, researchers have found that a variety of factors, such as personal values (Dickson, 2000; Pinto, Nique, Anana, & Herter, 2011), personality (Balderjahn, 1988; Fraj & Martinez, 2006; Hirsh, 2010), beliefs (Dickson, 2000), environmental knowledge and attitude (Balderjahn, 1988; Connell, 2010; Dickson, 2000) are useful for characterizing ecologically concerned consumers. On the other hand, the external barriers, such as availability, economic resources and social norms also have influences on the consumer's socially responsible behavior (Connell, 2010).

Usually, an individual's behavior is influenced by the combination of internal and external factors.

Although consumers today are exposed to and are aware of a variety of sustainable consumption practices, the inconsistency between attitude and behavior persists in regard to transforming available information and procedures into actual practices (Markkula & Moisander, 2012). Negative attitudes about environmental apparel consumption are the major barrier for consumers when deciding whether or not to engage in sustainable consumption behaviors (Connell, 2010; Kozar & Connell, 2013). Therefore, though the new SAPSR models may hold substantial benefits for businesses and societies, many challenges to consumer adoption still exist. For example, the concept of SAPSR models put more emphasis on dematerialization, which may increase product use intensity as well as decrease personal ownership of clothing (Armstrong et al., in press). Removal of personal ownership may discourage consumers from pursuing some of the new SAPSR models, like renting (Catulli, 2012; Tukker & Tischner, 2006). Moreover, the new concept of SAPSR models seeks ways to increase the longevity of old clothing. By reusing old clothing, people may not be able to follow the recent fashion trend, which also prevents consumers from patronage of these new retail models. As stated in a previous study (Connell, 2010), consumers' internal personality factors were found to impact their environmental behaviors. Seeking a solution to environmental problems associated with consumption by studying the internal personality characteristics of the consumer as it pertains to sustainable purchasing behavior may help to better understand consumer acceptance of SAPSR models.

Although studies in consumer behavior and ethics have found individual decision making to be influenced by personality traits, no studies have examined the relationship between various personality variables and the consumer's reaction toward SAPSR models. Therefore, this study is developed to explore how a consumer's personality traits influence their acceptance of each type of the SAPSR. Many studies exist pertaining to the relationship between values and sustainable

behaviors (Dickson, 2000; Y. Kim & Choi, 2005; McCarty & Shrum, 2001) of a broad

discipline, but research focusing on the cause and effect relationship between personality and

actual intentions to become involved in sustainable behaviors in apparel and clothing field is

lacking, especially with the development of new SAPSR models. Therefore, for the purposes of

this research, it is urgent to investigate and analyze the sociological and psychological profiles of

consumers so that distinct personality traits may be identified which will be more accepting of the

sustainable consumption models being put forth.

Personalities are an integral part of the individual that can potentially affect one's thought

processes in making socially responsible decisions (Rallapalli, Vitell, Wiebe, & Barnes, 1994).

Literature has found that people with different personalities show distinct sustainable purchasing

behaviors and use of products (Balderjahn, 1988; Ramanaiah, Clump, & Sharpe, 2000). Trait

theory (Schiffman & Kanuk, 2007) has introduced a variety of personality traits, including

innovativeness, dogmatism, sensation seeking, materialism, and need for uniqueness, etc. Three

of these personality traits have been selected for investigation as having the greatest potential for

providing insights into consumer intentions toward SAPSR models. These three personality traits

will be used in the context of the theoretical framework of this study: fashion leadership, need for

uniqueness and materialism.

Fashion leadership

Fashion leadership is an important concept in apparel consumption because the fashion

leader plays a key role in the diffusion of new fashions. Fashion leaders learn about new fashion

trends earlier than the average buyer and purchases new fashion items soon after they are

introduced into the market (Goldsmith, Freiden, & Kilsheimer, 1993). Compared with fashion

followers, fashion leaders spend more money on clothes, read more fashion-related magazines,

shop more often for clothes and purchase more new fashion items (Goldsmith, Heitmeyer, &

Freiden, 1991).

Unlike other product consumption, apparel consumption behavior is highly affected by fashion trends. The fashion leadership personality trait is closely related to fashion consumption. Fashion seasons are short and consumers are increasingly encouraged to treat clothing as disposable, often wearing items only a few times (Birtwistle & Moore, 2007). One problem facing sustainable consumption, as it pertains to apparel, is the fact that a great deal of clothing is discarded because of style or fashion considerations (Bianchi & Birtwistle, 2010; Birtwistle & Moore, 2007; Domina & Koch, 2002; Morgan & Birtwistle, 2009). The concept of the new SAPSR models seeks to extend the lifespan of clothing by providing consumers with repair services of old apparel items, which may prohibit consumers from purchasing trendy fashion products. Therefore, individuals who are interested in maintaining an appearance consistent with current fashion trends might be resistant to some of the SAPSR models, such as repair and consultancy, which they perceive as a reduction of their opportunity to consume the latest fashion trends.

Need for uniqueness

Consumers' need for uniqueness is defined as the pursuing of differentness relative to others through the acquisition, utilization and disposition of consumer goods for the purpose of developing and enhancing one's self-image and social image (Tian, Bearden, & Hunter, 2001, p.52). Being different from others or becoming distinct from other people in a group is often the result of the need for uniqueness personality trait. An individual with a higher level of need for uniqueness would likely act in a way that would allow the person to stand out from others. Dressing in a different way is often considered to be a way of being different from others (Workman & Kidd, 2000).

Need for uniqueness predicts a broad range of uniqueness-enhancing consumer behaviors (Tian & McKenzie, 2001). Apparel consumption converges strongly with the construction of one's own ideas and individuality. In order to deeply express one's own personality, the clothing

style of the individual is often of great importance. Avoidance of similarity is considered to be an important factor for the consumers who perfer to be different from others (Tian et al., 2001).

The need for uniqueness personality trait may have an influence on the acceptance of SAPSR models that provide unique products, such as redesigned clothing items. This service could result in the creation of one-of-a-kind new products produced from old materials. On the other hand, some SAPSR models, such as renting, may not be able to attract consumers with high level of need for uniqueness. Although this service provides more opportunities for consumers to be able to keep fashion trends with relatively low cost, the likelihood of wearing similar garments with others is also increased. Consumers who prefer to look different from others by dressing might hesitate to rent clothing. Other SAPSR models encourage consumers to share used clothing products, which may be problematic for people who seek ways to be different from others. However, other SAPSR models, like consultancy services, may provide consumers with new ideas on how to wear their clothing in different ways, which might be attractive for some consumers who like to dress differently than other people.

Materialism

Materialism is a personality trait, which represents the individual's perspective regarding the role that possessions play in their life (Richins, 1994), and indicates how important material possessions are to the individual. Materialism is defined as "the importance a consumer attaches to worldly possessions" (Belk, 1984, p.291). Usually, a person holding a high level of material values places possessions at the center of his or her life, and it plays an important role in whether he or she is satisfied or not with their life. They value possessions as a means of achieving happiness and they use possessions as an indicator of their own and others' success. Recently, consumer researchers have become increasingly interested in exploring various consumption and possession traits, including materialism (Schiffman & Kanuk, 2007).

Negative attitudes about environmental apparel consumption are the major barrier for consumers to engage in sustainable consumption behaviors (Connell, 2010; Kozar & Connell, 2013). Over-consumption is considered to be the opposite of sustainable consumption. The sustainable purchasing behavior not only refers to buying environmentally friendly products, but also refers to the consumption models, which call for consumers to buy less and choose less harmful products (Tilikidou & Delistavrou, 2004). Reducing consumption is one of the goals of sustainable consumption, which is achieved by switching consumers' consumption focus from the premature disposal of tangible products to taking advantage of services available that specialize in sustainable consumption practices (Heiskanen & Pantzar, 1997).

Materialism can restrain one's desire to relinquish personal ownership of things, especially if ownership is important to status or the retention of important memories. People with materialistic values are more likely to over-consume than those without the materialistic value personality trait (Tilikidou & Delistavrou, 2004). As a personality trait, materialism distinguishes between individuals who regard possessions as essential and those who don't value possessions (Schiffman & Kanuk, 2007).

Need for ownership has been found to discourage materialistic consumers from taking advantages of some of the PSS concepts (Catulli, 2012; Rexfelt & Ornas, 2009). As the extension of PSS, the new SAPSR models place more emphasis on intangible services instead of tangible apparel products, often replacing personal ownership and excess material consumption with alternative utilization options. Some SAPSR models that offer product renting are characterized by the lack of transfer in ownership of the product. In this model, dematerialization may increase with decreased personal ownership and increased product use intensity (Armstrong et al., in press), which may be problematic for a materialistic person. For example, the renting service provides consumers with more fashionable clothing options and might be attractive to consumers who are fashion innovators. However, the downside of this service for some consumers is that

they would be required to relinquish ownership of their valued garments. On the other hand, for some of the participants who do not mind if they hold onto their garments or not, the renting clothing service would provide them with the opportunity to fulfill their need for change, and to try something they could never before afford.

The Role of Demographics

In addition to internal and external factors introduced above, the demographic variables may also provide a contribution to gain more insight into an individual's acceptance of sustainable consumption behaviors in AT fields. According to previous studies, age, education, and income are also optional explanatory factors of sustainable behaviors (Arcury, 1990; Cottrell & Graefe, 1997; Fransson & Garling, 1999; Mohai & Twight, 1987; Samdahl & Robertson, 1989). The age of an individual has been found to be the strongest and most consistent predictor of one's environmental concerns (Mohai & Twight, 1987), which has been found to be positively associated with one's support for environmental regulation and ecological behavior (Samdahl & Robertson, 1989). Education and income are both identified to be important factors in consumers' decision making process toward socially responsible behavior (Arcury, 1990), which are found to be negatively associated with perceptions of environmental problems and support for environmentally friendly consumption behavior (Samdahl & Robertson, 1989).

Demographic variables are not only associated with favorable sustainable consumption attitudes and behaviors, but they are also related to personality characteristics. Previous studies indicate that significant differences exist in fashion leadership in both age and gender (Goldsmith et al., 1991; Lang, Armstrong, & Brannon, 2013). Female consumers are generally more involved in fashion products (O' Cass, 2004); therefore, in this study we only focus on female consumers. Young consumers generally have positive attitudes towards new fashion trends, and they are more fashion innovative than are older consumers (Birtwistle & Moore, 2007; Law, Zhang, & Leung, 2001). In general, young people prefer to buy a higher quantity of lower priced but

fashionable clothing frequently, in order to keep up with the latest trends, as opposed to older adults who would prefer to buy higher quality clothing products with less concern for quantity (Bhardwaj & Fairhurst, 2010). Therefore, demographic variables, including age, annual income, and education will be added to the model developed in the present study, in order to examine the importance of the role of demographic variables in predicting consumers' willingness to adopt SAPSR models.

Theory of Reasoned Action and Theory of Planned Behavior

The theory of reasoned action founded by Ajzen and Fishbein's (1980) and the theory of planned behavior (Ajzen, 1991) have increasingly caught the interest of many theorists in the field of social sciences, in order to investigate the underlying determining factors for a behavior (Westaby, 2005). The theoretical framework underlying this research is the hierarchical relationship between personality, attitudes, social influences and behaviors that dominate consumer behaviors.

The theory of reasoned action (TRA) specifies two conceptually independent determinants of intention. One is the personal factor of attitude toward the behavior, and the other is a social factor called the subjective norm. The behavioral intention is assumed to be influence by the joint effect of attitude and subjective norm. An individual's attitude toward performing a specific behavior is related to the beliefs that performing the behavior will lead to particular results. Subjective norms are the individual's perception of the social pressures placed on them to perform the behaviors in question. Subjective norms are determined by normative beliefs and motivations to comply with those beliefs. The goal of TRA is to determine the behavior of interest of an individual in order to predict and understand his/her behavior. Ajzen and Fishbein (1980) recognized that variables other than attitude toward behavior and subjective norms are important to explain behavior. They further elaborated that other factors, such as demographics,

attitude toward targets, and personality traits are vital factors to consider when incorporating them into the model. Figure 2.1 presents the effect of external variables on intention and behavior in the theory of reasoned action.

Apparel and textile products not only satisfy a basic human need but also deliver a significant social benefit. Therefore, behind the actual need to purchase, there are other deeper reasons, such as the need to be associated with some type of social status or a desire for certain lifestyles (Niinimaki, 2010). The theory of reasoned action would appear to possess the necessary conceptual elements to explain and predict sustainable consumption behavior. Attitudinal elements, including behavioral beliefs, outcome evaluation and attitude toward behavior represent, respectively, personal and social variables implicated in sustainable consumption behaviors.

Although Fishbein and Ajzen (1980) believe that the two components, attitude toward behavior and subjective norms, are sufficient for determining behavior intention that directly affects behavior, this principle of sufficiency has been questioned by researchers. Ajzen (1991) developed the theory of planned behavior (TPB), which extends the theory of reasoned action by including the concept of behavioral control. Perceived behavioral control in this theory refers to an individual's perception of his or her ability to perform a given behavior, which is a central factor in the theory of planned behavior (Ajzen, 1991). Intentions are assumed to capture the motivational factors that influence a behavior, which are indications of how much effort an individual is willing to put forth in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance. Figure 2.2 presents the theory of planned behavior.

Figure 2.1

Effect of External Variables on Intention and Behavior: The theory of Reasoned Action, Source: (Ajzen & Fishbein, 1980)
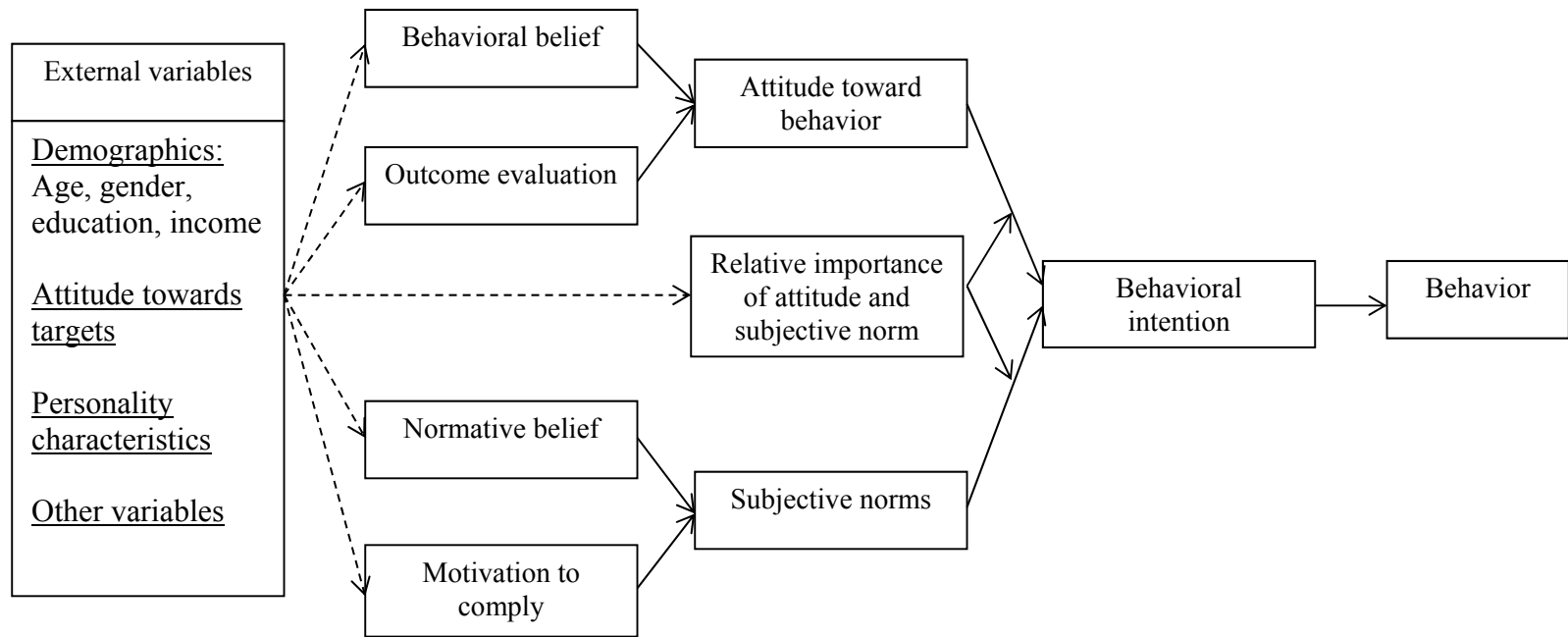
Figure 2.2

The Theory of Planned Behavior (Source: (Ajzen, 1991))
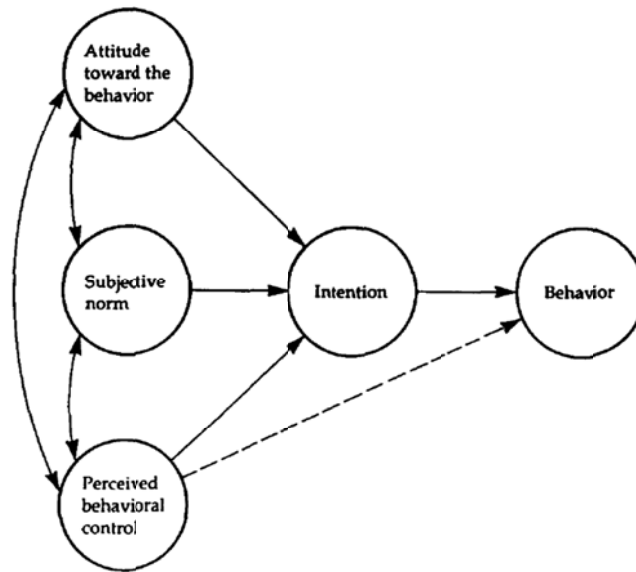
Similar to the theory of reasoned action, the theory of planned behavior does not include the variables like demographics, personality traits and values in their model. Those types of variables are considered to be "external variables" and are assumed to influence intention and behavior indirectly. Both the theory of reasoned action and the theory of planned behavior have been subject to the most testing in research with numerous studies providing strong support for its overall predictive function.

Although attitude toward behavior, subjective norms and perceived behavioral control is accepted by many theorists, predicting intention effectively, some researchers argue that adding past behavior to the model will increase the variances significantly (East, 1997). East (1997) listed the several reasons for adding the variable—past behavior—into the model. Firstly, he believes that the measure of past behavior might be supplementary under the condition when attitude toward behavior, subjective norms, and perceived behavioral control are incomplete to predict the intention and behavior; secondly, past behavior may reveal unconscious learning which is not reflected in the measures of attitude toward behavior, subjective norms, and

perceived behavioral control; thirdly, he argued that adding past behavior might enlarge the model, and make the model more completed. Therefore, past sustainable consumption behavior will also be added in the model of this study.

Research Hypotheses

This research focuses on three personality traits and their relationship to adopting SAPSR models. The study is designed to test the hypothesis that certain aspects of personality traits will differentially influence consumers' attitude and intention toward SAPSR models and the role of demographic variables on the relationship. Based on the preceding literature review, this research is designed to address two major questions, which will be illustrated in two models. First (model 1), how do personality traits influence consumers' intention to adopt each specific SAPSR model, with moderation of demographic variables? Second (model 2), what is the relationship of personality, attitudinal and normative factors, demographics, and consumers' intention toward SAPSR models? The possible propositions and corresponding hypotheses are stated as follows.

The first question addressed in this study concerns the factors with regard to personality traits, which determine consumers' intention to adopt each SAPSR model. Although, Ajzen and Fishbein (1980), Fishbein and Ajzen (1975), and Ajzen (1991) maintained that attitude, subjective norm, and perceived behavioral control are sufficient for determining behavioral intention, variables like personality traits are considered as external factors in the TRA model and are assumed to influence intentions and behavior indirectly. This study will focus on three major personality traits: materialism, fashion leadership, and need for uniqueness. By investigating these personality traits, this research hopes to determine and target the personality traits which may have a direct influence on consumers' intentions and acceptance of the SAPSR model.

H1: Personality traits have a direct effect on consumers' intention to adopt the overall SAPSR model

The fashion leadership personality trait is closely related to fashion consumption. Consumers who are interested in maintaining an appearance which is consistent with current fashion trends might be resistant to some of the SAPSR model scenarios, such as redesign and repair/maintenance, which they perceive as a reduction of their opportunity to consume the latest fashion trends. Consumers who report an interest in fashion leadership, but have a lack of confidence in their own style selections, might be quite receptive to the consultancy service, which might allow them to follow the current fashion trends and to maintain their own sense of style.

H2: Fashion leadership has a direct effect on consumers' intention to each adopt SAPSR model.

Need for uniqueness predicts a broad range of uniqueness-enhancing consumer behaviors (Tian & McKenzie, 2001). Apparel consumption converges strongly with the construction of one's own idea and individuality. In order to deeply express one's own personality, the clothing style of the individual is often of great importance. Avoidance of similarity is considered to be an important factor for the consumers who perfer to be different from others. The need for uniqueness personality trait may have an influence on the acceptance of the SAPSR models that provide unique products, like take back service scenarios, although this service could result in the creation of one-of-a-kind new products produced from old materials. On the other hand, some SAPSR model, such as renting, may provide more opportunities for consumers to be able to keep fashion trends with relatively low cost, but on the other hand, the rate of wearing same dress with others is also improved. Consumers who prefer to look different from others by dressing might be hesitating to rent clothing items.

H3: Need for uniqueness has direct effect on consumers' intention to adopt each SAPSR model.

Materialism can restrain one's desire to relinquish personal ownership, especially if it is ownership of important status levels or the retention of important memories. People with materialistic value are more likely to over-consume (Tilikidou & Delistavrou, 2004). As a personality trait, materialism distinguishes between individuals who regard possessions as essential and those who don't value possessions (Schiffman & Kanuk, 2007). The renting service option provides consumers with more fashionable clothing options and might be attractive to consumers who are fashion innovators. However, the downside of this service for some participants was that they would be required to relinquish ownership of their valued garments. On the other hand, for some of the participants who don't mind if they hold onto their garments or not, the renting clothing service would provide them with the opportunity to fulfill their need for change, and to try something they could never before afford.

H4: Materialism has a direct effect on consumers' intention to adopt each SAPSR model.

The first research question also concerns the role of demographics in the relationship between personality and intention toward SAPSR models. Demographic variables play an important role in market segmentation, especially with regard to sustainable consumption. Usually, ecologically concerned consumers are better educated, younger, and have a higher income than the average consumer (Balderjahn, 1988). Age is negatively associated with fashion leadership. Therefore, the corresponding research hypotheses are stated as follows:

H5: Demographic variables a) age b) income c) education, have a significant influence on consumers' intention to adopt SAPSR models.

H6: Demographic variables a) age b) income c) education, have a moderating effect on the relationship between personality traits and intention to adopt each SAPSR model.

The second question discussed whether sustainable consumption decision processes are also following hierarchical structural relationships, that is, whether personality has indirect effect

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on consumers' intention toward SAPSR models mediated by attitudes, subjective norms, perceived control, and past sustainable consumption behaviors.

Previous studies about product-service system adoption have identified a variety of remarkable challenges to consumer adoption, such as the removal of personal ownership, which provides consumers with a sense of control (Catulli, 2012; Hirschl et al., 2003; Mont, 2002; Tukker & Tischner, 2006). Furthermore, consumers who are attached to the frequent consumption of a product, especially following trends is common with fashion products, may be reluctant to reduce the frequency of new product consumption (Hirschl et al., 2003). When considering the potential adoption of the new SAPSR concepts by consumers, it is hopeful that consumers may be somewhat aware of these concepts but adoption would undoubtedly change how consumers interact with and utilize their clothing.

Marketing, education and awareness campaigns are needed to increase consumer participation in the SAPSR models put forth. Both producers of apparel and consumers will need to be on the same page when it comes to improving sustainable consumption in the apparel and fashion industry. Profitability will need to be a proven factor in order to persuade producers and consumers to engage in the proposed models. Examining personality traits and identifying target consumers is the first step in the process of improving environmental awareness and encouraging responsible purchasing and sustainable consumption practices in the clothing and apparel fields.

As stated earlier, the purchasing behavior of consumers regarding SAPSR models needs to be understood and explained by communication both with inner characteristics and social factors in sustainable consumption. This research draws upon the theory of planned behavior (TPB) as the theoretical framework to analyze the determinants of consumers' intention to adopt SAPSR models. This theory takes into account both individual and social factors. Based on the theory of planned behavior, this study proposes that attitudes toward SAPSR model, subjective

norms and perceived behavioral control are the essential determinants of the consumers' intention to use SAPSR model. Further, East (1997) argued that although attitude toward behavior, subjective norms and perceived behavioral control are able to predict intention quite well, adding past behavior to the model will increases the variances significantly. Therefore, past sustainable consumption behavior will be added in the model of this study. The research hypotheses are stated below:

H7: Personality has indirect effect on consumers' intention toward SAPSR models mediated by attitudes, subjective norms, perceived control, and past sustainable consumption behaviors.

H8: Attitudes toward sustainable consumption are positively related to consumers' intention to adopt SAPSR models.

H9: Subjective norms in relation to sustainable consumption are positively related to consumers' intention to adopt SAPSR models.

H10: Perceived control of sustainable consumption behavior is positively related to consumers' intention to adopt SAPSR models.

H11: Past sustainable consumption behavior is positively related to consumers' intention to adopt SAPSR models.

Upon the hypotheses discussed above, Figure 2.3 and Figure 2.4 present the conceptual models developed in this study.

Figure 2.3

Model 1-Expected Direct Relationships between Personality and SAPSR Models

Personality
Fashion leadership
Need for uniqueness
Materialism

Redesigned clothing

Repair/alteration

Renting

Clothing swaps

Consultancy

Q1-1   Q1-2

Demographics
Age, income, education
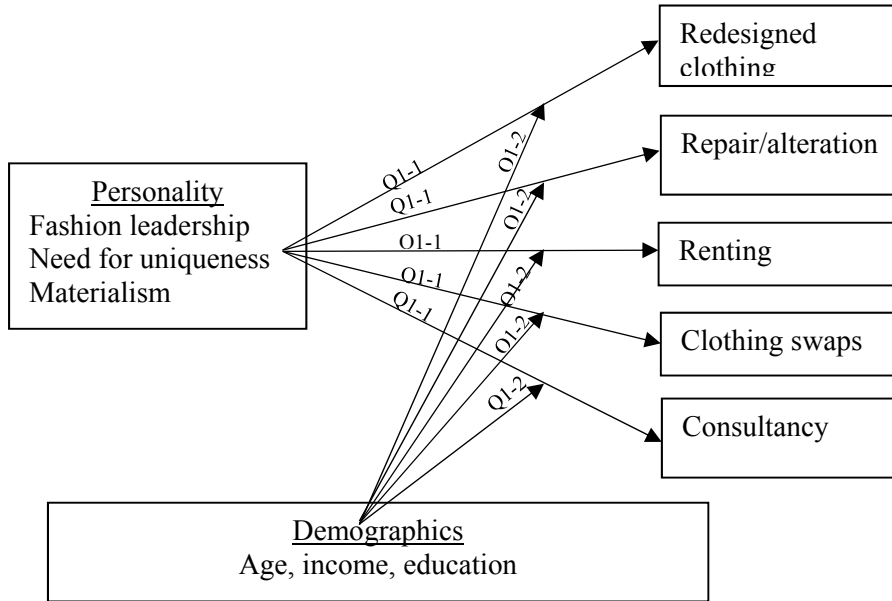
Figure 2.4

Model 2-Expected Indirect Relationships between Personality and SAPSR Models

Personality
Fashion leadership
Need for uniqueness
Materialism

Attitude toward sustainable consumption

Subjective norm

Perceived behavior control

Past sustainable consumption

Intention to adopt SAPSR

Redesigned clothing

Repair/ alteration

Renting

Clothing swaps

Consultancy

Demographics
Age, income, education
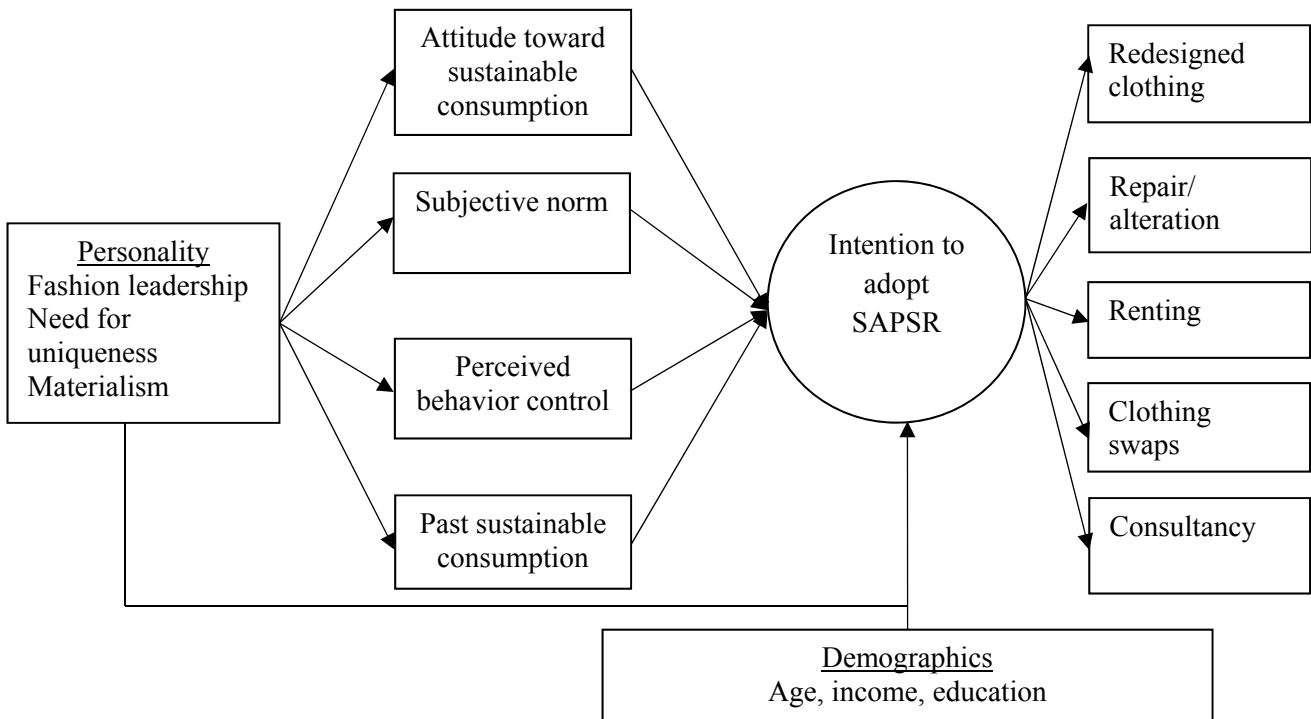
Chapter Summary

This chapter reviewed the extant literature on sustainable consumption, personality traits, the new

Sustainable Apparel Product-Service Retail (SAPSR) models, and behavioral intention theories

(TRA and TPB). With an emphasis upon the relationship between personality traits and adoption

of SAPSR models, the moderating effect of demographic factors on the relationship of

personality traits and adoption of SAPSR models was also discussed. The problems existing in

sustainable consumption and the necessity of this research were also explained during the

literature review. The review of relevant literature laid the foundation for the underlying

theoretical frameworks of this research. The research hypotheses were proposed on the basis of

literature review and research gaps.

CHAPTER III

RESEARCH METHODS

Introduction

This section discusses the research methods that were adopted for constructing measures and collecting and analyzing the data. The research methods were used to understand and explain the role of the three personality traits in consumers' sustainable consumption behavior with regards to SAPSR models; to investigate the relationship of personality, attitudinal and normative factors, past behavior, perceived behavior control, and consumers' intention toward SAPSR models; further, to provide suggestions to sustainable retailers on developing the target consumers. This chapter begins with research design methods followed by the data collection technique and further details about the population and sample selection, scale development, questionnaire construction, and data analysis strategies. Figure 3.1 shows the detailed research flow diagram of the research procedure taken in this study.

Research Design

The two main empirical research traditions in the social sciences are the quantitative and qualitative approaches. The decision to adopt a quantitative or a qualitative empirical research method depends on which approach will most effectively address the research questions. The quantitative research approach was preferred in this case, as the objective of this study is to

explore the relationship between predicting variables and consumer intentions in sustainable

purchasing activities. The quantitative research findings contributed to the development of a

structural model explaining consumer behavior in regard to sustainable consumption practices.

Figure 3.1

Research Design Flow Diagram
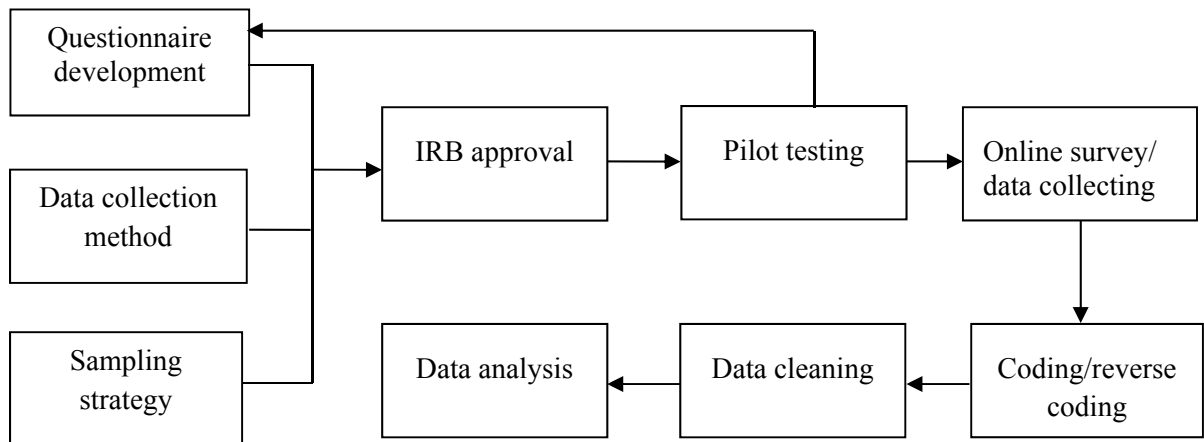
Based on the literature review and the proposed relationship between the four personality

traits with retail-oriented SAPSR models, an online questionnaire survey was designed and tested.

The questionnaire was developed to examine the relationship of three personality traits:

materialism, fashion leadership, and need for uniqueness, with regards to consumers' intention

toward SAPSR models. Table 2.1 presented in Chapter 2 provides a brief description of each

SAPSR model. Table 3.1 presents the research design and data analysis approach for each

research question.

Table 3.1

Categorization of Research Questions for Research Design

Primary objective: To provide the retail industry insights into how personality traits determine consumer adoption of alternative retail models (SAPSR) that seek to diminish production and consumption of apparel products, and develop a behavioral framework for analyzing and explaining consumer behavior.			
Research questions	Research sub-questions	Data collection	Data analysis
Q1: How do personality traits influence consumers' intention to adopt SAPSR models, with moderation of demographic variables?	Q1-1: If the personality traits, including materialism and fashion leadership influence consumers' intention of adopting each specific SAPSR models?		Factor analysis Structural Equation Modeling (SEM)
	Q1-2: If demographic variables have moderating influence on the relationship between personality traits and intention toward each SAPSR model?		Multiple Group SEM
	Q1-3: Whether or not personality traits and demographic characteristics directly affect consumers' intention to adopt overall SAPSR model?	Online survey	SEM

Q2: What is the relationship of	Q2-1: Whether or not consumer's intention toward	Factor analysis
personality, attitudinal and	SAPSR model is following a hierarchical relationship	Structural Equation
normative factors, and	between personalities, attitudinal and normative factors,	Modeling (SEM)
consumers' intention toward	and perceived behavior control?	
SAPSR models?	Q2-2: Does past sustainable consumption behavior have	SEM
	influence on consumers' intention to adopt SAPSR	
	models?	

Questionnaire Construction

A structured questionnaire was designed to gather the data required for this research. The questionnaire included four sections to achieve the objectives and to answer the questions formulated above. By asking these questions, a better understanding of the data concerning actual sustainable purchasing behavior of consumers and their intention toward sustainable purchasing activities was desired. This data was used to determine how these predicting variables impacted consumers' adoption of the new SAPSR models. The questionnaire contained four parts:

Section 1: The first section measured each personality trait of consumers by utilizing multi-item scales.

Section 2: The second section measured consumers' past sustainable consumption behaviors and their attitudes, subjective norms and perceived behavior control. To avoid neutral responses, multi-item scales with 6-point scale were developed to measure the items listed above.

Section 3: The third section measured the willingness of consumers to adopt SAPSR models. Six-point scales were used to measure the level of willingness to which participants would like to adopt each SAPSR model.

Section 4: The last section measured demographic characteristics, including age, education, income and ethnicity. Multiple-choice questions were designed to measure demographic information. The examples of scales are provided in Appendix A.

Sampling Strategy and Data Collection Method

An online questionnaire was administered via Qualtrics. This type of electronic method is cost effective and it has developed rapidly in marketing research in recent years with the advancement of Internet technology. A convenience sampling method was used to collect the data. Female

consumers are generally more involved in fashion products (O' Cass, 2004), so women who are living in the United States were recruited for this study.

Because of the lack of research regarding sustainable apparel consumption, it was necessary to develop items to measure variables. Three experts in the fields of apparel merchandising and the social sciences and three non-experts were invited to review the survey before implementing the pilot study, in order to evaluate the clarity and the appropriateness of the instrument. In an effort to uncover the areas that need improvement, and to identify any confusing items that need to be modified, the reviewers were asked to give their comments and answer the following questions listed below:

1) Are any items ambiguous or difficult to understand?

2) Are any items not appropriate to measure this variable?

3) Does it seem too long?

4) Does it seem too superficial?

As planned, to enhance content, reliability and validity of the scale, a pre-test study was conducted before collecting data for the pilot study. Pre-test data was collected from 22 OSU female undergraduate students at the end of the spring 2014 semester. A reliability check of the measures was assessed. Coefficient alpha was used to determine the internal consistency of the measurement items. Appropriate adjustments to the questionnaire were made as needed, based on the results of the pre-pilot study. The adjustments include adding labels to specifically explain each number on the rate scale for "Perceived behavior control" measurement and reducing the number of items for "Materialism" measurement from 18 to15.

With the adjusted questionnaire, a pilot study was conducted in May 2014 among undergraduate and graduate students, staff and faculty in Oklahoma State University before launching the final questionnaire. To collect data for the pilot study, with approval of IRB, email addresses of OSU students, faculty and staff was required through the office of Institutional

Research and Information Management (IRIM). The self-administered questionnaire website link was distributed via email through IRIM. The collected data was imported from Qualtrics into SPSS. Data preparation was conducted to double-check the data and to perform any necessary editing, coding, reverse coding, transcribing, and cleaning. Data analysis progress was conducted in July. After the data preparation, preliminary data analysis was performed utilizing SPSS 20.0, which includes testing of reliability and validity. Coefficient alpha was used to determine the internal consistency of the measurement items. Appropriate adjustments of the questionnaire were made as needed, based on the results of pilot study.

The formal data collection process was conducted in August and September 2014 in the United States. To develop a sample representative from the online survey in this study, a consumer panel of the target population from an online research firm in the United States was purchased. The firm called e-Rewards solicited responses to the online survey on the researcher's behalf, sending the survey link in an email invitation. Each respondent was given a brief description of the study, explaining Institutional Review Board approval and the implications of his/her participation. Individuals invited to participate in the study are pre-validated and have a pre-existing relationship with the firm, and therefore, received an incentive through the firm. Utilizing a 'by-invitation-only' panel recruitment model enabled us to yield the highest level of panel quality and representation while guarding against duplication, fraudulent respondents and professional survey takers.

Structural Equation Modeling (SEM) was the major analysis method utilized in the present study. SEM is a large sample technique. A typical sample size in studies, in which SEM is applied is about 200 cases or larger (Kline, 2010, p.12); and the sample size required somewhat depends on the complexity of model, the type of estimation used in the analysis, and the distributional characteristics of the data (Kline, 2010). In order to have a better model, the target sample size in this study was determined as 400 cases.

Scale Development

This study was designed to address the relationship between three personality traits: fashion leadership, need for uniqueness, and materialism with consumers' intention toward retail-oriented SAPSR models.

The first section measured the four personality traits: materialism, fashion leadership, and need for uniqueness, utilizing a 6-point Likert scale, 1= "strongly disagree" to 6= "strongly agree." This section was designed to address mainly research questions 1 and 2.

Scales adopted and modified from (Goldsmith et al., 1993; Goldsmith et al., 1991; Lang et al., 2013) were used to measure the **fashion leadership** personality trait. Participants were requested to respond to statements such as "I am aware of fashion trends and want to be one of the first to try them," "It is important for me to be a fashion leader," and "I am confident in my ability to recognize fashion trends."

Need for uniqueness is another personality trait that was measured in this study. Fourteen statements related to creative choice and avoidance of similarity were adopted from (Tian et al., 2001; Tian & McKenzie, 2001). The participants were requested to respond to statements such as "When products or brands I like become extremely popular, I lose interest in them;" "I avoid products or brands that have already been accepted and purchased by the average consumer;" and "When a product I own becomes popular among the general population, I begin using it less."

Materialism was measured by the scales adopted and modified from (Richins, 1994, 2004; Richins & Dawson, 1992). Participants were asked to rate statements, such as "I admire people who own expensive homes, cars, and clothes," "Some of the most important achievements in life include acquiring material possessions," and "I don't place much emphasis on the amount of material objects people own as a sign of success."

The second section was designed to measure the variables in the TPB model, including past sustainable consumption behavior of consumers, their attitudes toward environment and sustainable consumption, subjective norms, and perceived behavior control. This part used multi-items 7-point Likert scale, 1= "strongly disagree" to 7= "strongly agree." This section was designed to address research question 2

The semantic differential scale was employed to measure **attitudes toward sustainable consumption** (Ajzen, 2002). The items used to measure attitudes toward sustainable behavior include the idea that consumers would have to trade off some attributes like ownership, in order to obtain other attributes such as socially and environmentally responsible consumption. Some statements used to measure attitude were adopted or modified from (Dickson, 2000); then, other statements were developed for this study. Participants were requested to rate the statements, including "When I shop for clothing, I consider the environment;" "I try to avoid purchasing clothing that I suspect may be associated with environmental issues;" and "Reducing the amount of clothing produced would reduce the number of environmental issues we experience today."

Subjective norm controls are measures of behavior which are instigated by the desire to act as others think you should act (Kalafatis, Pollard, East, & Tsogas, 1999). A four-item scale was designed for the measuring of subjective norms. The four items were adapted and modified from (Ajzen, 2002; Armitage & Conner, 1999; Kang, Liu, & Kim, 2013). The participants were requested to respond to the statements such as, "People who are important to me would approve of my concern for the environment when purchase clothing," and "I feel under social pressure to avoid considering environmental concerns when purchase clothing."

Items for measuring **perceived behavioral control** would address consumer confidence in performing target behaviors (Ajzen, 2002). Therefore, the items used to measure perceived behavioral control are related to the perceived degree of difficulty in performing the behavior, the

likelihood that the participant could actually display the behavior it and the behavior's controllability. (Kidwell & Jewell, 2003) Kidwell and Jewell's study (2003) explained internal and external influences on intention with regard to perceived behavioral controls. Based on the study by Kidwell and Jewell (2003), Kang et al. (2013), and Sparks, Guthrie and Shepherd (1997), four items were developed for this study to measure perceived behavioral controls in the present study, such as "When the price is very high, I am unlikely to purchase sustainable clothing products" and "Fashion trends would influence my decisions of whether or not to purchase clothing products."

Items to measure **past sustainable consumption behavior** were designed to measure whether or not the participant has engaged in sustainable consumption behavior in their daily life. Because this study focused on five SAPSR models, the scales were developed for this study based on the specific SAPSR, including clothing alteration, redesign, take-back, consulting a stylist. Six items were developed and modified to measure consumers' past sustainable behavior. The participants were requested to respond to the statements, including "I buy clothing made from recycled material;" "I alter my old clothing to make new one when I am tired of it;" and "clothing swap my clothing with other people."

The third section was to measure participants' behavioral intentions toward SAPSR models. The target behavior in this study is "the adopting of (action) any new sustainable apparel product-service retail (target) model." In order that participants could better understand each model, a series of hypothetical scenario statements with regards to each SAPSR model were developed and used to draw out responses from study participants. The scenarios were described in detail, and the participants were requested to rate the level of willingness of adopt each model. The corresponding behavioral intention was measured by the response to the question, "I intend to purchase or consider purchasing the (SAPSR name) during the next 12 months?" on a 6-point

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Likert scale 1= "strongly disagree" to 6= "strongly agree." The section was designed to measure the dependent variable in this research.

The last section utilized multiple-choice questions, asking participants for their demographic information, which was designed to address aspects of research question 1-3 and 2-2.

Data Analysis Strategy

The collected data was imported from Qualtrics into SPSS. Data preparation was conducted to check the data and perform necessary editing, coding, reverse coding, transcribing, and cleaning. After the data preparation, appropriate techniques for data analysis were selected, including Mplus and SPSS. Preliminary data analysis was performed, followed by data analysis for hypotheses testing. The preliminary data analysis, using SPSS 20.0, includes the determination of descriptive statistics, frequency distribution analysis, and testing of reliability. Since some of the scales were developed in this research, Cronbach's alpha reliability coefficient was used to test whether the group of items was internally consistent. The prepared data was also transferred to Mplus to conduct Structural Equation Model.

A number of in-depth statistical analysis methods were applied: 1) exploratory factor analysis and confirmatory factor analysis were conducted to classify the variables into different types: the three personalities, attitudes, and perceived behavioral control; 2) structural equation modeling was applied in Mplus to determine whether independent variables predict dependent variables and whether there were positive or negative relationships among these variables. The analysis was expected to answer research questions 1-1, 1-3, 2-1, 2-2; 3) Multiple-group SEM analysis was used to test whether there were differences between various consumer clusters in terms of personalities and intention to adopt SAPSR models. Thus, this analysis was expected to

answer research question 1-2; 4) Confirmatory factor analysis was applied to the five SAPSR modes with related to the latent variable-intention toward SAPSR models.

Chapter Summary

The purpose of this chapter was to describe the research design and its implementation to address its ability to answer the research questions. Several conclusions about the research methods in this study were drawn. It was determined that to achieve the most representative data in answering the research questions, this study would be quantitatively oriented. A survey conducted with an online questionnaire was the strategy for collecting the data used to test the proposed research hypotheses. Scales pertaining to the personality traits were developed for the measures involved in this research. The scenarios for the five SAPSR models were introduced and applied. Finally, in addition to the basic descriptive data analysis, appropriate statistical techniques, such as confirmatory factor analysis, exploratory factor analysis, and multiple-group analysis were selected for the data analysis and hypotheses testing in view of the research objectives. Structural Equation Modeling method was used to develop the structure model with regards to the relationship between the three personality traits and the new SAPSR models by adopting TRA and TPB theory.

CHAPTER IV

FINDINGS

Introduction

The previous chapter described the method used to collect data for this research. This chapter

presents the results of data analysis. This chapter starts with data analysis for the pilot study in

which coefficient alpha are calculated first, followed by confirmatory factor analysis to reduce

items. In section 4.3, data analysis for the main study is reported, which contains an analysis of

the data, hypotheses testing utilizing the structural equation modeling (SEM). The preliminary

examination includes the data preparation and descriptive analysis. In the main study of this

research, the proposed hypotheses on the structure of personality traits, the relationship between

intention to adopt SAPSR models, and the factors involved in TPB model are examined by SEM.

Data Analysis for Pilot Study

Three experts in the fields of apparel merchandising and three non-experts were invited to review

the survey before implementing the pilot study. Appropriate refining and adjustments were

applied according to the comments from reviewers, in order to improve respondents'

comprehension, the clarity and the appropriateness of the instrument. For instance,

some words were adjusted to keep consistency; some rarely used words such as "run-of-the-mill products" were replaced by more common words such as "ordinary products."

A pre-test study was conducted before collecting data for the actual pilot study. Pre-test data was collected from 22 OSU female undergraduate students at the end of the spring 2014 semester. A reliability check of the measures was assessed. Coefficient alpha was used to determine the internal consistency of the measurement items. Appropriate adjustments to the questionnaire were made as needed, based on the results of the pre-test study. The adjustments included adding labels to specifically explain each number on the rate scale for the "Perceived behavior control" measurement and reducing the number of items for "Materialism" measurement from 18 to15 (Richins, 2004). The items removed from "Materialism" include "I don't pay much attention to the material objects other people own," "I usually buy only the things I need," and "I enjoy spending money on things that aren't practical."

With the adjusted questionnaire, data was collected for the pilot study at the end of May, 2014. With the approval of IRB, 800 random e-mails representing faculty, staff, undergraduate, and graduate females on the Stillwater campus were acquired through the office of Institutional Research and Information Management (IRIM). The self-administered questionnaire website link was distributed via email through IRIM. Through two weeks of the data collection process, 99 valid responses were collected, with a response rate of 12.38%. The collected data was imported from Qualtrics into SPSS. Data preparation was conducted to double check the data and to perform any necessary editing, coding, reverse coding, transcribing, and cleaning. After the data preparation, a reliability test of the scales was performed utilizing SPSS 20.0. A low coefficient alpha indicates items are not consistent in the scale (Churchill, 1979). Therefore, the inconsistent items that perform poorly in capturing the construct were removed. For example, the items of "past behavior" scale including " I have purchased second-hand clothing," I select apparel that I can wear for long time," and I purposely select apparel made with fabrics that require shorter

drying time or less ironing" were removed. The coefficient alpha of the scale was improved after these items were deleted. Table 4.1 presents the reliability of each scale.

Table 4.1

Coefficient Alpha Calculation Results

	Before adjusted		After adjusted	
Measurement	Cronbach's α	# of Items	Cronbach's α	# of Items
Fashion leadership	0.895	6		
Need for uniqueness	0.964	14		
Materialism	0.726	18	0.840	15
Past behavior	0.721	7	0.761	4
Subjective norms	0.934	3		
Perceived behavior control	0.645	7	0.730	7
Attitude toward sustainable consumption	0.891	15		

Data Analysis for Main Study

Data cleaning includes consistency checks and treatment of missing responses. Data cleaning yielded a final usable sample size of 431 out of 552 returned responses, with overall completion rate of 78.08%.

Descriptive Statistics

Profile and Analysis of Respondents

Demographic information including age, ethnicity, education level, and annual household income were collected. The frequency and descriptive analyses were conducted on the demographic information. The participants targeted in this study are all female. The demographic summary of participants is presented in Table 4.2.

Table 4.2

Demographic Summary of Participants (N = 431 females)

Demographics		Mean	SD	Frequencies	
				N	%
Age		3.04	0.813		
	18-34			134	31.1
	35-49			146	33.9
	50-68			151	35.0
Ethnicity		3.80	0.972		
	African American/Black			19	4.4
	Hispanic/Latino			19	4.4
	Asian/Pacific Islander			28	6.5
	Caucasian/White			354	82.1
	Native American, Inuit, or Aleut			3	0.7
	Other			4	0.9
	I prefer not to answer			4	0.9
Highest education		2.86	1.161		
	Some high school			2	0.5
	High school graduate			43	10.0
	Some college			126	29.2
	College graduate			159	36.9
	Master/MBA			72	16.7
	PhD			15	3.5
	Other			14	3.2

Annual household income	3.98	1.655		
Less than US$19,999			26	6.0
US $20,000- US $39,999			75	17.4
US $40,000- US $59,999			86	20.0
US $60,000- US $79,999			64	14.8
US $80,000- US $99,999			54	12.5
More than US$100,000			126	29.2

As shown in Table 4.2, of the total 431 participants, 134 were aged 18-34 (31.1%), 146 were aged 35-49 (33.9%), and 151 were aged 50-68 (35.0%). The majority of participants in this study were Caucasian/white (82.1%), followed by Asian/Pacific Islander (6.5%). The participants who reported African American/Black and Hispanic Latino were both 19 (4.4%). Only three participants were Native American, Inuit, or Aleut (0.9%). Eight participants selected "other" or "I prefer not to answer." The participants of this study tended to be well educated with 159 of them having earned a college degree (36.9%) and 72 earning a Masters/MBA (16.7%). There were also 126 participants reported having some college (29.2%), followed by high school graduates (10%) or a Ph.D. (3.5%). As regards to annual household income, 180 of participants reported that their annual income was more than US$80,000 (41.7%); 150 of them had annual household income between US$40,000- US$79,999 (34.8%). There were also 101 participants reported having annual income less than US$39,999 (23.4%).

Descriptive Analysis of the Main Variables

This research was designed to address two research questions: Q1. How do personality traits influence consumers' intention to adopt each specific SAPSR model; and if demographic variables moderate the relationships? Q2. What is the relationship of personality, attitudinal and normative factors, demographics, and consumers' intention toward SAPSR models? The

variables involved in this research were measured by 6- point Likert scale 1= "strongly disagree" to 6= "strongly agree." Table B-1 to B-8 illustrates the minimum, maximum, mean scores and standard deviation of each variable (see Appendix B).

Six items were used to measure fashion leadership. The mean scores of four items leaned toward disagree, and two leaned toward agree. The item "I am confident in my ability to recognize fashion trends" had the highest mean score (M=3.72, SD=1.394). The item "It is important for me to be a fashion leader" had the lowest mean score (M=2.46, SD=1.355). Fourteen items were used to measure need for uniqueness. The majority of the items leaned toward disagree, and only two items leaned toward agree. The item "Often when buying merchandise, an important goal is to find something that communicates my uniqueness" had the highest mean score (M=3.61, SD=1.301). The item "I give up wearing fashions I have purchased once they become popular among the general public" had the lowest mean score (M=2.29, SD=1.067).

Of the fifteen items that were used to measure materialism, thirteen items leaned toward disagree and two items leaned toward agree. The item "The things I own are not all that important to me" had highest mean score (M=3.80, SD=1.159). The item "Some of the most important achievements in life include acquiring material possessions" had the lowest mean score (M=2.27, SD=1.180).

Four items were used to measure past sustainable consumption behavior. Mean scores of all the items leaned toward disagree. The item "I seek out information about different ways to wear the items I already own" had the highest mean score (M=3.08, SD=1.441). The item "I alter/tailor my old clothing to create a new one when I am tired of it" had the lowest mean score (M=2.30, SD=1.270).

Three items were used to measure subjective norm. All the items had mean scores leaned toward disagree. Seven items were used to measure perceived behavior control. Mean scores of two items leaned toward disagree. The item "If it were entirely up to me, I am confident that I would be able to shop for environmentally friendly clothing" had the lowest mean score (M=3.13, SD=1.283). Mean scores of the other five items leaned toward agree. The item measuring the confidence of recycling old clothing instead of throwing them in landfill had highest mean score (M=4.86, SD=1.289).

The semantic differential scale was employed to measure attitude toward sustainable behavior. The mean scores for the statement "I think that reducing the frequency of ironing clothing or drying time of clothing is…" and "When I recycle or imagine myself recycling my old clothing instead of throwing them in landfill, I feel …" all leaned toward agree. The statement "I think paying more money to buy environmental friendly clothing products is…" had three mean scores leaned toward agree and two mean scores leaned toward disagree. The five SAPSR models were studied in this research. The mean scores of majority of SAPSR models leaned toward disagree. "Renting" had the lowest mean score (M=2.51, SD=1.412). "Repair/alteration" had the highest mean score (M=3.59, SD=1.391).

Reliability and Validity

Reliability and validity were both examined in this study. Reliability refers to the degree to which measures are consistent over time and across situations (Zikmund, 2003). The common approach to measure reliability is Cronbach coefficient alpha (α) (Cronbach, 1951). In general, α > 0.7 is considered reliable (Cortina, 1993).

Validity is the ability of a measurement to measure what it is supposed to be measured (Zikmund, 2003). Convergent validity and discriminant validity were both examined. Standardized factor loadings measure how well a particular indicator relates to the construct that it is measuring. Lower numbers indicate poor convergent validity. In this study, we considered

standardized factor loadings that higher than 0.7 as good convergent validity (Kline, 2010). One way to measure discriminant validity is to simply look at inter-factor correlation. If the correlation is higher than 0.8, the two factors can be considered identical (Kline, 2010).

Problems with SEM models are, in many cases, due to measurement model issues that can be identified with CFA (Brown, 2006). Therefore, a two-step approach was adopted in this study (Anderson & Gerbing, 1988). Confirmatory factor analysis (CFA) was first conducted to find a better model for the measurement of each latent variable (Jackson, Gillaspy, & Purc-Stephenson, 2009); then regression analysis was employed to test the hypotheses. The indicators of good model fit adopted in this research were RMSEA≤0.05 and SRMR≤0.05, which are considered as a very good model fit (Kline, 2010). CFI and TLI should be 0.95 or higher (Hu & Bentler, 1999).

Fashion leadership

Confirmatory factor analysis and reliability tests were conducted to measure of fashion leadership. Table 4.3 presents the factor loadings of each item and the reliability of the scale.

Table 4.3

Measurement of Latent Variable: Fashion Leadership (α=0.936)

Fashion leadership item	Standardized factor loading	S.E.
FL1-I am aware of fashion trends and want to be one of the first to try them	0.861	0.014
FL2-I am the first to try new fashion; therefore, many people regard me as being a fashion leader	0.921	0.009
FL3-It is important for me to be a fashion leader	0.898	0.011

FL4-I am confident in my ability to recognize fashion trends	0.738	0.024
FL5-Clothes are one of the most important ways I have of expressing my individuality	0.709	0.025
FL6-I am usually the first to know the latest fashion trends	0.917	0.010

Table 4.4

Value of Fit Statistics for CFA of Fashion Leadership

Fit statistics for the two models		
Statistics	Model 1 (6 items)	Model 2 (Remove FL4 and FL5)
χ^2_M	125.781	8.226
df_M	9	2
p	0.000	0.0164
RMSEA (90% CI)	0.174(0.147-0.201)	0.085(0.031-0.149)
P $_{close\text{-}fit\ (H0)}$	0.000	0.125
CFI	0.950	0.996
TLI	0.917	0.989
SRMR	0.033	0.008

Although the standardized factor loadings of FL4 and FL 5 are both higher than 0.7, and AVE>0.5, the loadings are distinctly lower compared with those of the other four items. The description of FL4 and FL5 are more reflective of the ability to recognize fashion trends or express the self with clothing, but the other four items are more related to being a fashion leader. Therefore, considering this scale was designed to measure fashion leadership, FL4 and FL5 were eliminated, which improved model fit (see Table 4.4).

Need for uniqueness

As presented in Table B-9 (Appendix B), the standardized factor loadings and correlations of the items indicated that NU1 through NU9 might be one factor, and NU10 through NU 14 are a second factor. This is consistent with previous research (Tian et al., 2001). To ensure that there are two factors in this scale, exploratory factor analysis (EFA) was conducted, suggesting two factors, named as avoidance of similarity and creative choice (see Table 4.5). Residual Correlations of NU9 with NU10 through NU14, however, were all higher than 0.1, which suggested a problem. Although EFA suggested NU9 had a good loading in factor 1, the description of NU9 is confusing and related to factor 2 to some extent. To avoid confusion and ensure a good model fit, therefore, NU9 was removed from this measurement. The model fit statistics of the two-factor model with NU9 removed is improved (see Table 4.6). Table 4.5 indicates the standardized loading of the items for the two factors of need for uniqueness. The standard correlation between factor 1 and factor 2 is $0.601 < 0.8$, which suggested good discriminant validity. Therefore, need for uniqueness was categorized into two factors: avoidance of similarity and creative choice, and the two factors will be studied separately.

Table 4.5

Measurement of Need for Uniqueness: Two Factors (F1: $\alpha=0.953$; F2: $\alpha=0.944$)

Factor	Items	Standardized factor loadings	S.E.
	NU1-When products or brands I like become extremely popular, I lose interest in them	0.801	0.019
	NU2-I avoid products or brands that have already been accepted and purchased by the average consumer	0.847	0.015
	NU3-When a product I own becomes popular	0.872	0.013

	among the general population, I begin using it less		
F1 (Avoidance of similarity)	NU4-I often try to avoid products or brands that I know are bought by the general population	0.825	0.017
	NU5-As a rule, I dislike products or brands that are customarily purchased by everyone	0.845	0.015
	NU6-I give up wearing fashions I have purchased once they become popular among the general public	0.847	0.015
	NU7-The more commonplace a product or brand is among the general population, the less interested I am in buying it	0.892	0.011
	NU8-Products do not seem to hold much value for me when they are purchased regularly by the general population	0.852	0.015
	NU10-I often look for one-of-a kind products or brands so that I create a style that is all my own	0.859	0.014
F2 (Creative choice)	NU11-Often when buying merchandise, an important goal is to find something that communicates my uniqueness	0.866	0.014
	NU12-I often combine possessions in such a way that I create a personal image for myself that cannot be duplicated	0.865	0.014
	NU13-I often try to find a more interesting version of ordinary products because I enjoy being original	0.901	0.011

NU14-I am often on the lookout for new products   0.898   0.011

or brands that will add to my personal uniqueness

Table 4.6

Value of Fit Statistics for CFA of Need for Uniqueness

Fit statistics for the two models		
Statistics	Model 1 (1 factor)	Model 2 (2 factor)
χ^2_M	1697.215	285.787
df_M	77	64
p	0.000	0.000
RMSEA (90% CI)	0.221(0.212 0.230)	0.090(0.079 0.100)
P close-fit (*H0*)	0.000	0.000
CFI	0.724	0.959
TLI	0.674	0.950
SRMR	0.126	0.028

Materialism

The reliability of materialism scale was 0.876, which is consistent with that of previous study

0.87 (Richins, 2004). As presented in Table B-10 (Appendix B), the standardized factor loadings

of all the six items that were reverse coded are lower than 0.5. This suggests that these items (M3,

M6, M7, M10, M11 and M13) did not contribute a great deal to the measurement and that the

model fit and could potentially be improved by removing these items.

A CFA analysis was conducted with the rest of the nine items. The factor loadings

indicated that there were two factors for the materialism measurement. To ensure the two factors,

exploratory factor analysis was conducted, which suggested two factors. With the two factors

confirmed, another CFA analysis followed to check the validity of the scale. Residual

Correlations of M8 with M12 and M14, however, were all higher than 0.1, which suggested a

problem. The item M8, "buying things gives me a lot of pleasure" indicates more information

about emotional feelings instead of possession, which has decreased the convergent validity with

other items; therefore, it was removed from the scale.

Table 4.7

Value of Fit Statistics for CFA of Materialism

	Fit statistics for three models	
Statistics	Model 1 (1 factor)	Model 2 (2 factor)
$\chi^2{}_M$	850.206	32.052
df_M	90	18
p	0.000	0.0217
RMSEA (90% CI)	0.140(0.131 0.149)	0.043(0.016 0.066)
P $_{close\text{-}fit\,(H0)}$	0.000	0.669
CFI	0.713	0.992
TLI	0.665	0.987
SRMR	0.092	0.025

The model fit statistics of the two-factor model with M8 and reverse coded items

removed is improved (see Table 4.7). Table 4.8 indicates the standardized loading of the items for

the two factors of need for uniqueness. The standard correlation between factor 1 and factor 2 is

0.623<0.8, which suggested good discriminant validity.

Table 4.8

Measurement of Materialism: Two Factors (F1: α=0.874; F2: α=0.851)

Factor	Items	Standardized factor loadings	S.E.
	M1-I admire people who own expensive homes, cars, and clothes	0.776	0.023
F1 Possessions	**M2**-Some of the most important achievements in life include acquiring material possessions	0.791	0.022
	M4-The things I own say a lot about how well I'm doing in life	0.739	0.026
	M5-I like to own things that impress people	0.786	0.023
	M9-I like a lot of luxury in my life	0.728	0.026
F2 Emotional satisfaction	**M12**-My life would be better if I owned certain things I do not have	0.761	0.025
	M14-I would be happier if I could afford to buy more things	0.888	0.019
	M15-It sometimes bothers me quite a bit that I cannot afford to buy all the things I'd like	0.789	0.023

The intention of this research was to study the influence of materialism on consumers' adoption of sustainable apparel product-service retail (SAPSR) models. Therefore, factor 2, emotional satisfaction, was removed from materialism measurement.

Past sustainable consumption behavior

The CFA analysis indicated the factor loadings of each item for the past behavior scale are higher

than 0.5 (see Table 4. 9), which suggest a good convergent validity. The fit statistics also

suggested a good model fit of this scale (see Table 4.10).

Table 4.9

Measurement of Past Sustainable Consumption Behavior (α=0.746)

Past sustainable behavior item	Standardized factor loading	S.E.
PB1-I alter/tailor my old clothing to create a new one when I am tired of it	0.737	0.034
PB2-I have bought clothing made from recycled material	0.570	0.040
PB3-I seek out information about different ways to wear the items I already own	0.787	0.033
PB4-I swap my clothing with other people	0.524	0.043

Table 4.10

Value of Fit Statistics for CFA of Past Sustainable Consumption Behavior

Statistics	Model fit
χ^2_M	6.569
df_M	2
p	0.0375
RMSEA (90% CI)	0.073(0.015 0.138)
$P_{close\text{-}fit\,(H0)}$	0.204
CFI	0.988
TLI	0.965
SRMR	0.020

Subjective norms

The scale measuring subjective norms contains three items. The CFA analysis indicated that the factor loadings of all the three items are higher than 0.5, which suggested good convergent validity. Table 4.11 presents the standardized loadings and reliability of subjective norms.

Table 4.11

Measurement of Subjective Norms

Subjective norms item	Standardized factor loading	S.E.	α
SN1-People who are important to me agree with my concern for the environment when purchasing clothing	0.847	0.016	0.926
SN2-People who are important to me think I should consider the environment when purchasing clothing	0.911	0.012	
SN3-People in my life whose opinion I value consider the environment when purchasing clothing	0.938	0.011	

Perceived behavior control

As presented in Table B-11 (Appendix B), the standardized factor loadings and correlations of the items indicated that PBC1 through PBC4 might be one factor, and PBC5 through PBC7 as a second factor, which is consistent with the previous research (Kidwell & Jewell, 2003).

Further CFA was conducted by taking PBC1 through PBC4 and PBC5 through PBC7 as two separate factors. The statistics indicated that the standardized factor loadings of PBC3 (0.282) and PBC4 (0.269) were both lower than 0.5, which did not suggest good convergent validity. Therefore, these two items were removed from the measurement. Another CFA was conducted to test the validity and model fit with PBC3 and PBC4 removed, by borrowing degrees of freedom from that of materialism. The statistics indicated that the factor loadings of each item

were all higher than 0.5 (see Table 4.12), which suggested good convergent validity. The

correlation between factor 1 and factor 2 is 0.161<0.8, which suggested good discriminant

validity between these two factors: internal and external perceived behavior control. Compared

with external control, internal perceived control refers to the perception of personal resources an

individual possesses, such as requisite skills, confidence and ability to perform the behavior

(Kidwell & Jewell, 2003); external control, however, refers to the perception of whether or not a

particular behavior is easy to perform. The model fit statistics of the two-factor model with PBC3

and PBC4 removed was improved a great deal (see Table 4.13).

Table 4.12

Measurement of Perceived Behavior Control: Two Factors (F1: α=0.764; F2: α=0.811)

Factor	Items	Standardized factor loadings	S.E.
F1 Internal control	**PBC1-**I believe I have the ability to buy environmental friendly clothing even if I have to pay more	0.895	0.088
	PBC2-If it were entirely up to me, I am confident that I would be able to shop for environmentally friendly clothing	0.691	0.072
F2 External Control	**PBC5-**Whether I buy environmentally friendly clothing is entirely up to me	0.615	0.034
	PBC6-How much personal control do you feel you have over buying environmentally friendly clothing	0.937	0.026
	PBC7-How much do you feel that buying environmentally friendly clothing is beyond your control	0.774	0.028

Table 4.13

Value of Fit Statistics for CFA of Perceived Behavior Control

Fit statistics for the two models		
Statistics	Model 1 (1 factor)	Model 2 (2 factor)
χ^2_M	251.778	90.072
df_M	14	59
p	0.000	0.0057
RMSEA (90% CI)	0.199 (0.177 0.220)	0.035(0.019 0.049)
P close-fit (H0)	0.000	0.963
CFI	0.704	0.987
TLI	0.557	0.983
SRMR	0.113	0.033

Attitude toward sustainable consumption

As presented in Table B-12 (Appendix B), the standardized factor loadings and correlations of the items indicated there were three factors in the measurement of attitude toward sustainable consumption behavior.

Therefore, a further CFA analysis was conducted to test the fit statistics for the 3-factor model. The standardized factor loadings for the items in each factor were all higher than 0.5, which suggested good convergent validity within each factor. The standardized factor loading of each factor on the second-order factor (attitude), however, did not suggest good convergent validity (see Table 4.14). Therefore, the three factors were kept separate in further analysis. On the other hand, the correlations between each factor were all lower than 0.8 (factor 1 with factor 2: 0.152; factor 2 with factor 3: 0.238; factor 1 with factor 3: 0.287), which suggested good

discriminant validity. The model fit statistics of the three-factor model is improved (see Table

4.15).

Table 4.14

Measurement of Attitude toward Sustainable Consumption: Three Factors (F1: α=0.922; F2:

α=0.958; F3: α=0.977)

Attitude toward sustainability item	Standardized factor loading	S.E.
F1- Sustainable purchasing		
I think paying more money to buy environmental friendly clothing products is	0.354	
-Harmful: Beneficial	0.825	0.018
-Unpleasant: Pleasant	0.826	0.018
-Bad: Good	0.897	0.013
-Worthless: Valuable	0.846	0.016
-Un-enjoyable: Enjoyable	0.801	0.020
F2-Sustainble use		
I think that reducing the frequency of ironing clothing or drying time of clothing is	0.489	
-Harmful: Beneficial	0.835	0.015
-Unpleasant: Pleasant	0.885	0.011
-Bad: Good	0.963	0.005
-Worthless: Valuable	0.937	0.007
-Unfavorable: Favorable	0.924	0.008
F3-Recycling		

When I recycle or imagine myself recycling my old clothing instead of throwing them in landfill, I feel	0.755	
-Foolish: Wise	0.928	0.007
-Negative: Positive	0.957	0.005
-Bad: Good	0.954	0.005
-Unsatisfactory: Satisfactory	0.948	0.006
-Unpleasant: Pleasant	0.942	0.006

Table 4.15

Value of Fit Statistics for CFA of Attitude toward Sustainable Consumption

Fit statistics for the two models		
Statistics	Model 1 (1 factor)	Model 2 (3 factor)
$\chi^2{}_M$	4080.531	303.935
df_M	90	87
p	0.000	0.000
RMSEA (90% CI)	0.321(0.312 0.329)	0.076(0.067 0.085)
P close-fit (H0)	0.000	0.000
CFI	0.476	0.972
TLI	0.388	0.966
SRMR	0.261	0.028

Sustainable Apparel Product-Service Retail (SAPSR) model

The CFA analysis indicated the factor loadings of each item for Sustainable Apparel Product-Service Retail (SAPSR) model are higher than 0.5 (see Table 4.16), which suggested good

convergent validity among these five retail concepts. The fit statistics also suggested a good

model fit of treating SAPSR as a latent variable (see Table 4.17).

Table 4.16

Measurement of Sustainable Apparel Product-Service Retail (SAPSR) (α=0.802)

SAPSR Models	Standardized factor loading	S.E.
S1: Redesigned clothing	0.563	0.039
I intend to purchase one-of-kind products in this store during the next 12 months		
S2: Repair/alteration	0.599	0.038
I intend to purchase or consider purchasing this service during the next 12 months		
S3: Renting	0.683	0.032
I intend to purchase or consider purchasing the "rent" service during the next 12 months		
S4: Clothing swaps	0.794	0.027
I intend to purchase or consider attending this clothing swap event during the next 12 months		
S5: Consultancy	0.702	0.032
I intend to purchase or consider purchasing this service during the next 12 months		

Table 4.17

Value of Fit Statistics for CFA of SAPSR

Statistics	Model fit
χ^2_M	15.596
df_M	5
p	0.0081
RMSEA (90% CI)	0.070(0.032 0.111)
$P_{\text{close-fit }(H0)}$	0.167
CFI	0.983
TLI	0.965
SRMR	0.025

The results shown in Tables 4.18 and 4.19 indicate that the correlations between personality variables and the correlations between TPB variables were all less than 0.8, which suggested good discriminant validity among the measurement.

Table 4.18

Discriminant Validity of Personality Variables

	Fashion leadership	Need for uniqueness: avoidance of similarity	Need for uniqueness: creative choice	Materialism
Fashion leadership	--			
Need for uniqueness/ Avoidance of similarity	0.472	--		
Need for uniqueness/ Creative choice	0.615	0.589	--	

	Materialism	0.552	0.322	0.355	--

Table 4.19

Discriminant Validity of TPB Variables

	Past behavior	Subjective norms	PBC: Internal	PBC: External	Attitude: Purchasing	Attitude: Use	Attitude: Recycling
Past behavior	--						
Subjective norms	0.502	--					
PBC: Internal	0.393	0.650	--				
PBC: External	0.042	0.039	0.281	--			
Attitude: Purchasing	0.200	0.371	0.392	0.070	--		
Attitude: Use	0.039	0.162	0.112	0.082	0.173	--	
Attitude: Recycling	0.092	0.237	0.202	0.151	0.268	0.369	--

Finally, based on the statistical results of confirmatory factor analysis, reliability test of measurement and the objectives of this study, a number of items were removed from original measurements of materialism, need for uniqueness and perceived behavior control. Further, in order to better investigate the influence of different variables on consumers' intention of adopting SAPSR models, some variables were categorized into different factors. Table B-13 (Appendix B) presents the variables that were used in the hypotheses test and model built.

Hypotheses Testing Utilizing SEM

Structural equation modeling (SEM) was used in this research to test the models and proposed hypotheses. Mplus 7.0 was utilized to operate SEM. Multiple criteria were employed to evaluate goodness-of-fit in SEM. Chi-square test (χ^2) is one of the most basic measures of absolute fit. However, chi-square is very sensitive to the sample size. The larger sample size, the more likely the p-value associated with the χ^2 will result a significant difference between the model and the data (Kline, 2010). Therefore, the normed chi-square (χ^2/df) is often used as the measure of absolute fit of the model. The ratio lower than 3.0 is considered as good fit (Carmines & Mclver, 1981). Besides chi-square goodness-of-fit test, a variety of different fit indices were adopted to test proposed models and measure how well the model did. These indices of model fit include the root mean square error of approximation (RMSEA), the Tucker Lewis index (TLI), the Comparative fit index (CFI), and the standardized root mean square residual (SRMR) (Hu & Bentler, 1999).

Root mean square error of approximation is a measure of approximate fit in the population (Shermelleh-Engle, Moosbrugger, & Muller, 2003). The value of RMSEA that is close to zero indicates perfect model fit. Kline (2010) suggested that RMSEA values lower than 0.5 can be considered as a good fit; values in the range of 0.05 to 0.08 corresponds to an acceptable fit (Hu & Bentler, 1999; McDonald & Ho, 2002). In this research, RMSEA values of less than 0.08 were considered as acceptable model fit. The values of TLI range from 0 to 1; higher values indicate better model fit. The value of TFL is relatively independent of sample size (Marsh, Balla, & MacDonald, 1988). The CFI measures the improvement in going from a target model to an independence model. The CFI ranges from 0 to 1 with higher value indicate better fit (Hu & Bentler, 1999). In this study, we used the conventional cut off $\geq$0.90 for acceptable fit for CFI and TIL, and $\geq$.95 for good fit. RMSEA and SRMR values between 0.05and 0.08 represent acceptable fit, and values<0.05 indicated good fit (Hu & Bentler, 1999; McDonald & Ho, 2002).

In this research, two groups of hypotheses were discussed. The first group of hypotheses was associated with a direct relationship between each personality trait and each independent SAPSR model, as well as the moderation of income and age on the relationships, and the influence of demographics on acceptance of SAPSR models; the second group of hypotheses was related to the factors in TPB model, discussing the indirect relationship between personality with overall SAPSR retail model mediated by TPB variables, as well as the influence of TPB variable on acceptance of SAPSR retail model.

Direct Influence on the Intention to Adopt SAPSR models

The influence of each personality trait on the overall SAPSR model was analyzed first. The regression coefficients indicate that fashion leadership (B=0.295, p<0.000) and need for uniqueness/creative choice (B=0.132, p<0.004) was positively associated SAPSR, while materialism was negatively associated with SAPSR (B=-0.276, p<0.000). Although there is a negative relationship between need for uniqueness/avoidance of similarity and SAPSR, the data did not indicate that the relationship was significant (B=-0.004, p<0.938). Table 4.20 presents the comparison of the statistics model fit with and without need for uniqueness-avoidance of similarity, which indicates the model with avoidance of similarity removed is better. Therefore, need for uniqueness-avoidance of similarity was removed from the model. Table 4.B-14 (Appendix B) indicates the unstandardized and standardized regression coefficients. Thus, H1 was partly supported. Figure 4.1 illustrates the model of each personality traits with SAPSR; only significant paths are shown in the figure.

Table 4.20

Model Fit Statistics for Relationships between Personality Traits and SAPSR Model

Statistics	Original model: With avoidance of similarity	Modified model: Remove avoidance of similarity

$\chi^2{}_M$	908.019	422.399
df_M	340	164
p	0.000	0.000
χ^2/df	2.671	2.576
RMSEA (90% CI)	0.062 (0.057 0.067)	0.060 (0.053 0.068)
P close-fit (*H0*)	0.000	0.008
CFI	0.941	0.957
TLI	0.934	0.950
SRMR	0.057	0.060

Figure 4.1

The Model of Relationships between Personality Traits with SAPSR Model
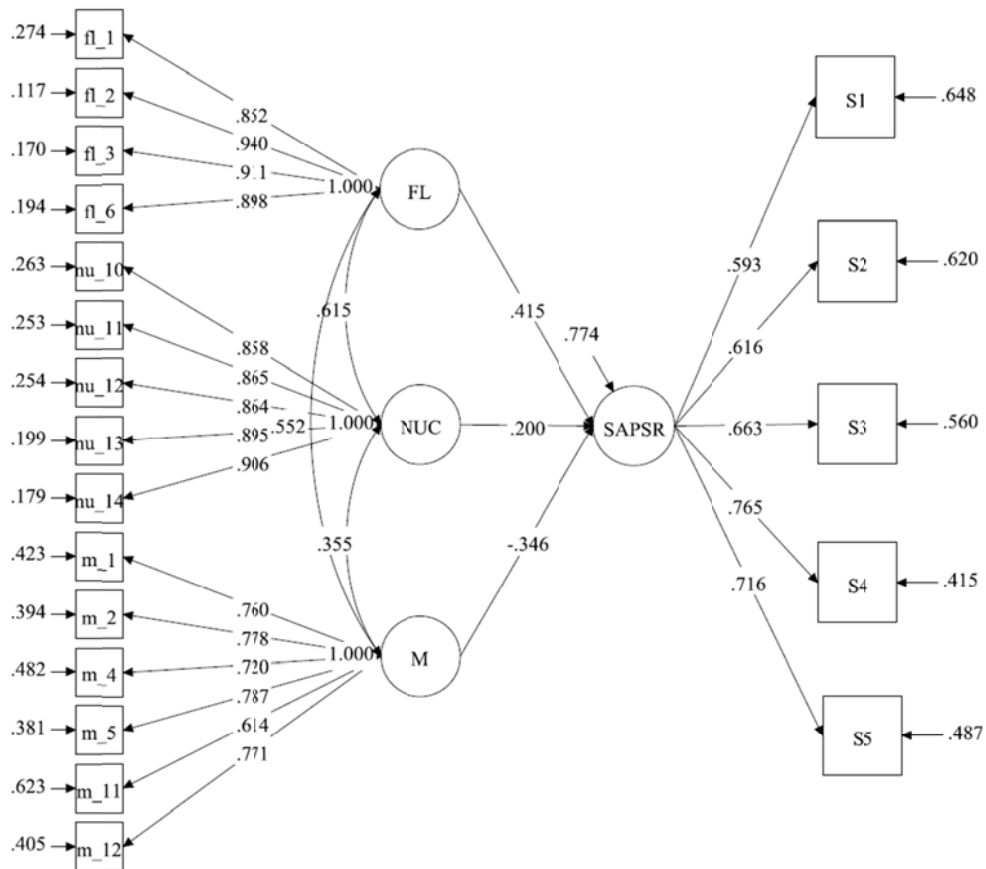
The direct influence of three personality traits on each of the SAPSR models were analyzed by SEM. Avoidance of similarity had no influence on any of the five SAPSR retail models; therefore, it was removed from the SEM model. Table B-15 (Appendix B) presents the fit statistics comparison of the two models of with and without avoidance of similarity, which indicates that the model with avoidance of similarity removed is better model ($\chi^2_{(df=147)}$ =315.472, p=0.000; RMSEA=0.052; CFI=0.972; TLI=0.964; SRMR=0.032).

As shown in Table B-16 (Appendix B), the results indicate that fashion leadership was positively related to each of the five SAPSR retail models, and materialism was found to be negatively related to each of the five SAPSR retail models. However, need for uniqueness/creative choice was found to be positively associated with repair/alteration, redesigned clothing and clothing swaps, but no significant relationship was found between need for uniqueness/creative choice with either renting or consultancy. Therefore, H2 and H4 were supported, and H3 was partly supported. Figure 4.2 presents the relationships among different variables, in which, only significant paths are illustrated.

The demographic variables may also provide a contribution to gain more insight into an individual's acceptance of sustainable consumption behaviors in apparel and textiles (AT) fields. The analysis results indicated that age was negatively related to overall adoption of SAPSR model, which indicates that younger women are more likely to adopt SAPSR models compared with older women. However, there is no significant relationship between education and income with the overall adoption of SAPSR model. Therefore, H5 was partly supported. Table B-17 (Appendix B) presents the model fit statistics of demographics with SAPSR model and Table B-18 (Appendix B) illustrate the unstandardized and standardized regression coefficients. Table 4.21 presents the results of each hypothesis for research question 1.

Table 4.21

Results of Hypotheses for Research Question 1

Hypotheses	The analysis results of hypotheses
H1: Personality traits have a direct effect on consumers' intention to adopt the overall SAPSR model	Partly supported
Fashion leadership:	Supported
Materialism:	Supported
Need for uniqueness/creative choice:	Supported
Need for uniqueness/avoidance of similarity:	Not supported
H2: Fashion leadership has a direct effect on consumers' intention to each adopt SAPSR model.	Supported
H3: Need for uniqueness/creative choice has direct effect on consumers' intention to adopt each SAPSR model.	Partly supported
Redesigned clothing:	Supported
Repair/alteration:	Supported
Renting:	Not supported
Clothing swaps:	Supported
Consultancy:	Not supported
H4: Materialism has a direct effect on consumers' intention to adopt each SAPSR model.	Supported
H5: Demographic variables a) age b) income c) education, have a significant influence on consumers' intention to adopt SAPSR models.	Partly supported
H5a: age	Supported

| H5b: income | Not supported |
| H5c: education | Not supported |

Further, we hypothesized that age, income and education would moderate the relationship of personality traits with each SAPSR model. Three age groups were studied in this research. As shown in Table 4.22, the model fit statistics indicate that the free model (χ^2 $_{(df=489)}$ =772.091, p=0.000; RMSEA=0.063; CFI=0.953; TLI=0.948; SRMR=0.054) is slightly better than fix model (χ^2 $_{(df=519)}$ =807.273, p=0.000; RMSEA=0.062; CFI=0.952; TLI=0.948; SRMR=0.067). In order to test which model is better, chi-square difference test was applied to compare two models. Table 4.23 presents the Chi-squares of two models are significantly different; the model with less degree of freedom (free) is better than the model with more degree of freedom (fix) model, which indicates that the influences of personality traits on the intention to adopt SAPSR models among these three age groups are different. Therefore, age was found to moderate the effect on the relationship between personality traits and each SAPSR models. Although people with higher level of materialism have negative attitude toward SAPSR models, the influence of materialism on intention to adopt particular SAPSR models for younger women is less significant, which is consistent with the finding that age was negatively related to overall adoption of SAPSR model. Compared to older adults, younger women are more open to new ideas and like to try something new (Stephens, 1991). Their adventurous spirit may lessen the influence of materialism on their behavior. The moderation role of age as well as its significantly negative relationship with overall adoption of SAPSR model indicates that age is an important indicator that we need consider in marketing SAPSR models.

Table 4.22

Value of Fit Statistics for the SEM Models

	Fit statistics for free and fix model	
Statistics	Free model (1)	Fix model (2)
$\chi^2{}_M$	772.091	807.273
df_M	489	519
p	0.000	0.000
χ^2/df	1.579	1.555
RMSEA (90% CI)	0.063 (0.055 0.072)	0.062 (0.054 0.070)
P close-fit (H0)	0.006	0.010
CFI	0.953	0.952
TLI	0.946	0.948
SRMR	0.054	0.067

Table 4.23

Chi-square Difference Test

	Model free (1)	Model fix (2)	Difference test
Chi-square	772.091	807.273	0.0357235674027*
DF	489	519	

*p= CHISQ.DIST (C2-B2, C3-B3, FALSE)

*p<0.05

Table B-19 (Appendix B) presents the unstandardized and standardized regression coefficients. The regression coefficients for participants of 18-34 indicate that fashion leadership is significantly associated with redesigned clothing (B=0.461, p<0.000), renting (B=0.337, p<0.05), and consultancy (B=0.485, P<0.001) in a positive way; but is not significantly

associated with repair/alteration (B=0.268, p<0.070) and clothing swaps (B=0.183, p<0.241). But for the participants age 35-49, positively significant relationships were only found between fashion leadership with repair/alteration (B=0.398, p<0.006) and consultancy (b=0.564, p<0.000), not with the other three SAPSR models. For participants of age group 50-68, fashion leadership was found to be significantly related to all the five SAPSR models. In sum, this indicates that for older women, fashion leadership plays a significant role in their intention of adopting SAPSR models. Although older women may not be as likely to adopt SAPSR models, higher fashion leadership may push them to try these new models.

Interestingly, the findings of need for uniqueness/creative choice with SAPSR models indicated that for the participants of 18-34 age group, need for uniqueness/creative choice was only related with redesigned clothing (B=0.314, p<0.013) in a positive way. Although there is negative relationship between need for uniqueness/creative choice with renting, clothing swaps, and consultancy, no significant association was found. Similarly, for age group 50-68, need for uniqueness/creative choice was found to be positively associated with repair/alteration (B=0.297, p<0.015), but no significant relationships were found with other four SAPSR models. However, for age group 35-49, need for uniqueness/creative choice was positively related to redesigned clothing (B=0.427, p<.000), repair/alteration (B=0.215, p<0.047) and clothing swaps (B=0.281, p<0.026), but not with renting and consultancy. This indicates that need for uniqueness/creative choice may play most important role for consumers aged 35-49 in the adoption of new SAPSR models. This may also be an important factor for marketing repair/alteration to older women.

Different from fashion leadership, the regression coefficients for participants of 18-34 indicated that materialism is significantly negatively associated with redesigned clothing (B=-0.312, p<0.019), renting (B=-0.362, p<0.030), clothing swaps (B=-0.507, p<0.001) and consultancy (B=-0.306, p<0.042). But the participants of age 35-49, significantly negative relationships were only found between materialism with repair/alteration (B=-0.339, p<0.010)

and clothing swaps (B=-0.412, p<0.007). For participants of age group 50-68, materialism was found to be significantly negatively related to all the five SAPSR models. This indicates that materialism is most important for consumers aged 50-68 in their intention to adopt SAPSR models.

In sum, given the results of multiple-group analysis, there is a difference between the three groups. The multiple-group analysis results indicate that age plays a moderating role in the relationships between the three personality traits with the adoption of SAPSR models.

To better reflect the influence of income on the relationships between personality traits with SAPSR models, the original six age groups were categorized into three groups: lower income (<US\$39,999), middle income (US\$40,000-79,999) and higher income (>US\$80,000). As shown in Table 4.24, the model fit statistics indicate that the free model ($\chi^2_{(df=489)}$ =840.807, p=0.000; RMSEA=0.071; CFI=0.944; TLI=0.935; SRMR=0.052) is slightly better than the fix model ($\chi^2_{(df=519)}$ =886.287, p=0.000; RMSEA=0.070; CFI=0.941; TLI=0.936; SRMR=0.068). Further, a chi-square difference test was applied to compare the two models. Table 4.25 indicates the Chi-squares of the two models are significantly different; the model with less degree of freedom (free) model is better than the model with more degree of freedom (fix) model.

Table 4.24

Value of Fit Statistics for the SEM Models

	Fit statistics for free and fix model	
Statistics	Free model (1)	Fix model (2)
χ^2_M	840.807	886.287
df_M	489	519
p	0.000	0.000
χ^2/df	1.719	1.708

RMSEA (90% CI)	0.071 (0.063 0.079)	0.070 (0.062 0.078)
P $_{\text{close-fit }(H0)}$	0.000	0.000
CFI	0.944	0.941
TLI	0.935	0.936
SRMR	0.052	0.068

Table 4.25

Chi-square Difference Test

	Model free (1)	Model fix (2)	Difference test
Chi-square	840.807	886.287	0.0075469518419**
DF	489	519	

*p= CHISQ.DIST (C2-B2, C3-B3, FALSE)

**p<0.01, indicating the Chi-squares of two models are significantly

different, the model with less degree of freedom (free) model is better

than the model with more degree of freedom (fix) model.

Table B-20 (Appendix B) presents the unstandardized and standardized regression

coefficients. The regression coefficients for participants with annual income less than US$39,999

indicate that fashion leadership is significantly associated with all the five SAPSR models in a

positive way. But for the participants with annual income of US$40,000-79,000, significant

positive relationships were only found between fashion leadership with purchasing redesigned

clothing (B=0.383, p<0.000) and consultancy (b=0.406, p<0.001), not with other three SAPSR

models. For participants of annual income higher than US$80,000, fashion leadership was found

only to be significantly related to renting (B=0.378, p<0.002) and consultancy (B=0.428,

p<0.001). In sum, this indicates that fashion leadership plays a most important role in the intention to adopt SAPSR models for consumers with relatively lower income.

For the participants with annual income less than US$39,999, no significant relationships were found between need for uniqueness/creative choice with any SAPSR models, though there is negative relationship between need for uniqueness/creative choice with clothing swaps. Differently, for the participants with annual income of US$40,000-79,000, need for uniqueness/creative choice was positively related to redesigned clothing (B=0.282, p<0.014), repair/alteration (B=0.288, p<0.030) and clothing swaps (B=0.336, p<0.024), but not with renting and consultancy. Similarly, for participants of annual income higher than US$80,000, need for uniqueness/creative choice was found to be positively associated with redesigned clothing (B=0.355, p<0.001), repair/alteration (B=0.277, p<0.011) and clothing swaps (B=0.239, p<0.037), but no significant relationships were found with the other two SAPSR models. These findings may indicate that when it comes to the sale of redesigned clothing, repair/alteration and clothing swaps, need for uniqueness/creative choice is the most important factor to influence consumers' intention for participants who have annual income higher than US$40,000.

Different from need for uniqueness/creative choice, the regression coefficients for participants with annual income less than US$39,999 indicated that materialism is significantly associated with repair/alteration (B=-0.679, p<0.000), clothing swaps (B=-0.680, p<0.000), and consultancy (B=-0.533, p<0.001) in a negative way. But the participants with annual income of US$40,000-79,000, no significantly relationships were found between materialism with any of the five SAPSR models. But, for participants of annual income high than US$80,000, materialism was found to be significantly negatively related to redesigned clothing (B=-0.372, p<0.004), renting (B=-0.396, p<0.003), clothing swaps (B=-0.671, p<0.000) and consultancy (B=-0.353, p<0.013). This finding indicates that for consumers with income lower than US$39,999 or higher

than US$80,000, materialism plays more important role in their intention to adopt SAPSR models.

In sum, given the results of multiple-group income analysis, there is difference between the three groups. The multiple-group analysis results indicate that income plays a moderating role in the relationships between the three personality traits with the adoption of SAPSR models.

Last, the moderating effect of education on the relationship between personality traits with adoption of each SAPSR model was also tested. Because the number of participants in each education group was not even, to better reflect the influence of education, the original seven groups were categorized into three groups: 1= Some college or lower (42.9%), including some high school, high school graduate, some college and others; 2=College graduate (36.9%); and 3=Graduate school (20.2%), including Master/MBA and PhD. With three new groups, a multiple analysis was conducted. Table 4.26 indicates that the free model ($\chi^2_{(df=489)}$ =729.048, p=0.000; RMSEA=0.058; CFI=0.961; TLI=0.954; SRMR=0.050) is slightly better than fix model ($\chi^2_{(df=519)}$ =770.338, p=0.000; RMSEA=0.0758; CFI=0.959; TLI=0.955; SRMR=0.062). Further, a chi-square difference test was applied to compare two models. Table 4.27 indicates the Chi-squares of the two models are significantly different; the model with less degree of freedom (free) model is better than the model with more degree of freedom (fix) model. This indicates that education moderates the relationship between personality traits with intention to adopt SAPSR models.

Table 4.26

Value of Fit Statistics for the SEM Models

	Fit statistics for free and fix model	
Statistics	Free model (1)	Fix model (2)
χ^2_M	729.048	770.338
df_M	489	519

p	0.000	0.000
χ^2/df	1.491	1.484
RMSEA (90% CI)	0.058 (0.049 0.066)	0.058 (0.049 0.066)
P close-fit (*H0*)	0.061	0.065
CFI	0.961	0.959
TLI	0.954	0.955
SRMR	0.050	0.062

Table 4.27

Chi-square Difference Test

	Model free (1)	Model fix (2)	Difference test
Chi-square	729.048	770.338	0.0158474902893
DF	489	519	

*p= CHISQ.DIST (C2-B2, C3-B3, FALSE) **p<0.05.

Table B-21 (Appendix B) presents the unstandardized and standardized regression coefficients. The regression coefficients that, for participants who had no college degree, fashion leadership is significantly associated with repair/alteration (B=0.501, p<0.001), renting (B=0.453, p<0.006), clothing swaps (B=0.573, p<0.001), and consultancy (B=0.694, p<0.000), but not with purchasing redesigned clothing (B=0.254, p<0.064). Different from the lower education group, for the participants who have a college degree, significant positive relationships were only found between fashion leadership and purchasing redesigned clothing (B=0.389, p<0.000). For participants who earned a Masters/MBA or PhD degree, fashion leadership was found to be significantly related to purchasing redesigned clothing (B=0.512, p<0.009), renting (B=0.406, p<0.042) and consultancy (B=0.541, p<0.016). This indicates that, for participants who have

relatively less education, fashion leadership plays the most important role in their intention to adopt SAPSR models, especially for repair/alteration, renting, clothing swaps and consultancy.

Interestingly, significant relationships were only found between need for uniqueness/creative choice with purchasing redesigned clothing for both participants who had some college or lower (B=0.384, p<0.000) and graduate school participants (B=0.340, p<0.030); differently, for the participants who have a college degree, positive significant relationships were only found between need for uniqueness/creative choice with repair/alteration (B=0.367, p<0.002). This indicates that education is an important consideration for the relationship between need for uniqueness/creative choice and redesigned clothing and repair/alteration.

Similar to fashion leadership, among participants who did not finish a college degree, materialism was found to be significantly negatively related to four of the SAPSR models, except for purchasing redesigned clothing. But, among the participants who completed a college degree, a significant relationship was only found between materialism with repair/alteration (B=0.349, p<0.015) in a negative way. For the participants who have graduate education, materialism was found to be negatively related to purchasing redesigned clothing (B=-0.676, p<0.000), repair/alteration (B=-0.366, p<0.039), and clothing swaps (B=0.-601, p<0.001), but not with the other two SAPSR models. This indicates that materialism plays a more important role in the intention to adopt SAPSR models for consumers who did not completed college and those who had graduate education.

In sum, given the results of multiple-group analysis, we find there are differences between the age, income and education groups. The multiple-group analysis results indicate that age, income and education play a moderating role in the relationships between the three personality traits with the adoption of SAPSR models. Therefore, H6 was supported (see Table 4.28)

Table 4.28

Results of Proposed Hypotheses for Demographics

Hypothesis	The analysis results of hypotheses
H6: Demographics a) age b) income c) education, have a moderating effect on the relationship between personality traits and intention to adopt each SAPSR model.	Supported

Indirect Influence on the Intention to Adopt SAPSR models

This research draws upon the theory of planned behavior (TPB) as the theoretical framework to analyze the determinants of consumers' intention to adopt SAPSR models. Based on the theory of planned behavior, this study proposes that attitudes toward SAPSR model, subjective norms and perceived behavioral control mediate the relationships between personality and the consumers' intention to use SAPSR model. Utilizing SEM, the indirect relationships were tested. Confirmatory factor analysis has suggested that the external and internal perceived behavior control need to be analyzed separately, and attitude toward sustainable purchasing, sustainable use and recycling need to be treated as separate factors. Therefore, these factors were used as mediators in the analysis.

The initial model indicated that both external perceived behavior control and attitude toward sustainable use were not related to either acceptance of SAPSR or personality; therefore, these two variables were removed from the initial model. As shown in Table 4.29, the goodness-of-fit indices of the model 2 with PBCE and ATSU removed are slightly better than the initial model. However, the goodness-of-fit of model 2 is still on the edge of acceptable model fit. The model modification indices suggested a number of modifications to improve model fit. Based on the model modification indices and the characteristics of variables, several correlations were

added into the model. The high-standardized loadings of items indicated that the items might be

highly correlated with each other; therefore, several correlations including AT34 with AT 35,

AT12 with AT15, M11 with M12, and NU1 with NU3 were added into the model. The item PB4

"I swap my clothing with other people" evaluating participants' past clothing swap behavior was

hypothesized to be correlated with SAPSR 4 "clothing swaps;" therefore, the correlation between

S4 with PB4 was also added into the model. Subjective norm and perceived behavior control

were used to measure personal control on behaviors, which might be correlated with each other;

therefore, the correlation between PBCI with SN was added into the model. Last, the correlation

between materialism with fashion leadership was added into the model.

Table 4.29 shows that the model fit statistics of the modified new model were improved a

great deal ($\chi^2_{(df=1011)}$ =1972.437, p=0.000; RMSEA=0.047; CFI=0.947; TLI=0.944;

SRMR=0.082). Therefore, the modified model fit the data well and was adopted in this study.

Table 4.29

Model Fit Statistics for SAPSR on Indirect Relationships

Statistics	Model 1 (Initial model)	Model 2 (PBCE and ATSU removed)	Model 3 (Modified new model)
χ^2_M	3077.254	2403.206	1972.437
df_M	1410	1018	1011
p	0.000	0.000	0.000
χ^2/df	2.182	2.361	1.951
RMSEA (90% CI)	0.052 (0.050 0.055)	0.056 (0.053 0.059)	0.047 (0.044 0.050)
P $_{close-fit\ (H0)}$	0.060	0.000	0.947
CFI	0.918	0.919	0.944
TLI	0.914	0.914	0.940

SRMR	0.094	0.090	0.082

Table B-22 (Appendix B) presents the unstandardized and standardized regression coefficients for the full model. The statistics outputs indicated that past sustainable behavior (B=0.388, p<0.000), internal perceived behavior control (B=0.192, p<0.004), and attitude toward sustainable purchasing (B=0.100, p<0.018) are all positively related to overall intention to adopt SAPSR. The Theory of Planned Behavior (TPB) has emphasized the influence of attitude, perceived behavior control and subjective norms on the intention to a given behavior. Not as expected, there are no significant relationships found between external perceived behavior control (B=-0.027, p=0.662), attitude toward sustainable use (B=-0.016, p=0.718), and attitude toward recycling (B=0.017, p=0.689) with overall intention to adopt SAPSR. Similarly, subjective norm (B=0.080, p=0.170) was not significantly related with overall intention to adopt SAPSR. In sum, H8 was partly supported, H9 was not supported, H10 was partly supported, and H11 was supported.

Further, the model also indicated that personality has significant influence on past behavior (B=0.842, p<0.000), subjective norm (B=0.543, p<0.000), internal perceived behavior control (B=0.379, p<0.000), attitude toward sustainable purchasing (B=0.293, p<0.000), and attitude toward recycling (B=0.132, p<0.000), but has no significant influence on external perceived behavior control (B=0.059, p=0.172) and attitude sustainable use (B=0.014, p=0.808). Also, personality was found not to have direct influence on overall intention to adopt SAPSR (B=0.075, p=0.495).

Although personality has no direct influence on the adoption of SAPSR, there is a significant indirect relationship between these two variables (B=0.475, p<0.000) mediated by TPB variables. The statistical outputs of indirect relationship indicated that the overall intention of adopting SAPSR was influenced by personality and mediated by past behavior (B=0.327,

p<0.000), internal perceived behavior control (B=0.073, p<0.012), and attitude toward

sustainable purchasing (B=0.029, p<0.039). However, other TPB variables were not found to

mediate the relationship between personality and overall intention of adopting SAPSR. Therefore,

H7 was partly supported. Table 4.30 presents the results of each hypothesis for research question

2.

Table 4.30

Results of Hypotheses for Research Question 2

Hypotheses	The analysis results of hypotheses
H7: Personality has indirect effect on consumers' intention toward SAPSR models mediated by past sustainable consumption behaviors, subjective norms, perceived behavior control, and attitudes.	Partly supported
Via past sustainable consumption	Supported
Via subjective norms	Not supported
Via internal perceived behavior control	Supported
Via external perceived behavior control	Not supported
Via attitudes/sustainable purchasing	Supported
Via attitudes/sustainable use	Not supported
Via attitudes/recycling	Not supported
H8: Attitudes toward sustainable consumption are positively related to consumers' intention to adopt SAPSR models.	Partly supported
Attitudes/sustainable purchasing	Supported
Attitudes/sustainable use	Not supported
Attitudes/recycling	Not supported

H9: Subjective norms in relation to sustainable consumption are positively related to consumers' intention to adopt SAPSR models.		Not supported
H10: Perceived control of sustainable consumption behavior is positively related to consumers' intention to adopt SAPSR models.		Partly supported
	Internal perceived behavior control	Supported
	External perceived behavior control	Not supported
H11: Past sustainable consumption behavior is positively related to consumers' intention to adopt SAPSR models.		Supported

Two other correlations were found in this model. The statistical outputs indicated that fashion leadership is positively correlated with materialism (r=0.371, p<0.000). This finding indicates that fashion leaders are more likely to place possessions at the center of their lives, which is consistent with previous research (Workman & Lee, 2011). Additionally, it was found that respondents have swapped clothing before were more likely to swap clothing in future (r=0.431, p<0.000).

Chapter Summary

This chapter reported the data analysis results for both the pilot and the primary study of this research. The data in the pilot study were mainly used to test the reliability and validity of measurements. Based on the pilot study results, a variety of adjustments were applied to improve the reliability and validity of the scales. Then, the purified measures were employed in the main study. To perform main data analysis, data preparation was conducted to check the data and perform necessary editing, coding, reverse coding, transcribing, and cleaning.

After the data were prepared, utilizing SPSS 20.0 the profile of participants was analyzed, followed by descriptive analyses, including the calculations of minimum, maximum, mean score

and standard deviation for the main variables. A reliability test was also conducted in SPSS. Then, data was transferred to Mplus 7.0 for validity and hypotheses testing. Based on the statistic results of confirmatory factor analysis, a reliability test of measurement and the objectives of this study, a number of items were removed from original measures for materialism, need for uniqueness and perceived behavior control. Further, in order to better investigate the influence of different variables on consumers' intention of adopting SAPSR models, perceived behavior control was categorized into two factors of internal and external PBC; attitude toward sustainable consumption was categorized into three factors of attitude toward sustainable purchasing, sustainable use and recycling.

With the purified measures, structural equation modeling was utilized to test the proposed direct and indirect models developed for testing the hypotheses in this study. For the direct model, the results indicated that fashion leadership, need for uniqueness/creative choice and materialism were all significantly related to overall intention of SAPSR model; however, need for uniqueness/avoidance of similarity had no significant relationship with overall intention of SAPSR. Further, the analyses of the influence of personality traits on intention of each SAPSR revealed that both fashion leadership and materialism were significantly related to each SAPSR model, but need for uniqueness/creative choice was only significantly related to repair/alteration, redesigned clothing and clothing swaps. As predicted, materialism was negatively related to SAPSR; but surprisingly, fashion leadership and need for uniqueness were both positively related to SAPSR. On the basis of the direct relationship, the multiple group analyses indicated that age, income and education all have moderate effect on the relationship between personality traits with intention to SAPSR models.

Then, the indirect model was tested via structural equation modeling. The statistic results showed that past sustainable consumption behavior, internal perceived behavior control and attitude toward sustainable purchasing were determinants to predict consumers' intention to

accept SAPSR, however, subjective norms, external perceive behavior control, and attitude toward sustainable use and recycling were not found to predict consumers' intention to accept SAPSR. On the other side, the outputs revealed that overall personality was found to significantly predict past sustainable behavior, subject norms, internal perceived behavior control, attitude toward sustainable purchasing and attitude toward recycling in a positive way, but not external perceived behavior control and attitude toward sustainable use. Although, overall personality was not found to directly predict consumers' intention to accept SAPSR, the results indicated that, overall, personality was significantly related to consumers' intention to accept SAPSR in a positive way mediated by TPB variables. Specifically, the statistics output of indirect relationship indicated that the overall intention of adopting SAPSR was influence by personality mediated by past behavior, internal perceived behavior control, and attitude toward sustainable purchasing.

CHAPTER V

DISCUSSION AND CONCLUSION

Introduction

This research examined the direct and indirect relationships between personality traits of

consumers and their intention to adopt Sustainable Apparel Product-Service Retail (SAPSR)

models. The theory of planned behavior (TPB) was applied to the study of indirect relationships.

Chapter 1 outlined the research background, justification and organization of this study. The

research issues were introduced and research questions were defined in Chapter 1. Chapter 2

reviewed the extant literature on sustainable consumption, personality traits, the new Sustainable

Apparel Product-Service Retail (SAPSR) models, and behavioral intention theories (TRA and

TPB). With an emphasis upon the relationship between personality traits and adoption of SAPSR

models, the moderating effect of demographic factors on the relationship of personality traits and

adoption of SAPSR models was also discussed. The hypotheses were then proposed on the basis

of the literature review and identification of research gap. Chapter 3 served to outline the research

method employed to investigate the research issues. The results of the pilot and main studies were

presented in Chapter 4. The descriptive analysis, profiles of the respondents and structural

equation modeling results of the testing hypotheses were reported. The final chapter of this

dissertation will present the findings with implications for both theory and practice with a review

of the main findings. The limitations and future possible research are also discussed in this

chapter.

Summary of Research Findings

This research focused on three personality traits of consumers and their relationship to intention

of adopting SAPSR models. Two major research questions were generated based on previous

literature. First, how do personality traits influence consumers' intention to adopt each specific

SAPSR model with moderating demographic variables? Second, what is the relationship of

personality, attitudinal and normative factors, demographics, and consumers' intention toward the

intention of adopting SAPSR models? The first question aimed to address the direct relationship

between personality traits and SAPSR models, while the second question addressed the indirect

relationship mediated by Theory of Planned Behavior (TPB) variables.

The Role of Personality

The direct relationships between personality traits and overall intention to adopt SAPSR models

were analyzed first. The statistical results illustrated that fashion leadership and need for

uniqueness/creative choice were both positively associated with consumers' intention to adopt the

new SAPSR retail models, and materialism was negatively related to it. Need for

uniqueness/avoidance of similarity, however, had no influence on consumers' intention to adopt

the new SAPSR models. These findings suggest that consumers who are fashion leaders or who

have a higher level of need for uniqueness/creative choice are more likely to become involved in

the new sustainable retail models. Compared to people without a high concern for fashion,

consumers with a high level of fashion leadership learn about new fashion ideas early in the

fashion cycle and purchase new fashion items soon after they are introduced into the market.

Similarly, consumers who have a higher level of need for uniqueness often try new things and

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they are considered to be more open to new ideas and experimentation. Some of the SAPSR models, such as clothing swaps and purchasing redesigned products are relatively new retail concepts, but adopting these retail models, itself, is a fashionable and unique consumption behavior.

Differently, participants with higher level of materialism were less likely to adopt the new SAPSR models as one of their purchasing options, which is consistent with previous research (Tilikidou & Delistavrou, 2004). People with a high level of materialism place their possessions at the center of their lives, and material possessions play an important role in whether they are satisfied or not with their lives (Richins & Dawson, 1992). Some SAPSR models encourage consumers to reduce the consumption of new products and promote sharing with others, which will lead to reduced ownership. Lack of ownership, one of the features of some new SAPSR models, like clothing renting, may deter consumers with a high level of materialism from adopting them.

Although concerns about enviromental issues have been growing among consumers, these concerns have had more of an influence on the purchase of products directly involved with current health concerns, such as food (Kim & Damhorst, 1998). Sustainable consumption of apparel products is still a new concept, especially, consumers focus more on environmentally-friendly products when considering sustianable consumption. The retail programs for reducing consumption and increasing use intensity, such as shared use and purchasing redesigned products, are still in their infancy. Getting consumers who have a higher level of materialism to try these new consumption methods is the challenge we face.

Though the idea of new SAPSR models is to encourage consumers to consume clothing products in a more responsible and sustainable way, each SAPSR model has different characteristics, which may influence the choices of consumers who have different personalities.

For instance, the renting service option provides consumers with more fashionable clothing options, and it might be attractive to consumers who are fashion innovators. However, the downside of this service is that consumers have to relinquish personal ownership of their garments. The redesigned clothing and repair/alteration models could help to extend the life of old clothing, but it may reduce the opportunity to consume the latest fashion trends.

Surprisingly, the findings of model 1 indicate that fashion leadership has a positive influence on the intention of the consumer to accept all five SAPSR models. Individuals with a higher level of fashion leadership generally purchase new fashion items as soon as they are introduced to the market as opposed to individuals with lower levels of fashion leadership (Goldsmith et al., 1993). The repair/alteration and consultancy models seek to extend the lifespan of clothing by providing consumers with repair services of old apparel items or consultancy ideas for using old clothing in new ways, which can prolong the life of existing items, which may prohibit consumers from purchasing trendy fashion products. Therefore, we assume that consumers with high fashion leadership, who are always most attracted to newness, might be resistant to some of the SAPSR models, such as repair and consultancy, because they would become bored with and lose interest in what they already own for some time. A possible explanation may lie in the complexity of the factors, which determine the intentions toward a new sustainable behavior. There may be other factors that encourage consumers' intentions of trying this service. For example, compared with purchasing new fashionable clothing, repair/alteration or using old clothing in a new way costs less.

Individuals with need for uniqueness strive to express their individuality. The manifestation of need for uniqueness includes creative choices, avoidance of similarity and not making unpopular choices (Tian et al., 2001). The statistical data analysis in this research has suggested that need for uniqueness can be categoriezed two ways: creative choice and avoidance

of similarity, which is consistent with the previous research (Tian et al., 2001). Although need for uniqueness/creative choice was found to have a positive influence on the overall intention to adopt SAPSR models, the results were mixed when it came to each individual SAPSR model. According to the findings, need for uniqueness/creative choice has a positive influence on the intention to repair/alteration, redesigned clothing and clothing swaps, but does not positively influence renting and consultancy. People with need for uniqueness/creative choice would likely act in a way that would allow the person to stand out from the crowd by making creative choices and dressing in a different way from most (Workman & Kidd, 2000). People can behave in a more active way in the SAPSR models (repair/alteration, redesigned clothing and clothing swaps), however, in renting and consultancy, their role might be more passive, which may prohibit someone who want to be more active in creative use of old clothing items, but not being judged by others. Redesigned clothing could provide one-of-a-kind new products redesigned from old materials, but it could also become a viable and new, creative business option. Therefore, it is attractive to consumers who have a higher level of need for uniqueness/creative choice. Although obtaining clothing via swapping may result in wearing old clothing swapped with others, this retail system is innovative and a novel idea to many people. Participating in this creative choice model would provide an ideal way to express one's individuality.

However, other SAPSR models, such as renting, were not related to the personality of need for uniqueness. Although this service provides more opportunities for consumers to keep up with fashion trends with relatively low cost, the likelihood of wearing similar garments to others is also increased. Consumers who prefer to look different from others by the way that they dress might hesitate to rent clothing. Moreover, renting clothing means they have to use the clothing items that have been used by other people; hygiene concern may prevent consumers from adopting this retail model. Surprisingly, need for uniqueness/creative choice was not found to

predict the adoption of consultancy services, which is not as predicted. A possible explanation could lie in the complexity of various factors which influence people's decision making. Although consultancy service can provide consumers with new ideas about how to wear their clothing in different ways, adopting this business model may also be a good means to express their uniqueness. But, to adopt this service, they may also have to accept other people's judgment on their clothing, which may impede consumers' curiosity of this retail model. Those who like creative choice may desire a more active role in their clothing choice but not want anyone else telling them what to do.

As inner psychological characteristics, personalities distinguish one individual from another and affect the way consumers respond to different marketing strategies. The findings of this project confirmed most of the hypotheses proposed in this research. The model is illustrated as Figure 5.1; only significant relationships are shown in the figure.

Figure 5.1

Model of Personality with Each SAPSR Model
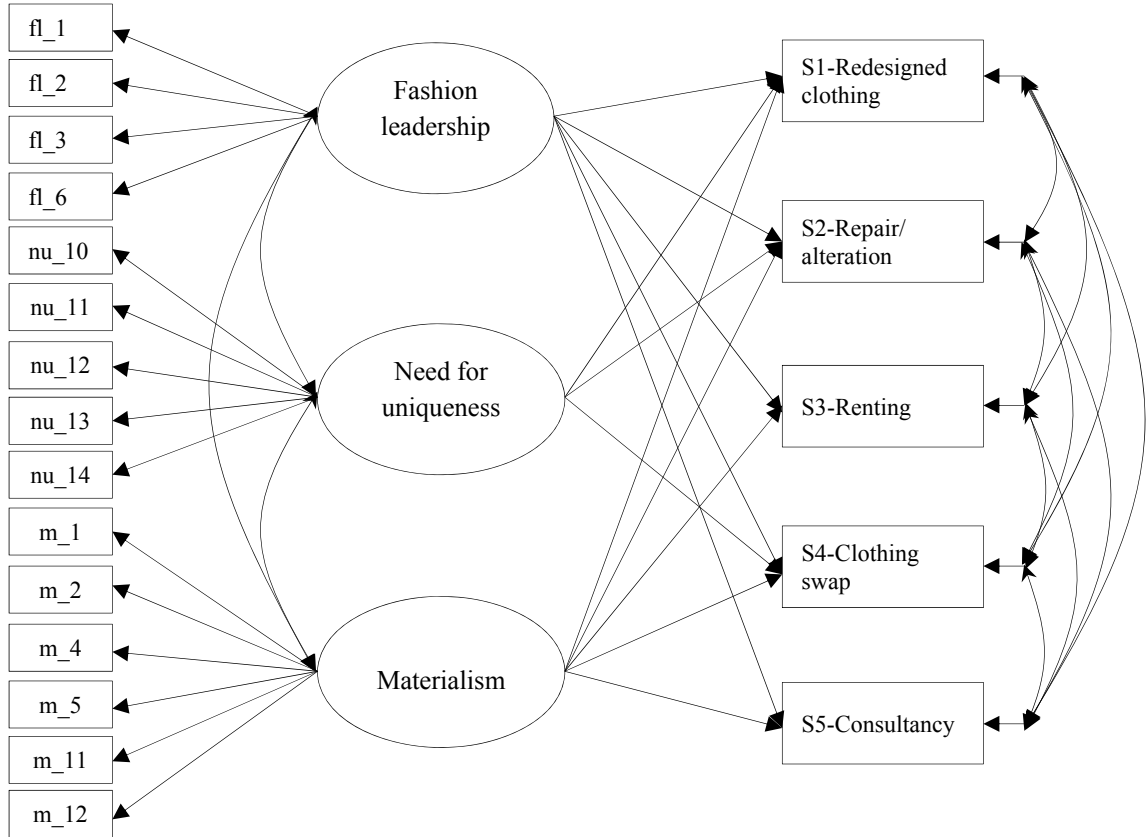
The Role of TPB Variables

As stated earlier, consumers' adoption of SAPSR models needs to be understood and explained

by associating both the inner characteristics and social factors in sustainable consumption. The

theory of planned behavior (TPB), which takes into account both individual and social factors,

was adopted as the theoretical framework to analyze the determinants of consumers' intention to

adopt SAPSR models. In the original model of this study, as illustrated in Figure 2.4 in Chapter 2,

the components of TPB variables are past sustainable behavior, subjective norms, perceived

behavior control, and attitudes toward sustainable consumption. The statistical results suggested

that the basic model is unable to fit the observed data. Therefore, the basic TPB model was

modified based on theoretical considerations and according to statistical output. The modified TPB model improves the predictive and explanative powers. The results clearly showed the relevant role played by personality and the TPB variables in the acceptance of new SAPSR models. Figure 5.2 illustrates the revised model developed from the data; only significant relationships are displayed in the model.

Overall, personality had no direct effect on consumers' intention to adopt SAPSR models. It indirectly contributes to the SAPSR adoption intentions. The indirect relationship was mediated by the variables in the theory of planned behavior (TPB), which is consistent with the concept of the original TPB model, in which personality traits were considered to be "external variables" and were assumed to influence intention indirectly.

Four independent determinants have been specified in the proposed model. One is the personal factor of attitude toward the behavior and another is a social factor called the subjective norm. A third is perceived behavioral control referring to an individual's perception of his or her ability to perform a given behavior, which is a central factor in the theory of planned behavior (Ajzen, 1991). Past sustainable behaviors have been consistently added into the models (East, 1997). A significant indirect relationship was found to be mediated by past behavior, internal perceived behavior control and attitude toward sustainable purchasing. As mediators, past sustainable consumption behavior, internal perceived behavior control and attitude toward sustainable purchasing build the bridge that connects personality to the intention to adopt SAPSR models. Unexpectedly, the social factor, subjective norms, was not found to mediate the relationship between personality and intention to adopt SAPSR models. Specifically, subjective norm was not able to predict participants' intention of SAPSR models in this study.

Figure 5.2

The Full Model of Indirect Relationship
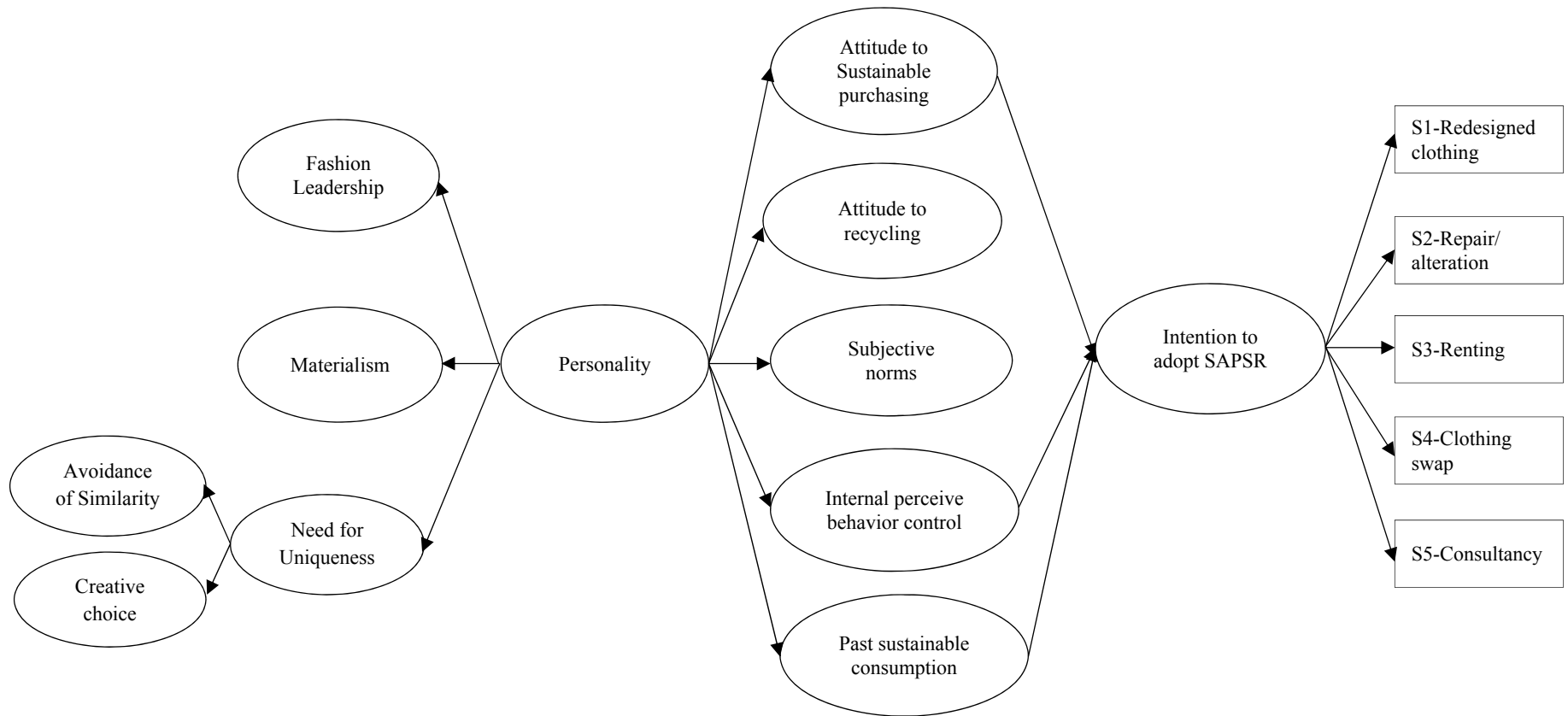
First, regarding the relationship between each variable, the findings can be explained further. Drawing upon the Theory of Planned Behavior (TPB), we proposed that attitudes toward adopting SAPSR models depends upon subjective norms, perceived behavioral control as well as past sustainable behaviors , which are the essential determinants of the consumers' intention to adopt SAPSR models. As predicted, the results of structural equation modeling confirmed that three factors in the TPB model, including past sustainable behavior, internal perceived behavior control, and attitudes toward sustainable purchasing, contribute significantly to the predication of consumers' intentions to adopt one or more of the SAPSR models. Perceived behavioral control refers to an individual's perception of his or her ability to perform a given behavior (Ajzen, 1991). Both internal and external perceived behavior control were identified from data analysis, which is consistent with previous research (Kidwell & Jewell, 2003). However, only internal control was found to have an influence on consumers' intentions to adopt SAPSR, and mediate the relationship between personality and intention toward SAPSR models. The findings suggest that the decision to become involved in sustainable consumption by adopting SAPSR models is a rational process wherein consumers take into account their attitudes and abilities. Individuals who have more positive beliefs about sustainable purchasing, or are more confident in their green behaviors, have stronger intentions to adopt SAPSR models in future. Further, individuals who have had more experience participating in sustainable consumption will also be more likely to take advantage of the new SAPSR models.

Unexpectedly, the influence of subjective norms, external perceived behavior control, and attitudes toward recycling and sustainable use were not supported by the data in this study. Several possible explanations may be put forward to explain these findings. Subjective norms are the individual's perception of the social pressures placed on them to perform the behaviors in question. Consumers in a collectivist culture are more influenced by subjective norms than those

in an individualist culture. The data in this study was collected in the United States, which is an individualistic society (Hofstede, 1980). People who live in an individualistic society put a great deal of stress on personal achievements and individual rights, instead of being concerned with social pressure from others. These cultural characteristics might explain the weak influence of subjective norms on intentions to adopt SAPSR models in this study. The non-significant relationship between external perceived behavior control and the intention to adopt SAPSR models indicates that the external influences will not act as a barrier toward the intention to adopt SAPSR models. Here, external influences indicate the difficulties perceived by the customers to adopt the new sustainable retail models. For example, a person's intention to practice sustainable consumption may be influenced by the extent of external conditions, such as the presence of referents close to the person who practices sustainable consumption, or the availability of external resources for conducting sustainable consumption. Another explanation might be that some of SAPSR concepts are still in their infancy, and respondents could not perceive the barriers because they were not familiar with these new concepts. Intentions are assumed to capture the motivational factors that influence a behavior, which are indications of how much effort an individual is willing to put forth in order to perform the behavior (Ajzen, 1991). As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance. Environmental concern is one of the reasons that people adopt sustainable consumption behaviors (H.-S. Kim & Damhorst, 1998); external influences may not be a great obstacle to consumers when making consumption decisions that reflect their desire to protect the environment. Although the new SAPSR models were developed to minimize the environmental impact of consumption by lowering material consumption levels, these models were not framed as enviro-friendly. Therefore, different from other types of options, like organic cotton purchasing, these new concepts do not necessarily require environmental consciousness for adoption. Instead, we proposed these new retail models in a different way of consuming, not a purchasing product, but

service. This might be one of the reasons that participants do not need pressure from others or a reference of recycling, etc. to adopt them.

As opposed to the findings pertaining to attitudes toward sustainable purchasing, attitudes toward recycling and sustainable use were not found to predict the intentions to adopt SAPSR models. Although sustainable purchasing, sustainable use, and recycling are sustainable consumption behaviors (Liu et al., 2012), sustainable use and recycling in regards to clothing are fairly new behaviors for consumers. Consumers may not have clear-cut attitudes toward these practices yet. Additionally, the new SAPSR models are related more to purchasing, which offer an explanation for the analysis results that only attitudes toward sustainable purchasing are related to the intention to adopt SAPSR models. In addition to the findings related to the relationship between TPB variables and SAPSR adoption intentions, more significant results were found between personality traits and TPB variables. The results revealed that personalities composed of fashion leadership, need for uniqueness and materialism significantly contributed to the predication of a number of TPB variables, including past sustainable behavior, internal perceived behavior control, subjective norms, attitudes toward sustainable purchasing, and attitudes toward recycling. The findings confirmed the hypotheses of this study and reflect that, as inner psychological characteristic, personality is a factor that has an influence on attitudes and beliefs. These influences further extended to behaviors and reactions.

The Role of Demographics

The role of demographics, including age, education and income were also investigated in this study. The statistical results revealed that age was negatively associated with the overall intention to adopt SAPSR models, which is not consistent with a previous study indicating that age was positively associate with one's support for environmental behavior (Samdahl & Robertson, 1989). Although education and income are both identified to be important factors in consumers' decision

making processes, as they pertain to socially responsible behavior (Arcury, 1990), no significant impact was found in this study. Most people consider purchasing environmentally-friendly products as sustainable behavior. In the current study, the SAPSR models were not necessarily framed with an environmental reference point. But instead, this study separated the pro-environmental marketing from the model itself and just focused on the business, rather than stamping "sustainable" all over the models. Though the new SAPSR models were developed to minimize the environmental impact of consumption by lowering material consumption levels, not many people relate these retail concepts with environmentally responsible behaviors. This might be the reason the relationships between age, education and income with the overall intention to adoption of SAPSR models were not as expected. The negative relationship between age and SAPSR models indicated that older adults would be less likely to be interested in the new SAPSR models. A possible explanation might be that younger individuals are more open-minded toward new ideas when compared with older adults. Although some retailing patterns, such as renting and repair/alteration are emerging and available, the overall concept of SAPSR models are still new to the market, especially sale of redesigned clothing, style consultancy, and clothing swaps are still in their infancy. Also, older adults who prefer to buy higher quality clothing products with less concern for quantity (Bhardwaj & Fairhurst, 2010), which might reduce the demand for repair/alteration services. Another explanation would be, when compared to younger people, older women may possess sewing skills, and they are able to repair or alter their old clothing themselves, which may also reduce their interest in purchasing a repair/alteration service from retailers.

Although personality has been defined as an "inner psychological characteristics" and not easy to change, personality varies among people with different ages, income or education levels. Though we cannot predict consumers' intentions to adopt SAPSR models simply by studying

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education and income, but age, education and income were found to moderate the relationship between personality traits of each of the SAPSR models. The findings indicate that personality traits may affect intentions to adopt SAPSR models among consumers who are in different age groups, or have different education or income, in varying ways.

The moderating effect of age

Fashion leadership was positively related to each of the five SAPSR retail models, but for people of different age groups, the relationships between fashion leadership and intention to adopt each SAPSR models vary. For instance, fashion leadership plays a most significant role in their intention of adopting all the five SAPSR models for older women aged 50-68, which indicates that the influence of fashion leadership on their intention to adopt each SAPSR model is prominent. Specifically, fashion leadership is positively related to the intention to purchase redesigned clothing and renting clothing among consumers aged 18-34 and 50-68; it is positively related to the intention to purchase repair/alteration service among consumers older than 35; and it is only positively related to clothing swaps for consumers aged 50-68. However, there was no difference among the influences of fashion leadership on the intention to consultancy service for each age group. Similarly, need for uniqueness/creative choice contributes significantly to the intention to adopt the repair/alteration service for consumers who are older than 35, but not those who are aged 18-34. However, need for uniqueness/creative choice was positively related to purchasing redesigned clothing for younger consumers, and was only positively associated to clothing swaps for consumers aged 35-49. Similarly, materialism acts as the barrier most for consumers who are 50-68 years old and 18-34 years old; it was only negatively related to repair/alteration and clothing swaps for consumers who are age 35-49. Although older women may not want to rent clothing or purchase a consultancy service to creatively use old clothing, but the desire of keeping up latest fashion trend may stimulate their intention to try these new

concepts. Previous studies indicated that significant differences exist in fashion leadership in age (Goldsmith et al., 1991; Lang et al., 2013). Compared to older adults, young consumers generally possess higher levels of fashion leadership, and they are more fashion innovative (Birtwistle & Moore, 2007; Law et al., 2001). Compared to older adults, younger consumers are more influenced by fashion trends; repair/alteration service may help them to keep their old clothing for longer, which, however, also makes them lose interest in their existing clothing. But for older adults, they put more emphasis on quality rather than quantity in purchasing (Bhardwaj & Fairhurst, 2010); the prices of their clothing are relatively high compare to low-quality clothes. Repair/alteration service may enable them to keep the clothing they value for longer time.

The moderating effect of income

Similar to the moderating effect of age, there was no difference among the influences of fashion leadership on the intention to adopt consultancy service for participants with different income. However, fashion leadership plays a most significant role in their intention of adopting all the five SAPSR models for participants with relatively lower income (<US$39,999), which indicates that the influence of fashion leadership on their intention to adopt each SAPSR model is prominent. Specifically, fashion leadership is positively related to the intention to rent clothing among consumers whose income is lower than US$39,999 or higher than US$80,000; it is positively related to the intention toward purchasing redesigned clothing for participants with income lower than US$79,999; and it is only positively related to repair/alteration and clothing swaps for consumers with income lower than US$39,999. Differently, for the consumers who have more than US$40,000 annual income, the need for uniqueness/creative choicetrait makes a significant contribution to the prediction of intentions to adopt the repair/alteration model, along with redesigned clothing and clothing swaps services, but the same results could not be found for consumers whose annual income is less than US$30,000. Income is a basic factor influencing

purchasing behavior (Guo, 2011; Niinimaki, 2010). Some of the SAPSR models, such as consultancy service, may cost more money compared to purchasing new fast-fashion clothing. After all, fast fashion's focus is on more affordable garments, which are expected to be used for shorter periods of time and cost less (Birtwistle & Moore, 2007). An individual may possess a higher level of fashion leadership or need for uniqueness/creative choice and would likely to try the new SAPSR models; however, limitation of income may impede their intentions.

The moderating effect of education

The findings indicate that for participants with different education levels, the influences of personality traits on their intention to adopt each SAPSR model vary. For instance, the influences of fashion leadership and materialism on each SAPSR model are more prominent for participants with relatively less education. Specifically, fashion leadership positively influences the intention toward redesigned clothing for participants who have college education and higher, but not for those who have less education. However, for participants with some college education or lower, fashion leadership positively influences their intention to adopt repair/alteration, renting and clothing swaps. People with relatively less education may also have lower income; renting and clothing swaps maybe provide another option for them to keep up with latest fashion trends, away from spending more money on new fashion clothing. Interestingly, need for uniqueness/creative choice positively influences the intention to purchase redesigned clothing for participants who have less education as well as those with Masters/MBA or higher. However, need for uniqueness/creative choice only significantly impacts the intention to repair/alteration service for participants who have college education. Usually people with a higher level of need for uniqueness/creative choice would like to display their differentiation from others. Purchasing redesigned clothing may provide an ideal way for them to get one-of-a-kind clothing at relatively low cost. For those who have higher education, price might not be their concern. Need for

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uniqueness/creative choice influences their intention to purchase redesigned clothing because this particular behavior is different from usual consumption behavior. Although materialism has a negative influence on the intention to adopt each SAPSR model, this effect is more prominent on redesigned clothing for participants with Masters/MBA or higher education, renting clothing and consultancy service for participants who have less education, and clothing swaps for consumers who have less education as well as who get Masters/MBA or higher. The influence of materialism on repair/alteration does not vary among three education groups. People with higher education are more open-minded (Hello, Scheepers, & Sleegers, 2006), and also more open to environmental behaviors (Liu et al., 2012). Materialism may impede their adoption of the retail models that reduce the consumption of new products leads to reduced ownership; higher education level stimulates them to try new retail concepts.

Interestingly, the influence of fashion leadership on the intention toward consultancy service was not moderated by age, income or education, which indicated that fashion leadership significantly influences intention to adopt consultancy for all participants. The influences of need for uniqueness/creative choice on the intention to adopt consultancy and clothing renting were not moderated by all the demographic variables. Usually fashion leaders are the people who are open to new ideas. Compared to the other four SAPSR models, consultancy service is relatively new concept; being open to this new concept plays a significant role for participants, nevertheless, they are in different age, or have different income and education. People with higher level of need for uniqueness/creative choice would like to be different from others. But renting was developed to increase use intensity by encouraging people to shared use clothing items, which will increase the probability of wearing same garments as others. This might be one of the reasons that need for uniqueness/creative choice did not have positive influence on renting for participants regardless age, income or education. Table 5.1 presents the effect of three personality traits on each SAPSR

model for differenct consumer segments. The table indicates the influence of each personality trait on the intention to adopt each SAPSR model varies among different consumer segments. For instance, materialism has a more significantly negative influence on the adoption of redesigned clothing for those who are aged 18-34 or 50-68, with relatively high income and education; however, fashion leadership positively influences the intention to adopt redesigned clothing for participants who are aged 18-34 or 50-38, with income lower than US$79,999 and relatively high education. This table illustrates some detailed information for retailers and managers to characterize the important consumer segments that are are relevant to each retail concept.

Table 5.1

The Personality and Consumer Segments for Each SAPSR Model

SAPSR Models	Major factor (Personality traits)	Consumer segments
S1: Redesigned clothing	Fashion leadership	Age: 18-34 and 50-68; Income: <US $79,999; Education: college graduate or higher
	Need for uniqueness/creative choice	Age: 18-34 and 35-49; Income: >US $40,000; Education: No college completed
	Materialism (Negative)	Age: 18-34 and 50-68; Income: >US $80,000; Education: Graduate school
S2: Repair/ alteration	Fashion leadership	Age: 35-49 and 50-68; Income: <US $39,999; Education: No college completed
	Need for uniqueness/creative choice	Age: 35-49 and 50-68; Income: >US $40,000; Education: College graduate
	Materialism (Negative)	Age: 35-49 and 50-68; Income: <US $39,999; Education: All
S3: Renting	Fashion leadership	Age: 18-34 and 50-68; Income: <US $39,999 and >US $80,000; Education: No college completed
	Need for uniqueness/creative choice	Age: None; Income: None; Education: None
	Materialism (Negative)	Age: 18-34 and 50-68; Income: >US $80,000; Education: No college completed

	Fashion leadership	Age: 50-68; Income: <US $39,999; Education: No college completed
	Need for uniqueness/creative choice	Age: 35-49; Income: >US $40,000; Education: None
S4: Clothing swaps	Materialism (Negative)	Age: All; Income: < US $39,999 and >US $80,000
		Education: No college completed and Graduate school
	Fashion leadership	Age: All; Income: All; Education: All
	Need for uniqueness/creative choice	Age: None; Income: None; Education: None
S5: Consultancy	Materialism (Negative)	Age: 18-34 and 50-68; Income: < US $39,999 and >US $80,000
		Education: No college completed

Taking all factors into consideration, the variation of personality traits among different demographic groups provided a reasonable explanation for the findings that the relationship between personality traits with the intention to adopt SAPSR models differ in strength among different age groups, level of education and income.

Implications

The findings of this study offer contributions to the goal of achieving sustainable consumption in the apparel and textile field. Both theoretical and practical implications are discussed in this section.

Implications for Theory

From an academic perspective, this study broadens the theoretical research pertaining to sustainable consumption in the apparel and textile (AT) field by introducing and studying the SAPSR models. First of all, existing research concentrates on the purchasing behaviors or intentions of consumers to buy environmentally-friendly AT products. Sustainable purchasing not only refers to purchasing environmental-friendly products but also to purchasing or consuming products in a sustainable way. Although a variety of product-service models have been implicated in some product categories, like car-sharing services (Yoon et al., 2012), transportation services and car rentals (Rexfelt & Ornas, 2009), washing services and sharing of power tools (Mont, 2004), more research about apparel and textiles product-service models is needed. This research demonstrated that our understanding of apparel sustainable consumption can be greatly enhanced and expanded by studying consumers' behaviors regarding new sustainable apparel product-service retail models. The new sustainable apparel product-service retail (SAPSR) models, including the sale of redesigned clothing, repair/alteration services, renting, clothing swaps, and consultancy services, have the potential to minimize the negative environmental impact of

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consumer needs and wants by lowering material consumption levels, increasing interest in reuse and the life span of existing clothing products, and reduce landfill and material waste. Studying environmentally-friendly apparel products have been identified as one of the directions for sustainable consumption. However, improving the purchase of environmentally-friendly apparel products cannot really help to reduce the waste of existing clothing items; also sustainable purchasing happens only when there are no additional costs to the consumers (Niinimaki, 2010). By putting forward the five new retail models, this study points out a new direction for sustainable apparel research, away from only focusing on environmentally-friendly product purchases. This study broadens the traditional concept of sustainable consumption, by indicating that apparel sustainable consumption includes not only purchasing less harmful apparel products, but also purchasing and consuming in a different and more sustainable way, through reducing waste of excess clothing production and increasing the use intensity of existing items. Therefore, this research extended existing literature and contributes to research related to apparel sustainable consumption. The concept of SAPSR models allows researchers to build a platform of sustainable consumption models that broaden the market base for such concepts. Researchers and theorists could follow this new direction for further sustainable consumption research in terms of apparel and textile products.

Second, this dissertation presented a framework for analyzing consumers' purchasing behaviors regarding apparel sustainable product-service adoption with an attempt to advance existing literature concerning sustainable consumption. This research examined, with explanatory abilities, the theory of planned behavior in predicting consumers' intention to adopt sustainable consumption behaviors in the context of the United States. By applying the theory of reasoned action (TRA) and the theory of planned behavior (TPB), the study develops a specific behavioral framework to assist scholars in analyzing and explaining consumer behaviors regarding SAPSR

model adoption. The intention of sustainable consumption behavior is also represented within established attitudes, perceived behavior control as well as past sustainable behaviors. The building of such a conceptual framework has provided the means for a comprehensive understanding of purchasing behavior regarding apparel product-services. Hence, this research has theoretical implications for the fields of consumer behavior, marketing, and psychology by providing the theoretical basis for understanding consumers' intention to adopt sustainable consumption behaviors. Although subjective norms have been identified to be a factor leading to intention to a given behavior, this research found contradictory results, which indicate that subjective norms did not influence participants' intention to adopt SAPSR models. Subjective norms are the individual's perception of the social pressures placed on them to perform the behaviors in question (Ajzen & Fishbein, 1980). Considering Hofstede's cultural dimensions theory (Hofstede, 1980), cultural differences may need to be take into consideration for researchers future sustainable consumption research. Another TPB variable, perceived behavior control has been categorized into two factors-internal perceived behavior control and external perceived behavior control-suggested by the data in this study. Only internal perceived behavior control was found to be the determinant to the intention of SAPSR models. This finding suggests that researchers need consider the differences between internal and external influences on a given behavior in their future research. Moreover, sustainable consumption can be categorized into three aspects: sustainable purchasing, sustainable use and recycling (Liu et al., 2012). Unexpected, attitudes toward sustainable use and recycling were not found to influence people's intention toward SAPSR models. This finding, however, points out to sustainable consumption researchers that it is necessary to develop the research with the consideration of the differences of these three sustainable consumption behaviors in future research. Last, past sustainable behavior was added into the TPB model in this research, and it was found to have influence on people's intention toward SAPSR models. This finding verified East's argument (1997) that adding past

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behavior might enlarge the model and make the model more complete. It also indicates that the more consumers have exposure to these concepts, the more willing they might be to adopt. Therefore, researchers need to consider the influence of past behavior in the TPB model in their future research. The measure of past behavior might be supplementary under the condition when attitude toward behavior, subjective norms, and perceived behavioral control are incomplete to predict the intention and behavior; it may reveal unconscious learning which is not reflected in the measures of attitude toward behavior, subjective norms, and perceived behavioral control (East, 1997).

Third, such factors as demographics and personality traits have been elaborated upon and become vital factors. This study confirmed the role of personality traits as an extension of TPB. This study provides a better understanding of how personality traits influence consumers to make sustainable consumption decisions in their AT products purchasing behavior with regards to SAPSR models. Consumers' psychological factors have been found to impact their environmental behaviors (Connell, 2010). Personality, as an internal factor, has a major effect on people's behavior (Schiffman & Kanuk, 2007). Examining personality traits and identifying target consumers is the first step in the process of improving environmental awareness and encouraging responsible purchasing and sustainable consumption practices in the apparel fields. As inner psychological characteristics, personality traits are believed to determine and reflect how a person responds to environmental problems caused by human beings. So, by examining personality traits and targeting how they relate to consumption, we may be better able to improve consumer satisfaction while at the same time maintain acceptable sustainable consumption practices in the apparel industry. Personality is a broad concept. This research focused on fashion leadership, need for uniqueness and materialism, which were selected according to the proposed level of importance in apparel sustainable consumption. This research demonstrates that our

understanding of consumer behavior regarding sustainable consumption can be greatly enhanced by adopting the psychological views of consumers. Specifically, researchers and theorists need to take personality, the inner characteristics, into their consideration in their future research for sustainable consumption. In this study, the data suggested that need for uniqueness should be categorized into two factors: avoidance of similarity and creative choice. Only creative choice was found to have significant relationship with consumers' intention to adopt SAPSR models. This finding suggested researchers to consider the differences of different factors in the measurement of need for uniqueness. The variations of influence of each personality trait on the intention to SAPSR model, upon the diversity of demographics, such as age, income and education, indicates that the psychological and social factors are isolated domains. Although personality has been defined as an "inner psychological characteristics" and not easy to change, personality varies among people with different genders, ages, or education levels. Researchers and theorists need consider the role of demographic in their further study on personality and sustainable consumption relations.

Finally, this research has a number of implications for methodology. A survey was successfully administered in this research to represent female consumers in the United States, because female consumers are generally more involved in fashion products (O' Cass, 2004), The selection of a population is critical for theory verifying because the population defines the set of entities from which the research sample is to be drawn. Since SAPSR models are fairly new to the market, appropriate description for each SAPSR model was crucial in the online survey. A variety of scenarios were utilized to describe each SAPSR model, so that participants would be able to have a better idea about each model. This type of composition provided researchers with a new direction in research design. Thus, the research added to the literature in the online survey of marketing research. Another contribution of this study in research methodology is the

construction of a tool to measure the attitudinal beliefs about sustainable consumption

purchasing. Based on previous studies, this research empirically developed the scales to measure

perceived behavior control, attitudes, subjective norms and past sustainable behavior of

consumers. The results showed that the scales are reliable and valid, representing the underlying

dimensions of consumer motivation in sustainable consumption. The measures can be further

tested and applied in future studies.

Implications for Practice

From a practical perspective, the findings of this study provided managerial implications for

retailers and marketers. A number of developments in this study are expected to assist marketers

in AT industry in designing and implementing marketing strategies sustainable apparel retailing

in the United States.

Firstly, environmental concerns have been growing on a global scale, and sustainable

consumption has become a priority in consumers' consideration of their purchase decisions. To

appeal to consumers who are concerned about the environment and who usually pursue ways to

participate in sustainable consumption, a variety of apparel companies identify environmentally-

friendly features of products in their advertising activities. However, higher price has become one

of the barriers for consumers to achieve their desire of contributing to sustainable consumption

via this method (Niinimaki, 2010). This study proposed SAPSR models, which point consumers

and marketers in a new direction, away from only focusing on the particulars of environmentally-

friendly product purchases. The SAPSR models advocate less material intensive consumption by

increasing product longevity and they encourage consumers to focus on services, instead of

tangible products. These new models may prove beneficial by decreasing natural resource use in

the apparel industry and by providing an innovative way to meet consumer's fashion needs, and

also by better satisfying their needs through unique and personalized utilization options. This will

serve to increase the longevity of the consumer-product relationship. Many people have clothes that are no longer fashionable or do not fit anymore; those clothing are take up space in their closets and drawers. Some consumers demand a way to continue the life of their existing clothing items, which is a niche market that retailers have not targeted yet. The new SAPSR models, such as fashion swaps and consultancy, provide new business opportunities for retailers to help consumers extend the life of their clothing, meanwhile reducing the landfill waste. Compared to older adults, younger people have relatively less environment concerns in their consumption behavior; the environmental attitude does not have significant influence on sustainable clothing purchase (Kozar & Connell, 2013). The new SAPSR models provide marketers and retailers new directions to support sustainability and simultaneously offer a new innovative model for meeting fashion and creativity needs to an important consumer segment. With these new retailing models, marketing managers can target consumers who are open to new ideas and experimentation. These new innovative retail models may engage them without requiring a pro-environmental attitude.

Secondly, this research confirmed the role of three personality traits in consumers' intention to adopt each SAPSR model. The results provide implications to product-service retailers with marketing strategies for consumers possessing different personality traits. The study revealed that fashion leadership can positively predict the intention to adopt each SAPSR models, which indicated that consumers who would like to follow fashion trends are more likely to become involved in the new sustainable retail models. Fashion leaders are generally people who have a very strong interest in fashion and have a positive attitude towards change in fashion (Goldsmith et al., 1993). Compared with fashion followers, fashion leaders spend more money on clothes, read more fashion-related magazines, shop more often for clothes and purchase more new fashion items (Goldsmith et al., 1991). To appeal to those consumers with a higher level of fashion leadership, marketers need to emphasize that SAPSR services, such as renting, redesigned

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clothing, can provide latest fashion items and satisfy a need for newness; consultancy retailers can highlight the ability of providing services to use old clothing in fashionable way, and help consumers to extend the life of old clothing and save money. Fashion-related magazines and websites would be ideal advertising approach to appeal those consumers.

Need for uniqueness/creative choice was only found to have positive relationship with redesigned clothing, repair/alteration and clothing swaps. People with a higher level of need for uniqueness would like to act in a way that would allow them to stand out from others. Dressing in a different way is often considered to be a way of being different from others (Workman & Kidd, 2000). To appeal to consumers with a higher level of need for uniqueness, it would be a good start for marketers to focus on these three SAPSR models. For the retail model of redesigned clothing, emphasizing one-of-a-kind new products redesigned from old materials would be ideal. Marketing for clothing swaps could highlight novelty and innovation. Participating in this creative choice would provide an ideal way to express their differentness from others. It is, therefore, attractive to the consumers who have higher level of need for uniqueness/creative choice. Although consultancy service can provide consumers with new ideas about how to wear their clothing in different ways, adopting this business model may also be a good idea to express their uniqueness. But, to adopt this service, they may also have to accept other people's judgment on their clothing, which may impede consumers' curiosity of this retail model. People who embody creative choice may prefer a more active role in their clothing choices but may not want anyone else telling them what to do. If a marketer sells this to someone who likes creative use, they need to sell the creative features and emphasize the freedom to choose one's own style. Instead of purchasing environmentally-friendly apparel products, fashion leaders and consumers with higher level of need for uniqueness might be more willing to adopt these new models and experiment.

Materialism was negatively related to all the five SAPSR models. People with a higher

level of materialism put more emphasis on ownership, and they would like to own the products

that they value. But the new SAPSR models encourage consumers to reduce the consumption of

new products and promotes sharing with others. Hence, for the SAPSR models that promote

shared use, such as renting, it might not be ideal to target consumers with higher level of

materialism. However, repair/alteration and consultancy service may appeal to those consumers.

Marketers who provide repair/alteration may highlight the emotional value of this servcie. To

target consumers who value possessions, emphasizing the benefit of prolonging the ownership of

their favoriate clothing would be a good strategy. For instance, the repair/alteration service can

help consumers to repair or alterate the old clothing that are important to them, so that they can

keep their special clothing for longer.

Finally, the negative relationship between age and SAPSR models indicated that older

adults would be less likely to be interested in the new SAPSR models. These new retail concepts

are still in the developing stage. Usually younger consumers are more open to new ideas;

however, they also have relatively lower income compared to older adults. To target those

consumers, emphasizing the benefits of low cost would be a good strategy. For instance, by

renting clothing, they would be able to keep up with latest fashion trends with relatively low cost.

Usually younger generation are more willing to access technology more than older adults (Czaja

& Lee, 2007); and they have more positive attitudes towards Internet shopping (Donthu & Garcia,

1999). Therefore, promoting the new retail concepts through social media, such as Facebook,

Twitter, and Pintrest, would be an effecitve strategy to attract more younger consumers.

This study further indicated that demographics, including age, education and income

moderate the relationship between personality traits of each of the SAPSR models. This result

exposed that, with same personality trait, people in different age, education or have different

income, may have different reaction toward each SAPSR model. This discovery provides further and detailed direction for marketers and retailers for their marketing position and strategies. For instance, although fashion leadership was positively related to all the five SAPSR models, this phenomemon is more prominent for older adult in 50-68 years old, or those with lower annual income and less education. For these consumers, price might be a crucial factor they will consider when it comes to purchasing. Thus, to appeal to these groups of consumers, an ideal marketing strategy might be to focus on the cost savings, for example, providing discounts for purchasing for membership holders, providing latest fashion trend information via email, and reclaiming old clothing from members and reward coupon or discount for new purchase. Generally, granting additional benefits and personal payoffs would appeal those consumers.

For consumers who are aged 35-49, and with relatively higher annual income, the influence of need for uniqueness/creative choice on intention of adopting each SAPSR model are more evident. It would be ideal for some SAPSR models, such as redesigned clothing, repair/alteration and clothing swaps, to target those consumers as a priority. They have disposable income and would like to act or dress in a way that allows them to be different from others. To attract these consumers, retailers who sell redesigned clothing and provide repair/alteration service can highlight the benefits of providing one-of-a-kind redesigned or altered clothing items from old clothing. Furthermore, for younger women aged18-34, need for uniqueness/creative choice plays a positive role in their intention to adopt redesigned clothing. These consumers have relatively lower income but desire to stand out from others by wearing different clothing. To target these consumers, underlining the economic benefits would be a good strategy.

Although materialism was negatively related to all the five SAPSR models, for those aged 35-49 with annual income at US$40,000-79,999 and a college education, the negative influence of materialism on the intention of adopting SAPSR models is not significant, especially

for redesigned clothing, renting and consultancy. These types of consumers are educated and may desire to participate in some sustainable activities. Marketing managers of these types of SAPSR could emphasize the environmental benefits of the business to target these consumers. For younger consumers aged from 18-34 or those who have relatively lower income, although they possess materialistic values and would like to own the things they value, but in the meantime, they might be also more open to new ideas or have not enough disposable income to purchase the clothing they desire. Retailers may highlight that such retail concepts like redesigned clothing and clothing swaps that do not really deprive their ownership, but on the contrary, provide them with more options of innovative ideas with relatively lower price.

Personality is a complex concept. The combination and interaction of various traits influence people's intention and behavior (Johnson et al., 2007). We cannot isolate personality traits from each other. In addition, the influence of different personality traits varies upon age, income and education. Marketing managers need consider the combination of personality traits in their marketing position and strategy development. Table 5.2 presents the detailed consumer segments and marketing strategies for each SAPSR model.

Table 5.2

Consumer Segments and Marketing Strategies for Each SAPSR Model

SAPSR Models	Target Consumers	Marketing Strategies
S1: Redesigned clothing	Age: 18-34 and 50-68, Income lower than US$79,999 Have college education or graduate school with higher level of fashion leadership Higher level of need for uniqueness/creative choice	Highlight the benefits of getting one-of-a-kind clothing item by purchasing redesigned clothing to target consumers with higher level of need for uniqueness/creative choice; Provide discount for membership holders, and take back old clothing from members and reward coupon or discount for new purchase.
S2: Repair/alteration	Age: 35-49, income < US$39,999, have less education and have higher level of fashion leadership; and have higher level of materialism	Highlight the benefit of extending ownership of valued clothing to target consumers with higher level of materialism; Highlight the lower cost to alter their old clothing to target those who have relatively lower income.

S3: Renting	Age 18-34, income < US$39,999, have less education and have higher level of fashion leadership; have more education and higher level of materialism	Highlight the benefits of keeping up with latest fashion trends at relatively lower cost; Promote this retail concept via social media, such as Facebook, Twitter.
S4: Clothing swaps	Income < US$39,999 with higher level of fashion leadership, and have less education Income > US $ 40,000 with higher level of need for uniqueness/creative choices	Highlight the benefits of lower cost to target those who with lower income; Highlight the innovative features of this concept for those who have higher level of need for uniqueness/creative choice.
S5: Consultancy	Consumers with higher level of fashion leadership; Age 35-49, have more education and higher level of materialism	Highlight the benefits of reusing old clothing in a more fashionable way. Sell the creative features and ensure that consumers don't think it's going to be some stylist bossing them around or imposing their style on them; Provide a free service for new consumers; Provide free fashion tips for potential consumers through social media, such as Facebook.

In summary, confirmation of the significance of personality and demographics implied that the marketing strategy of SAPSR retailers or marketers should take these features into account and assess its impact upon business endeavors. Marketing managers of the SAPSR will need to identify their target consumers and devise marketing plans to promote the new sustainable retail models. Also, marketing promotion of SAPSR models and education pertaining to environmental issues will be needed to increase consumer participation in sustainable consumption activities. To improve sustainable consumption in the apparel field, retailers and consumers will both need to become more environmentally conscious and take more responsibility for their actions. In an effort to achieve this, the benefits of new sustainable retail models need to be indicated, underscored and highlighted in order to ensure that retailers and consumers participate in sustainable activities.

Limitations and Future Research

The previous sections discussed the findings and implication of this research, which provide potential topics for future research. Both the findings and the limitations of this study were taken into consideration when the following suggestions for future research were formulated.

This study is designed to provide better understanding and explanations of how personality traits may influence the adoption of SAPSR models. There exists a wide variety of theories with regard to personality, such as the Freudian theory, the Neo-Freudian theory and the Trait theory. This study adopts the Trait theory, and focuses on three personality traits: materialism, fashion leadership, and need for uniqueness. In addition, the new SAPSR models have been developed, based on the concept of Product-Service System (PSS). There are eight types of PSS, which fall into more specific categories: retail-oriented and design-oriented. This study focuses on sustainable purchasing behaviors in the context of five retail-oriented types. The designed-oriented models, such as co-design service, make it yourself, may be investigated in

future research work. The results of this study may not be appropriate for the generalization of all sustainable purchasing behaviors. Further studies might examine remaining personality traits and design-oriented types of SAPSR models to generate an increased breadth of knowledge pertaining to the relationship between personality traits and acceptance of SAPSR models.

Women who are living in the United States were recruited for this study. The results of this study should not be generalized to all populations. Further study might examine a broader sample size across genders. In addition, the data in this study was collected in the United States, which is an individualistic society (Hofstede, 1980). According to Hofstede's cultural dimensions theory, people who live in an individualistic society put a great deal of stress on personal achievements and individual rights, instead of being concerned with social pressure from others. Similar studies could be conducted in different countries. Cultural differences might bring about different results; a comparison of results between participants with different cultures or different countries would be interesting.

Further, this study was limited to respondents' personal evaluations of their own personality traits, subjective norms, perceived behavior control and attitudes; we were not able to control the evaluation of these factors. In addition, each SAPSR model was explained in one sentence; participants may have different interpretations as they pertain to understanding the SAPSR models in this study and this interpretation may have an influence on their response to each model. Convenience sampling and the online survey methods might limit generalizability of the results. Although we controlled the proportion in order to maintain a balance in age groups, we were not able to ensure, with confidence, that the participants were a fair representation of all of the levels of income and education. In regard to education, the majority of participants has some college experience or has graduated college. This study did not distinguish between education levels. Future research might consider balancing the proportion of each ethnic group, or

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income and education groups, to gain further insight into the influence of other demographics. Furthermore, region was not included in this study, which can be an important factor for marketing managers to consider when they start their business with the new retail concepts. Future research might take geographical location in their research. A comparison among participants from different geographical locations would provide retailers with more practical suggestions for their future business.

Chapter Summary

This final chapter summarizes the main findings of this research and presents the conclusions that address the research questions. The implications in theory and practice of this study are discussed in this chapter, followed by potential directions for future research.

This research examines the relationships between three specific personality traits with consumers' intention to adopt the new sustainable apparel product-service retail models. An online survey was conducted to collect data among female populations in the United States. The results indicate that each personality trait has a different influence on consumers' intention to adopt the new SAPSR models, and the demographics have a moderate influence on the relationships between personality traits and the adoption of SAPSR models. The results of this study also uncover that the relationship between personality and SAPSR models are mediated by TPB variables.

The framework proposed in this research allows scholars and managers to gain a comprehensive view of factors influencing consumers' sustainable consumption behavior. The findings will help new SAPSR retailers to better evaluate their target consumers and to formulate and implement effective marketing strategies.

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APPENDICES

APPENDIX A

Demographic information

1. Which year were you born? _____

2. What is your ethnicity?
   o   African American
   o   Hispanic
   o   Asian
   o   Caucasian/White
   o   Other

3. What is the highest level of education you have completed?
   o   High School graduate
   o   Some College
   o   College graduate
   o   Masters/MBA
   o   PhD
   o   Other

4. What is your annual household income?
   o   Less than US$ 19,999
   o   US$20,000- US$ 39,999
   o   US$40,000- US$ 59,999
   o   US$60,000- US$ 79,999
   o   US$80,000- US$ 99,999
   o   More than US$100,000

Indicate your level of agreement with the following statements: Fashion leadership

	Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I am aware of fashion trends and want to be one of the first to try them	1	2	3	4	5	6
I am the first to try new fashion; therefore, many people regard me as being a fashion leader	1	2	3	4	5	6
It is important for me to be a fashion leader	1	2	3	4	5	6
I am confident in my ability to recognize fashion trends	1	2	3	4	5	6
Clothes are one of the most important ways I have of expressing my individuality	1	2	3	4	5	6
I am usually the first to know the latest fashion trends	1	2	3	4	5	6

Indicate your level of agreement with the following statements: Need for uniqueness

	Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
When products or brands I like become extremely popular, I lose interest in them	1	2	3	4	5	6
I avoid products or brands that have already been accepted and purchased by the average consumer	1	2	3	4	5	6
When a product I own becomes popular among the general population, I begin using it less	1	2	3	4	5	6
I often try to avoid products or brands that I know are bought by the general population	1	2	3	4	5	6
As a rule, I dislike products or brands that are customarily purchased by everyone	1	2	3	4	5	6
I give up wearing fashions I have purchased once they become popular among the general public	1	2	3	4	5	6
The more commonplace a product or brand is among the general population, the less interested I am in buying it	1	2	3	4	5	6
Products do not seem to hold much value for me when they are purchased regularly by the general population	1	2	3	4	5	6
When a style of clothing I own becomes too commonplace, I usually quit wearing it	1	2	3	4	5	6
I often look for one-of-a kind products or brands so that I create a style that is all my own	1	2	3	4	5	6
Often when buying merchandise, an important goal is to find something that communicates my uniqueness	1	2	3	4	5	6
I often combine possessions in such a way that I create a personal image for myself that cannot be duplicated	1	2	3	4	5	6
I often try to find a more interesting version of ordinary products because I enjoy being original	1	2	3	4	5	6
I am often on the lookout for new products or brands that will add to my personal uniqueness	1	2	3	4	5	6

Indicate your level of agreement with the following statements: Materialism

	Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I admire people who own expensive homes, cars, and clothes	1	2	3	4	5	6
Some of the most important achievements in life include acquiring material possessions	1	2	3	4	5	6
I do not place much emphasis on the amount of material objects people own as a sign of their success (R)	1	2	3	4	5	6
The things I own say a lot about how well I'm doing in life	1	2	3	4	5	6
I like to own things that impress people	1	2	3	4	5	6
I try to keep my life simple, as far as possessions are concerned (R)	1	2	3	4	5	6
The things I own are not all that important to me (R)	1	2	3	4	5	6
Buying things gives me a lot of pleasure	1	2	3	4	5	6
I like a lot of luxury in my life	1	2	3	4	5	6
I put less emphasis on material things than most people I know (R)	1	2	3	4	5	6
I have all the things I really need to enjoy life (R)	1	2	3	4	5	6
My life would be better if I owned certain things I do not have	1	2	3	4	5	6
I would not be any happier if I owned nicer things (R)	1	2	3	4	5	6
I would be happier if I could afford to buy more things	1	2	3	4	5	6
It sometimes bothers me quite a bit that I cannot afford to buy all the things I'd like	1	2	3	4	5	6

Variables in TPB model

Indicate your level of agreement with the following statements: Past sustainable consumption behavior

	Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I alter/tailor my old clothing to create a new one when I am tired of it	1	2	3	4	5	6
I have bought clothing made from recycled material	1	2	3	4	5	6
I seek out information about different ways to wear the items I already own	1	2	3	4	5	6
I swap my clothing with other people	1	2	3	4	5	6

Indicate your level of agreement with the following statements: Subjective norms

	Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
People who are important to me agree with my concern for the environment when purchasing clothing	1	2	3	4	5	6
People who are important to me think I should consider the environment when purchasing clothing	1	2	3	4	5	6
People in my life whose opinion I value consider the environment when purchasing clothing	1	2	3	4	5	6

Indicate your level of agreement with the following statements: Perceived behavior control

	Definitely do not					Definitely do
I believe I have the ability to buy environmental friendly clothing even if I have to pay more	1	2	3	4	5	6
	Very unsure					Very sure
If it were entirely up to me, I am confident that I would be able to shop for environmental friendly clothing	1	2	3	4	5	6
	Very incapable					Very capable
To what extent do you see yourself as being capable of reducing the frequency of clothing purchases	1	2	3	4	5	6
	Very unconfident					Very confident
How confident are you that you will be able to buy environmentally friendly clothing	1	2	3	4	5	6
	Strongly disagree					Strongly agree
Whether I buy environmentally friendly clothing is entirely up to me	1	2	3	4	5	6
	Completely No control					Completely control
How much personal control do you feel you have over buying environmentally friendly clothing	1	2	3	4	5	6
	Completely					Not at all
How much do you feel that buying environmental friendly clothing is beyond your control	1	2	3	4	5	6

Indicate your level of agreement with the following statements: Attitude toward sustainable consumption

	I think paying more money to buy environmentally friendly clothing products is						
Harmful	1	2	3	4	5	6	Beneficial
Unpleasant	1	2	3	4	5	6	Pleasant
Bad	1	2	3	4	5	6	Good
Worthless	1	2	3	4	5	6	Valuable
Un-enjoyable	1	2	3	4	5	6	Enjoyable
	I think that reducing the frequency of ironing clothing or drying time of clothing is						
Harmful	1	2	3	4	5	6	Beneficial
Unpleasant	1	2	3	4	5	6	Pleasant
Bad	1	2	3	4	5	6	Good
Worthless	1	2	3	4	5	6	Valuable
Unfavorable	1	2	3	4	5	6	Favorable
	I think that recycling my old clothing instead of throwing them in landfill is						
Foolish	1	2	3	4	5	6	Wise
Negative	1	2	3	4	5	6	Positive
Bad	1	2	3	4	5	6	Good
Unsatisfactory	1	2	3	4	5	6	Satisfactory
Unpleasant	1	2	3	4	5	6	Pleasant

Indicate your level of agreement with the following statements: Intention toward Retail-related SAPSR

Scenario 1: Redesigned clothing
A clothing store provides one-of-kind products that are created from scrap/deconstructed garments/materials that resulted from a take-back of used clothing items.

	Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I intend to purchase one-of-kind products in this store during the next 12 months?	1	2	3	4	5	6

Scenario 2: Repair/alteration
A clothing store provides repair and/or tailoring, alterations services to maintain your garment products over time

I intend to purchase or consider purchasing this service during the next 12 months?	1	2	3	4	5	6

Scenario 3: Renting
A clothing library provides a rental service for consumers to their "library card" to rent certain number of garments for a short time period.

I intend to purchase or consider purchasing the "rent" service during the next 12 months?	1	2	3	4	5	6

Scenario 4: Clothing swap
A clothing swap event: tickets are sold for a clothing swap, where consumer can bring some un-wanted clothing that are in good condition to swap with others.

I intend to purchase or consider attending this clothing swap event during the next 12 months?	1	2	3	4	5	6

Scenario 5: Consultancy
A clothing store offers a style consultancy service in-store and online, where consumers may receive advice about how to continue to wear their existing wardrobe in new and different ways.

I intend to purchase or consider purchasing this service during the next 12 months?	1	2	3	4	5	6

Table B-1 Descriptive Statistics of Fashion Leadership

Fashion leadership item	N	Min.	Max.	Mean	Standard Deviation
I am aware of fashion trends and want to be one of the first to try them	431	1	6	3.22	1.334
I am the first to try new fashion; therefore, many people regard me as being a fashion leader	431	1	6	2.58	1.344
It is important for me to be a fashion leader	431	1	6	2.46	1.355
I am confident in my ability to recognize fashion trends	431	1	6	3.72	1.394
Clothes are one of the most important ways I have of expressing my individuality	431	1	6	3.71	1.438
I am usually the first to know the latest fashion trends	431	1	6	2.88	1.439

Table B-2 Descriptive Statistics of Need for Uniqueness

Need for uniqueness item	N	Min.	Max.	Mean	Standard Deviation
When products or brands I like become extremely popular, I lose interest in them	431	1	6	2.71	1.179
I avoid products or brands that have already been accepted and purchased by the average consumer	431	1	6	2.49	1.074
When a product I own becomes popular among the general population, I begin using it less	431	1	6	2.48	1.118
I often try to avoid products or brands that I know are bought by the general population	431	1	6	2.54	1.152
As a rule, I dislike products or brands that are customarily purchased by everyone	431	1	6	2.59	1.162
I give up wearing fashions I have purchased once they become popular among the general public	431	1	6	2.29	1.067
The more commonplace a product or brand is among the general population, the less interested I am in buying it	431	1	6	2.56	1.174
Products do not seem to hold much value for me when they are purchased regularly by the general population	431	1	6	2.48	1.167
When a style of clothing I own becomes too commonplace, I usually quit wearing it	431	1	6	2.41	1.162
I often look for one-of-a kind products or brands so that I create a style that is all my own	431	1	6	3.37	1.418
Often when buying merchandise, an important goal is to find something that communicates my uniqueness	431	1	6	3.61	1.301
I often combine possessions in such a way that I create a personal image for myself that cannot be duplicated	431	1	6	3.24	1.348
I often try to find a more interesting version of ordinary products because I enjoy being original	431	1	6	3.50	1.326
I am often on the lookout for new products or brands that will add to my personal uniqueness	431	1	6	3.45	1.370

Table B-3 Descriptive Statistics of Materialism

Materialism item	N	Min.	Max.	Mean	Standard Deviation
I admire people who own expensive homes, cars, and clothes	431	1	6	2.94	1.332
Some of the most important achievements in life include acquiring material possessions	431	1	6	2.27	1.180
I do not place much emphasis on the amount of material objects people own as a sign of their success	431	1	6	2.77	1.368
The things I own say a lot about how well I'm doing in life	431	1	6	3.16	1.188
I like to own things that impress people	431	1	6	2.58	1.256
I try to keep my life simple, as far as possessions are concerned	431	1	6	2.74	1.157
The things I own are not all that important to me	431	1	6	3.80	1.159
Buying things gives me a lot of pleasure	431	1	6	3.69	1.272
I like a lot of luxury in my life	431	1	6	3.00	1.312
I put less emphasis on material things than most people I know	431	1	6	3.00	1.208
I have all the things I really need to enjoy life	431	1	6	2.57	1.137
My life would be better if I owned certain things I don't have	431	1	6	3.11	1.304
I would not be any happier if I owned nicer things	431	1	6	3.15	1.328
I would be happier if I could afford to buy more things	431	1	6	3.36	1.408
It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like	431	1	6	3.22	1.500

Table B-4 Descriptive Statistics of Past Sustainable Consumption Behavior

Past sustainable consumption behavior item	N	Min.	Max.	Mean	Standard Deviation
I alter/tailor my old clothing to create a new one when I am tired of it	431	1	6	2.30	1.270
I have purchased clothing made from recycled material	431	1	6	2.91	1.465
I seek out information about different ways to wear the items I already own	431	1	6	3.08	1.441
I swap my clothing with other people	431	1	6	2.39	1.423

Table B-5 Descriptive Statistics of Subjective Norm

Subjective norm item	N	Min.	Max.	Mean	Standard Deviation
People who are important to me agree with my concern for the environment when purchasing clothing	431	1	6	3.09	1.189
People who are important to me think I should consider the environment when purchasing clothing	431	1	6	2.75	1.155
People in my life whose opinion I value consider the environment when purchasing clothing	431	1	6	2.92	1.204

Table B-6 Descriptive Statistics of Perceived Behavior Control

Perceived behavior control item	N	Min.	Max.	Mean	Standard Deviation
I believe I have the ability to buy environmental friendly clothing even if I have to pay more	431	1	6	3.30	1.239
If it were entirely up to me, I am confident that I would be able to shop for environmentally friendly clothing	431	1	6	3.13	1.283
To what extent do you see yourself as being capable of reducing the frequency of your clothing purchases	431	1	6	4.48	1.248
How confident are you that you will be able to recycle your old clothing instead of throwing them in landfill	431	1	6	4.86	1.289
Whether I buy environmentally friendly clothing is entirely up to me	431	1	6	4.78	1.028
How much personal control do you feel you have over buying environmentally friendly clothing	431	1	6	4.47	1.128
How much do you feel that buying environmentally friendly clothing is beyond your control	431	1	6	4.09	1.296

Table B-7 Descriptive Statistics of Attitude toward Sustainability

Attitude toward sustainability item	N	Min.	Max.	Mean	Standard Deviation
I think paying more money to buy environmental friendly clothing products is					
-Harmful: Beneficial	431	1	6	4.27	1.213
-Unpleasant: Pleasant	431	1	6	3.51	1.450
-Bad: Good	431	1	6	4.14	1.377
-Worthless: Valuable	431	1	6	4.04	1.326
-Un-enjoyable: Enjoyable	431	1	6	3.59	1.333
I think that reducing the frequency of ironing clothing or drying time of clothing is					
-Harmful: Beneficial	431	1	6	5.29	1.051
-Unpleasant: Pleasant	431	1	6	5.15	1.162
-Bad: Good	431	1	6	5.30	1.024
-Worthless: Valuable	431	1	6	5.24	1.074
-Unfavorable: Favorable	431	1	6	5.28	1.125
When I recycle or imagine myself recycling my old clothing instead of throwing them in landfill, I feel					
-Foolish: Wise	431	1	6	5.30	.959
-Negative: Positive	431	1	6	5.45	.882
-Bad: Good	431	1	6	5.45	.887
-Unsatisfactory: Satisfactory	431	1	6	5.39	.918
-Unpleasant: Pleasant	431	1	6	5.37	.931

Table B-8 Descriptive Statistics of SAPSR Models

SAPSR Models	N	Min.	Max.	Mean	Standard Deviation
Scenario 1: Redesigned clothing I intend to purchase one-of-kind products in this store during the next 12 months	431	1	6	3.23	1.361
Scenario 2: Repair/alteration I intend to purchase or consider purchasing this service during the next 12 months	431	1	6	3.59	1.391
Scenario 3: Renting I intend to purchase or consider purchasing the "rent" service during the next 12 months	431	1	6	2.51	1.412
Scenario 4: Clothing swap I intend to purchase or consider attending this clothing swap event during the next 12 months	431	1	6	3.10	1.516
Scenario 5: Consultancy I intend to purchase or consider purchasing this service during the next 12 months	431	1	6	3.06	1.464

Table B-9 Measurement of Need for Uniqueness ($\alpha=0.950$)

Need for uniqueness item	Standardized factor loading	S.E.
NU1-When products or brands I like become extremely popular, I lose interest in them	0.782	0.020
NU2-I avoid products or brands that have already been accepted and purchased by the average consumer	0.826	0.017
NU3-When a product I own becomes popular among the general population, I begin using it less	0.850	0.015
NU4-I often try to avoid products or brands that I know are bought by the general population	0.811	0.018
NU5-As a rule, I dislike products or brands that are customarily purchased by everyone	0.825	0.017
NU6-I give up wearing fashions I have purchased once they become popular among the general public	0.855	0.014
NU7-The more commonplace a product or brand is among the general population, the less interested I am in buying it	0.888	0.011
NU8-Products do not seem to hold much value for me when they are purchased regularly by the general population	0.854	0.014
NU9-When a style of clothing I own becomes too commonplace, I usually quit wearing it	0.810	0.018
NU10-I often look for one-of-a kind products or brands so that I create a style that is all my own	0.619	0.031
NU11-Often when buying merchandise, an important goal is to find something that communicates my uniqueness	0.587	0.033
NU12-I often combine possessions in such a way that I create a personal image for myself that cannot be duplicated	0.612	0.032
NU13-I often try to find a more interesting version of ordinary products because I enjoy being original	0.616	0.031
NU14-I am often on the lookout for new products or brands that will add to my personal uniqueness	0.606	0.032

Table B-10 Measurement of Materialism (**α=0.876**)

Materialism item	Standardized factor loading	S.E.
M1-I admire people who own expensive homes, cars, and clothes	0.751	0.024
M2-Some of the most important achievements in life include acquiring material possessions	0.766	0.023
M3-I do not place much emphasis on the amount of material objects people own as a sign of their success (R)	0.404	0.043
M4-The things I own say a lot about how well I'm doing in life	0.700	0.028
M5-I like to own things that impress people	0.742	0.025
M6-I try to keep my life simple, as far as possessions are concerned (R)	0.449	0.041
M7-The things I own are not all that important to me (R)	0.396	0.043
M8-Buying things gives me a lot of pleasure	0.629	0.032
M9-I like a lot of luxury in my life	0.720	0.027
M10-I put less emphasis on material things than most people I know (R)	0.277	0.047
M11-I have all the things I really need to enjoy life (R)	0.407	0.043
M12-My life would be better if I owned certain things I don't have	0.610	0.034
M13-I would not be any happier if I owned nicer things (R)	0.321	0.046
M14-I would be happier if I could afford to buy more things	0.640	0.032
M15-It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like	0.571	0.036

- R: Reversed coded

Table B-11 Measurement of Perceived Behavior Control (**α=0.721**)

Perceived behavior control items	Standardized factor loading	S.E.
PBC1-I believe I have the ability to buy environmental friendly clothing even if I have to pay more	0.276	0.049
PBC2-If it were entirely up to me, I am confident that I would be able to shop for environmentally friendly clothing	0.240	0.050
PBC3-To what extent do you see yourself as being capable of reducing the frequency of your clothing purchases	0.162	0.051
PBC4-How confident are you that you will be able to recycle your old clothing instead of throwing them in landfill	0.238	0.049
PBC5-Whether I buy environmentally friendly clothing is entirely up to me	0.626	0.033
PBC6-How much personal control do you feel you have over buying environmentally friendly clothing	0.903	0.023
PBC7-How much do you feel that buying environmentally friendly clothing is beyond your control	0.795	0.025

Table B-12 Measurement of Attitude toward Sustainable Consumption (α=0.896)

Attitude toward sustainability item	Standardized factor loading	S.E.
AT1-I think paying more money to buy environmental friendly clothing products is		
-Harmful: Beneficial	0.303	0.044
-Unpleasant: Pleasant	0.210	0.047
-Bad: Good	0.235	0.046
-Worthless: Valuable	0.301	0.044
-Un-enjoyable: Enjoyable	0.165	0.047
AT1-I think that reducing the frequency of ironing clothing or drying time of clothing is		
-Harmful: Beneficial	0.309	0.044
-Unpleasant: Pleasant	0.334	0.043
-Bad: Good	0.393	0.041
-Worthless: Valuable	0.367	0.042
-Unfavorable: Favorable	0.383	0.042
AT1-When I recycle or imagine myself recycling my old clothing instead of throwing them in landfill, I feel		
-Foolish: Wise	0.926	0.008
-Negative: Positive	0.957	0.005
-Bad: Good	0.954	0.005
-Unsatisfactory: Satisfactory	0.947	0.006
-Unpleasant: Pleasant	0.940	0.006

Table B-13 Measurement of all Latent Variables

Variable	Factor	Items	Standardized factor loading	S.E.	α
Fashion leadership (FL)	--	FL1	0.861	0.014	0.936
		FL2	0.921	0.009	
		FL3	0.898	0.011	
		FL6	0.917	0.010	
Need for uniqueness (NU)	Factor1 Avoidance of similarity (NUA)	NU1	0.801	0.019	0.953
		NU2	0.847	0.015	
		UN3	0.872	0.013	
		UN4	0.825	0.017	
		NU5	0.845	0.015	
		NU6	0.847	0.015	
		NU7	0.892	0.011	
		NU8	0.852	0.015	
	Factor 2 Creative choice (NUC)	NU10	0.859	0.014	0.944
		NU11	0.866	0.014	
		NU12	0.865	0.014	
		NU13	0.901	0.011	
		NU14	0.898	0.011	

Materialism (M)	--	M1	0.776	0.023	0.874
		M2	0.791	0.022	
		M4	0.739	0.026	
		M5	0.786	0.023	
		M9	0.728	0.026	
Past behavior (PB)	--	PB1	0.737	0.034	0.746
		PB2	0.570	0.040	
		PB3	0.787	0.033	
		PB4	0.524	0.043	
Subjective norms (SN)	--	SN1	0.847	0.016	0.926
		SN2	0.911	0.012	
		SN3	0.938	0.011	
Perceived behavior control (PBC)	Factor 1 Internal Control (PBCI)	PBC1	0.895	0.088	0.764
		PBC2	0.691	0.072	
	Factor 2 External Control (PBCE)	PBC5	0.615	0.034	0.811
		PBC6	0.937	0.026	
		PBC7	0.774	0.028	
Attitude (AT)	Factor1 Sustainable purchasing (ATSP)	AT11	0.825	0.018	0.922
		AT12	0.826	0.018	
		AT13	0.897	0.013	
		AT14	0.846	0.016	
		AT15	0.801	0.020	
	Factor2 Sustainable use (ATSU)	AT21	0.835	0.015	0.958
		AT22	0.885	0.011	
		AT23	0.963	0.005	
		AT24	0.937	0.007	
		AT25	0.924	0.008	
	Factor3 Recycling (ATR)	AT31	0.928	0.007	0.977
		AT32	0.957	0.005	
		AT33	0.954	0.005	
		AT34	0.948	0.006	
		AT35	0.942	0.006	
SAPSR	--	S1	0.563	0.039	0.802
		S2	0.599	0.038	
		S3	0.683	0.032	
		S4	0.794	0.027	
		S5	0.702	0.032	

Table B-14 Unstandardized and Standardized Regression Coefficients

Path	B	β	P-value
FL→SAPSR	0.295	0.415	<0.000***
NUA→SAPSR	-0.004	-0.005	<0.938
NUC →SAPSR	0.132	0.200	<0.004**
M→ SAPSR	-0.276	-0.346	<0.000***

Table B-15 Model Fit Statistics for the Models

Statistics	Original model: With avoidance of similarity	Modified model: Remove avoidance of similarity
χ^2_M	790.413	315.472
df_M	319	147
p	0.000	0.000
χ^2/df	2.478	2.146
RMSEA (90% CI)	0.059 (0.053 0.064)	0.052 (0.044 0.059)
P $_{close\text{-}fit\,(H0)}$	0.003	0.361
CFI	0.951	0.972
TLI	0.942	0.964
SRMR	0.036	0.032

Table B-16 Standardized Estimates of Paths in the Modified Model

Path	Unstandardized (B)	Standardized (β)	P-Value
FL→S1: redesigned clothing	0.369	0.308	<0.000***
FL→S2: repair/alteration	0.312	0.255	<0.000***
FL→S3: renting	0.306	0.246	<0.001***
FL→S4: clothing swaps	0.284	0.213	<0.003**
FL→S5: consultancy	0.531	0.413	<0.000***
NUC→S1: redesigned clothing	0.308	0.276	<0.000***
NUC→S2: repair/alteration	0.312	0.186	<0.003**
NUC→S3: renting	0.055	0.047	<0.457
NUC→S4: clothing swaps	0.179	0.144	<0.021*
NUC→S5: consultancy	0.098	0.082	<0.173
M→S1: redesigned clothing	-0.242	-0.179	<0.002**
M→S2: repair/alteration	-0.336	-0.244	<0.000***
M→S3: renting	-0.254	-0.182	<0.004**
M→S4: clothing swaps	-0.499	-0.332	<0.000***
M→S5: consultancy	-0.285	-0.197	<0.001***

Table B-17 Model Fit Statistics for SAPSR on Each Personality Trait

Statistics	Model fit
χ^2_M	53.826
df_M	21
p	0.0001
χ^2/df	2.563
RMSEA (90% CI)	0.060 (0.041 0.080)
P $_{close\text{-}fit\,(H0)}$	0.182
CFI	0.949
TLI	0.927
SRMR	0.036

Table B-18 Unstandardized and Standardized Regression Coefficients

Path	B	β	P-value
Age →SAPSR	-0.118	-0.125	<0.020*
Education →SAPSR	-0.047	-0.072	<0.200
Income →SAPSR	-0.001	-0.002	<0.974

Table B-19 Unstandardized and Standardized Regression Coefficients: Age Multiple Groups

Path	18-34 age group			35-49 age group			50-68 age group		
	B	β	p-value	B	β	p-value	B	β	p-value
FL→S1: redesigned clothing	0.461	0.417	<0.000***	0.140	0.119	<0.273	0.487	0.367	<0.001***
FL→S2: repair/alteration	0.268	0.243	<0.070	0.398	0.322	<0.006**	0.315	0.232	<0.042*
FL→S3: renting	0.337	0.278	<0.041*	0.138	0.113	<0.359	0.485	0.372	<0.001***
FL→S4: clothing swaps	0.183	0.156	<0.241	0.232	0.166	<0.165	0.512	0.355	<0.002**
FL→S5: consultancy	0.485	0.430	<0.001***	0.564	0.415	<0.000***	0.581	0.418	<0.000***
NUC→S1: redesigned clothing	0.314	0.254	<0.013*	0.427	0.425	<0.000***	0.164	0.143	<0.166
NUC→S2: repair/alteration	0.072	0.059	<0.611	0.215	0.204	<0.047*	0.297	0.252	<0.015*
NUC→S3: renting	-0.117	-0.086	<0.458	0.165	0.157	<0.147	0.004	0.003	<0.976
NUC→S4: clothing swaps	-0.055	-0.042	<0.713	0.281	0.235	<0.026*	0.162	0.130	<0.206
NUC→S5: consultancy	-0.077	-0.061	<0.592	0.102	0.088	<0.388	0.191	0.159	<0.114
M→S1: redesigned clothing	-0.312	-0.232	<0.019*	-0.008	-0.006	<0.948	-0.465	-0.311	<0.002**
M→S2: repair/alteration	-0.235	-0.175	<0.117	-0.339	-0.258	<0.010**	-0.474	-0.310	<0.002**
M→S3: renting	-0.362	-0.245	<0.030*	-0.112	-0.086	<0.413	-0.395	-0.269	<0.009**
M→S4: clothing swaps	-0.507	-0.355	<0.001***	-0.412	-0.277	<0.007**	-0.690	-0.426	<0.000***
M→S5: consultancy	-0.306	-0.223	<0.042*	-0.226	-0.156	<0.114	-0.408	-0.261	<0.008**

Table B-20 Unstandardized and Standardized Regression Coefficients: Income Multiple Groups

Path	< US$39,999			US $ 40,000-79,999			>US $ 80,000		
	B	β	p-value	B	β	p-value	B	β	p-value
FL→S1: redesigned clothing	0.635	0.472	<0.001***	0.444	0.383	<0.000***	0.217	0.185	<0.074
FL→S2: repair/alteration	0.759	0.548	<0.000***	0.251	0.207	<0.087	0.113	0.097	<0.366
FL→S3: renting	0.501	0.329	<0.032*	0.217	0.182	<0.151	0.378	0.328	<0.002**
FL→S4: clothing swaps	0.757	0.507	<0.001***	0.166	0.124	<0.312	0.184	0.145	<0.166
FL→S5: consultancy	0.820	0.572	<0.000***	0.516	0.406	<0.001***	0.428	0.341	<0.001***
NUC→S1: redesigned clothing	0.214	0.206	<0.073	0.282	0.240	<0.014*	0.355	0.313	<0.001***
NUC→S2: repair/alteration	0.020	0.019	<0.877	0.288	0.235	<0.030*	0.277	0.246	<0.011*
NUC→S3: renting	0.053	0.045	<0.731	0.024	0.020	<0.858	0.006	0.005	<0.958
NUC→S4: clothing swaps	-0.156	-0.135	<0.283	0.336	0.248	<0.024*	0.239	0.196	<0.037*
NUC→S5: consultancy	0.081	0.073	<0.540	0.024	0.018	<0.862	0.136	0.112	<0.234
M→S1: redesigned clothing	-0.275	-0.204	<0.064	-0.091	-0.070	<0.443	-0.372	-0.268	<0.004**
M→S2: repair/alteration	-0.679	-0.491	<0.000***	-0.237	-0.174	<0.084	-0.228	-0.165	<0.089
M→S3: renting	-0.202	-0.133	<0.286	-0.135	-0.101	<0.339	-0.396	-0.290	<0.003**
M→S4: clothing swaps	-0.680	-0.456	<0.000***	-0.209	-0.140	<0.172	-0.671	-0.447	<0.000***
M→S5: consultancy	-0.533	-0.372	<0.001***	-0.048	-0.034	<0.732	-0.353	-0.238	<0.013*

Table B-21 Unstandardized and Standardized Regression Coefficients: Education Multiple Groups

Path	Some college or lower			College graduate			Graduate school		
	B	β	p-value	B	β	p-value	B	β	p-value
FL→S1: redesigned clothing	0.254	0.205	<0.064	0.389	0.361	<0.000***	0.512	0.393	<0.009**
FL→S2: repair/alteration	0.501	0.399	<0.001***	0.170	0.147	<0.150	0.414	0.320	<0.060
FL→S3: renting	0.453	0.341	<0.006**	0.159	0.134	<0.211	0.406	0.348	<0.042*
FL→S4: clothing swaps	0.573	0.391	<0.001***	0.126	0.110	<0.306	0.217	0.155	<0.346
FL→S5: consultancy	0.694	0.524	<0.000***	0.411	0.340	<0.001***	0.541	0.392	<0.016*
NUC→S1: redesigned clothing	0.384	0.361	<0.000***	0.184	0.164	<0.083	0.340	0.287	<0.030*
NUC→S2: repair/alteration	0.183	0.170	<0.067	0.367	0.305	<0.002**	-0.090	-0.077	<0.604
NUC→S3: renting	0.063	0.055	<0.571	0.105	0.085	<0.410	-0.147	-0.138	<0.352
NUC→S4: clothing swaps	0.165	0.131	<0.163	0.142	0.119	<0.248	0.145	0.114	<0.427
NUC→S5: consultancy	0.053	0.047	<0.612	0.125	0.099	<0.310	0.125	0.099	<0.483
M→S1: redesigned clothing	-0.021	-0.015	<0.868	-0.139	-0.098	<0.276	-0.676	-0.539	<0.000***
M→S2: repair/alteration	-0.381	-0.280	<0.004**	-0.349	-0.230	<0.015*	-0.366	-0.293	<0.039*
M→S3: renting	-0.410	-0.285	<0.006**	-0.079	-0.051	<0.607	-0.258	-0.230	<0.106
M→S4: clothing swaps	-0.711	-0.448	<0.000***	-0.217	-0.144	<0.143	-0.601	-0.446	<0.001***
M→S5: consultancy	-0.380	-0.265	<0.007**	-0.205	-0.129	<0.168	-0.297	-0.223	<0.101

Table B-22 Unstandardized and Standardized Regression Coefficients

Path	B	β	P-value
Direct path			
PB→SAPSR	0.388	0.424	<0.000***
SN→SAPSR	0.080	0.099	<0.170
PBCI→SAPSR	0.192	0.216	<0.004**
PBCE→SAPSR	-0.027	-0.021	<0.662
ATSP→SAPSR	0.100	0.122	<0.018*
ATSU→SAPSR	-0.016	-0.018	<0.718
ATR→SAPSR	0.017	0.019	<0.689
Personality→SAPSR	0.075	0.073	<0.495
Personality→PB	0.842	0.753	<0.000***
Personality→SN	0.543	0.431	<0.000***
Personality→PBCI	0.379	0.331	<0.000***
Personality→PBCE	0.059	0.079	<0.172
Personality→ATSP	0.293	0.233	<0.000***
Personality→ATSU	0.014	0.014	<0.808
Personality→ATR	0.132	0.119	<0.040*
Indirect path	0.475	0.464	<0.000***
Personality→PB→SAPSR	0.327	0.319	<0.000***
Personality→SN→SAPSR	0.044	0.043	<0.175
Personality→PBCI→SAPSR	0.073	0.071	<0.012*
Personality→PBCE→SAPSR	-0.002	-0.002	<0.680
Personality→ATSP→SAPSR	0.029	0.029	<0.039*
Personality→ATSU→SAPSR	0.000	0.001	<0.842
Personality→ATR→SAPSR	0.002	0.002	<0.691

Oklahoma State University Institutional Review Board

Date: Thursday, April 10, 2014

IRB Application No   HE1425

Proposal Title: Exploring the Role of Personality in Consumer Adoption of Sustainable Apparel Product - Service Retail Models

Reviewed and
Processed as: Exempt

Status Recommended by Reviewer(s): Approved   Protocol Expires: 4/9/2017

Principal
Investigator(s):

Chunmin Lang	Cosette M. Armstrong
305 Scott	437 HS
Stillwater, OK 74078	Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

X The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:
Note: If there are any changes in the scope or tone of the survey questions from what was listed in Q3 of your application then you will need to file a modification to your protocol.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins in 219 Cordell North(phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Shelia M. Kennison

Shelia Kennison, Chair
Institutional Review Board

CONSENT FORM
OKLAHOMA STATE UNIVERSITY

PROJECT: Exploring the Role of Personality in Consumer Adoption of Sustainable Apparel Product-Service Retail Models

INVESTIGATORS:

PI: Chunmin Lang, M.S. Department of Design, Housing and Merchandising, College of Human Sciences, Oklahoma State University

Advisor: Cosette Armstrong, PhD. Department of Design, Housing and Merchandising, College of Human Sciences, Oklahoma State University

You are being asked to participate in a research study being conducted in the Department of Design, Housing, and Merchandising at Oklahoma State University. This survey is part of a doctoral research project being conducted at Oklahoma State University. Thank you for your interest in participating! Your contribution to this study is invaluable.

The purpose of the following survey is to evaluate the influence of personality and future clothing retail schemes. The survey should take approximately 15 minutes to complete. The survey includes four sets of questions and will require the collection of demographic information. You will be asked to respond to items related to your personality, attitudes, and your interest in participating in some specific clothing retail schemes.

Your identity is not associated with the completion of this survey. Your responses are identified by a numeric code only, and results of the survey are analyzed as a group, and not by individual. We will not utilize the link between your responses to your IP addresses for our study. The data will be stored on a password-protected computer. Only the two researchers (PI and Advisor) and their authorized assistants will have access to the dataset. By completing this survey, you are giving your consent to use this data in the research study. Your participation is voluntary and you may withdraw from the study at any time without penalty. There are no foreseeable risks or discomfort in the completion of the survey. You may benefit from completing the survey, gaining an appreciation and understanding of how research is conducted.

This investigation has received "exempt status" from the Institutional Review Board at Oklahoma State University. For more information about the study you may contact the primary investigator, Chunmin Lang, at chunmin.lang@okstate.edu or Dr. Cosette Armstrong at cosette.armstrong@okstate.edu or 405-744-3818. If you have questions about your rights as a research volunteer, you may contact the OSU Institutional Review Board (IRB) Chair, Dr. Shelia Kennison at 219 Cordell North, Stillwater, OK 74078, 405-744-3377.

If are 18 years and over, and choose to participate, please click on the link below, which will direct you to the survey; If NO, please kindly close this page. Thank you for your time (For recruitment in the email).

By clicking "accept" on this page, you are indicating that you are freely and voluntarily agreeing to participate in this study and that you are at least 18 years of age. It is recommended that you print a copy of this consent page for your records before you begin the study by clicking below (Shown in the first page of online survey).

Your contribution to this study is very valuable to us and we appreciate your time!

VITA

Chunmin Lang

Candidate for the Degree of

Doctor of Philosophy

Thesis: EXPLORING THE ROLE OF PERSONALITY IN CONSUMER ADOPTION OF SUSTAINABLE APPAREL PRODUCT-SERVICE RETAIL (SAPSR) MODELS

Major Field: Human Sciences

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Human Sciences at Oklahoma State University, Stillwater, Oklahoma in May, 2015.

Completed the requirements for the Master of Science in Clothing Design and Engineering at Beijing Institute of Fashion Technology, Beijing, China in 2007.

Completed the requirements for the Bachelor of Science in Financial Accounting at Hebei Normal University, Shijiazhuang, China in 2002.

Experience:

Instructor in Design, Housing and Merchandising Department at Oklahoma State University in Spring 2015
Graduate Research Associate in Design, Housing and Merchandising Department at Oklahoma State University from August 2011-2015
Graduate Teaching Assistant in Design, Housing and Merchandising Department at Oklahoma State University from August 2011-2013
Product Operation Manager in Beijing Dong-fang-qi-li Fashion Co. Ltd (Pierre Cardin Lady's wear), Beijing, China from December 2009-July 2011
Marketing Specialist in Sharon Fashion International (Beijing) Inc., Beijing, China April 2007-December 2009

Professional Memberships:

American Collegiate Retailing Association (ACRA)
International Textile and Apparel Association (ITAA)