READY TO TEAR? A STUDY ON FASHION

AND CONSUMER DISPOSAL

BEHAVIOR

By

CYNTHIA V. GOUDEAU

Bachelor of Arts in Journalism
Langston University
Langston, Oklahoma
2005

Master of Science in Merchandising
University of North Texas
Denton, Texas
2007

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Dissertation Approved:

Dr. Hyun-Joo Lee
_____
Dissertation Adviser

Dr. Jane Swinney
_____

Dr. Gina Peek
_____

Dr. Mihyun Kang
_____

Dr. Gail Gates
_____

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Abstract: In the apparel and textiles industries, disposal is of great interest because the amount of textile waste produced annually is on the rise. This study was concerned with gaining comprehensive insight into apparel disposal behaviors, so the purpose of the research was two-fold. First, the research aimed to evaluate the antecedents to apparel disposal behaviors of young U.S. consumers using an extended version of the Theory of Reasoned Action. Second, the research intended to compare the young consumers' actual disposal behaviors in relation to fast fashion and non-fast fashion apparel. Four structural equation models were built to explore antecedents (i.e. environmental apparel knowledge, apparel disposal motivation, apparel disposal attitude, apparel disposal subjective norm, and apparel disposal intention) to the most commonly cited apparel disposal behaviors: resell, donate, reuse, and discard. Paired t-tests and cross-tabulations with chi-square statistics were utilized to investigate the differences in disposal rates, disposal methods, and reasons for disposal used by consumers for fast fashion and non-fast fashion apparel. Results for the conceptual framework varied from model to model. The resell model showed no significant relationship between environmental apparel knowledge and apparel disposal motivation. Additionally, no significant relationship was shown between apparel disposal attitude and apparel disposal intention in the resell model. All relationships between antecedents were found to be significant in the donate model. With the exception of the connection between apparel disposal subjective norm and apparel disposal intention, all antecedent relationships were found to be significant in the reuse and discard models. In the comparison of disposal behaviors, it was found that participants disposed of fast fashion apparel overall at a faster rate than non-fast fashion apparel. The average disposal rate for fast fashion apparel was significantly faster than the average rate for non-fast fashion apparel in both the resell and donate categories, but no difference was noted in the reuse and discard categories. Implications and future research suggestions are offered at the study's conclusion.

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CHAPTER I

It is this idea of everything being disposable that I don't like. When I was a little girl, you

used to learn to sew all the holes in things, darning socks, but nobody mends clothes any

more...People have never even used a needle- they don't know how.- Vivienne

Westwood, fashion designer (as cited in Jackson, 2010, para. 25-26)

INTRODUCTION

Conserving resources for future generations through sustainable consumption

presents both a unique challenge and opportunity for individuals in contemporary society.

According to the Oxford Commission on Sustainable Consumption (as cited in Jackson &

Michaelis, 2003), sustainable consumption is "consumption that supports the ability of

current and future generations to meet their material and other needs without causing

irreversible damage to the environment or loss of function in natural systems" (p. 14).

Sustainable consumption advocates encourage individuals in affluent, developed

countries to shift toward consumption that is more socially and ecologically sustainable

(Hobson, 2002; Seyfang, 2011). These advocates suggest educating consumers on

environmental, social, and economic preservation as a means to influence consumption

behaviors (Hobson, 2002).

Consumer behavior related to consumption includes the acquisition, use, and disposal of products and services (Jacoby, Berning, & Dietvorst, 1977; Winakor, 1969). Acquisition happens when a product or service is obtained by a consumer (Winakor, 1969). Use occurs when a consumer wears an item or places it into inventory to be utilized at a later time. Disposal takes place when a product is permanently removed from a consumer's possession.

As a subsection of general consumption, sustainable consumption also includes acquisition, use, and disposal behaviors. While extensive research has been conducted over the acquisition and use components of sustainable consumption (Mohr, Webb, & Harris, 2001), the topic of disposal is a relatively new subject of interest among researchers (Birtwistle & Moore, 2007; de Coverly, McDonagh, O'Malley, & Patterson, 2008; Holbrook, 1995). Further investigation into disposal is necessary because it provides additional insight into the behaviors of consumers (de Coverly et al., 2008).

The study of disposal is of particular importance in the context of apparel because the very nature of the product differs from typical durable and non-durable goods (Winakor, 1969). Durable goods can be used multiple times over several months or years and non-durable goods are exhausted in a single act of consumption (Gottheil, 2012). Apparel items are not durable products like houses or cars because they do not benefit consumers over a long time period (Winakor, 1969). However, apparel is not entirely a non-durable product in the same sense as food, which can only be consumed once. Instead, apparel is often used for a short period of time, stored, and then reused repeatedly until permanent disposal takes place. In apparel consumption, the term

disposal refers to whether a garment is simply thrown away, resold, reused, or recycled (Shim, 1995).

Statement of the Problem

Textile Waste

In the apparel and textiles industries, disposal is of great interest because the amount of textile waste produced annually is on the rise (Claudio, 2007). This waste is comprised of both pre-consumption and post-consumption textiles (Hawley, 2006b). Pre-consumption textile waste includes byproduct materials that result from manufacturing practices in the textile industry. Post-consumption textile waste, which is the focus of the present study, includes apparel and household items made from manufactured textiles that consumers dispose of after use.

According to the Council for Textile Recycling (CTR, 2013), insufficient retrieval of post-consumption textile waste is one of the greatest obstacles for the textile recycling industry. While nearly 3.8 billion pounds of post-consumption textile waste is recycled each year, it only equates to approximately 15% of total post-consumption textile waste (Environmental Protection Agency [EPA], 2013). The EPA estimates that U.S. residents collectively generate about 13 million tons of post-consumption textile waste annually. This equates to 70 pounds of textile waste per person each year (CTR, 2013). Of this waste, almost 100% is recyclable, but less than one-fourth of it is salvaged (Hawley, 2006a; Wang, Zhang, Polk, Kumar, & Muzzy, 2003).

Textile waste has become a major concern on both the economic and environmental fronts. With regard to the environment, textiles pose a problem in landfill spaces because synthetic fibers do not decompose under landfill conditions (Waste

Online, 2011). Biodegradable textiles, such as wool, emit gases like ammonia and

methane into the atmosphere as they decompose (Fletcher, 2008; Waste Online, 2011).

According to Culpit (as cited in Fletcher, 2008), dyes and chemicals used during

finishing processes may come off of disposed textiles and seep into the groundwater

causing contamination. In economic terms, landfill space is becoming increasingly

scarce, which leads to rising landfill fees (Divita & Dillard, 1999; Hawley, 2006a). In

addition to paying higher amounts to transport waste to landfills, manufacturers and

retailers must also factor in the rising costs of water and energy used during textile

manufacturing processes (Divita & Dillard, 1999; Plunkett, 2008). Because of the

economic and environmental concerns associated with textile waste, many businesses are

seeking ways to increase their eco-friendly business practices (Claudio, 2007). However,

this task has proven to be particularly challenging for businesses specializing in apparel

or fashion products.

Trash Fashion?

Hawley (2006a) explains that the "very definition of fashion fuels the momentum

for change, which creates a demand for ongoing replacement of products with something

that is new and fresh" (p. 263). This has become evident in recent years as consumers

have grown more demanding and increasingly fashion-savvy ("The future," 2005).

Today, the average U.S. consumer purchases twice as much apparel as the average

consumer 20 years ago (Koch, 2013). Thus, retailers have felt more pressure than ever to

provide their customers with the right products, in the right place, at the right time.

As a result of the shift to a buyer-driven market, a phenomenon known as fast

fashion has gained popularity among U.S. retailers and shoppers alike (Birtwistle,

Siddiqui, & Fiorito, 2003). Fast fashion is a vertically integrated business model resulting from 'Just in Time' and 'Quick Response' supply chain strategies (Byun & Sternquist, 2008; Morgan & Birtwistle, 2009). The goals of the strategy, which is used by retailers to keep up with present and future fashion trends, are to reduce demand uncertainty and increase consumption by creating short selling-cycle apparel products (Choi, Liu, Liu, Mak, & To, 2010). By implementing the strategy, retailers reduce the amount of time between designing goods and making them available for purchase (Bhardwaj & Fairhurst, 2010; Choi et al., 2010).

In the United States, the fast fashion model was originally employed by a limited number of retailers, including H&M and Zara, that desired to capitalize on this retailing strategy (Mihm, 2010). The strategy allowed companies who were early fast fashion adopters to gain a substantial competitive advantage within the apparel market. To illustrate, in 2011, fast fashion sales grew 11% in an apparel market otherwise considered static for non-fast fashion retailers (TNS, 2011). Non-fast fashion retailers are those that produce staple goods not typically sensitive to rapidly changing fashion trends (Watson & Yan, 2013). The financial successes of fast fashion retailers have led an escalating number of non-fast fashion retailers to adopt the fast fashion model (Byun & Sternquist, 2008). Thus, the model that began as an exclusive concept has now gained the investment of more established retailers including JCPenney and Sears (Choi et al., 2010; Thau, 2010).

Although it has had a positive impact on retailer profits, the fast fashion strategy has also seen its share of criticisms (McLaughlin, 2010). Since the implementation of fast fashion, retailers utilizing the strategy have been selling fashionable, lower quality

garments that have been designed for obsolescence (McLaughlin, 2010; Morgan & Birtwistle, 2009). In fact, retailers like Zara are selling garments that are constructed for use no more than 10 times (McAfee, Dessain, & Sjoeman, 2004). Consequently, the rate at which consumers' dispose of trendy, lower quality garments is on the rise (McLaughlin, 2010; Morgan & Birtwistle, 2009). A considerable amount of post-consumption fast fashion apparel is discarded in landfills, which has earned the fast fashion retail strategy the nickname 'Landfill Fashion' (McLaughlin, 2010).

Significance of the Study

Most studies that have addressed fashion in relation to apparel disposal behaviors have concentrated on female consumers in the U.K, Australia, Scotland, and Chile (Bianchi & Birtwistle, 2010, 2012; Birtwistle & Moore, 2007; Morgan & Birtwistle, 2009). In fact, the research conducted by Joung and Park-Poaps (2013) was the only U.S. study and the only study that included male consumers. Still, the large majority of their study's participants were female (92%). It is important to further develop the literature on consumers in the United States because the country makes up one of the largest apparel markets, accounting for 52% of the international retailing industry (MarketLine, 2013). Moreover, consumers of both genders are necessary for the study of apparel disposal in United States because most apparel retailers in the country offer products for both men and women.

Consumer apparel disposal research often involves an investigation of behavior antecedents (Bianchi & Birtwistle, 2010, 2012; Joung & Park-Poaps, 2013; Koch & Domina, 1997; Morgan & Birtwistle, 2009; Shim, 1995). Research findings regarding antecedents to apparel disposal behavior have been somewhat inconsistent in previous

works. To illustrate, some studies have concluded that attitudes influence consumers'

utilization of the donation disposal method (Joung & Park-Poaps, 2013; Koch & Domina,

1997; Shim, 1995), while a recent study found that attitudes were not strongly associated

with apparel donation disposal behaviors (Ha-Brookshire & Hodges, 2009).

Besides the inconsistent findings, there is a gap in the literature on apparel

disposal antecedents. Intentions and subjective norms, which are well established as

antecedents to consumer behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975),

have rarely been included in apparel disposal studies. To address the gap in literature and

research inconsistencies, a more coherent approach to the study of apparel disposal

behavior antecedents is required. A framework based on a review of prior literature and

established consumer behavior theory would be useful in streamlining research on

apparel disposal behavior antecedents.

In addition to evaluating apparel disposal behavior antecedents, it is imperative to

measure actual behaviors to gain a complete understanding of the entire consumer

disposal process. Recent literature on apparel disposal behavior suggests that fast fashion

may be increasing the rate of consumer apparel disposal (Bianchi & Birtwistle, 2010,

2012; Birtwistle & Moore, 2007; Claudio, 2007; Joung & Park-Poaps, 2013; Morgan &

Birtwistle, 2009), but there is little scholarly research specifically addressing this

implication.

There have been several studies relating the general concept of fashion to textile

and apparel disposal. These works have discussed the trendiness or stylishness of apparel

products in relation to consumer disposal habits, but have not specifically compared

disposal of fast fashion apparel to disposal of non-fast fashion apparel. The earliest

studies focused on the knowledge and disposal habits of consumers in the U.K. (Birtwistle & Moore, 2007; Morgan & Birtwistle, 2009). Subsequent research compared the antecedents to disposal behaviors from consumers in more than one country (Bianchi & Birtwistle, 2010, 2012). The most recent work focused on the motives and influencers of the apparel disposal behaviors of college students (Joung & Park-Poaps, 2013).

To date, no study has compared the disposal of fast fashion and non-fast fashion from a consumer behavior standpoint. The aforementioned studies on fashion and disposal discussed fast fashion as a potential contributor to textile waste, but none of them compared the differences in disposal methods utilized for fast fashion and non-fast fashion apparel using empirical, quantitative analysis. Investigating fast fashion and non-fast fashion independently is important because consumers may utilize different methods to dispose of each type of apparel. Furthermore, the reasons for disposal of fast fashion apparel may differ from reasons for disposal of non-fast fashion apparel.

Purpose of Study

This study is concerned with gaining comprehensive insight into apparel disposal behaviors, so the purpose of the research is two-fold. First, the research aims to evaluate the antecedents to apparel disposal behaviors of young U.S. consumers. Second, the research intends to compare the young consumers' actual disposal behaviors in relation to fast fashion and non-fast fashion apparel. The objectives of this research are to utilize an expanded version of the Theory of Reasoned Action (TRA, Fishbein & Ajzen, 1975) to:

1. Examine the effects of environmental apparel knowledge on apparel disposal motivation and apparel disposal attitude.

2. Explore the impact of apparel disposal motivation, apparel disposal attitude, and apparel disposal subjective norms on apparel disposal intention.

3. Study the influence of apparel disposal intention on apparel disposal behavior.

This study also seeks to:

4. Investigate the differences in disposal rates, disposal methods, and reasons for disposal used by consumers for fast fashion and non-fast fashion apparel.

Assumptions and Limitations

The proposed study is subject to various assumptions. It is assumed that people purchase clothing on a regular basis and at least once a year. It is also assumed that people use multiple methods to dispose of clothing. Another assumption is that people shop for apparel at a variety of retailers, which include those classified as fast fashion and non-fast fashion. Concerning the survey instrument, it is assumed that respondents will read and follow directions. It is also assumed that study participants will answer questionnaire items honestly and to the best of their abilities.

There are several limitations associated with this study as well. First, the study's sample will be comprised of undergraduate students at one university, so the results will not be generalizable to the greater population. Second, most students will be between the ages of 18 and 25, so surveying members of the general population who are older or younger could potentially yield different results. Third, the questionnaire will be administered online so it may be subject to self-reported biased based on social desirability. Furthermore, cooperation could be an issue because many internet users receive massive amounts of e-mail which makes them prone to deleting messages without reading them first. Another limitation is the fact that the study requests information about

disposal over the last year, which requires respondents to utilize their long-term

memories. These recollections may or may not be accurate. Finally, the questionnaire is

filled out on a one-time basis, so the results will only provide a glimpse of consumers'

disposal behaviors.

CHAPTER II

REVIEW OF LITERATURE

This literature review provides support for the conceptual model and hypotheses
that will be utilized to appraise apparel disposal antecedents and behaviors in this study.
The first section includes an overview of popular apparel disposal methods and a
summary of previous literature on apparel disposal. The second section of the review
includes a history and explanation of fast fashion retailing as well as a synopsis of prior
studies on fashion and disposal. The third section outlines the TRA and its use in apparel
research. The final section highlights the theoretical and empirical literature utilized for
development of the hypotheses. The conceptual model is presented at the end of this
section.

Apparel Disposal

Apparel Disposal Methods

In 1977, Jacoby et al. proposed a Disposition Decision Taxonomy to explore
voluntary disposal behaviors. Although Jacoby et al.'s original work was geared toward
general product disposal, the taxonomy has been referenced and applied in research that
focuses on apparel disposal (Albinsson & Perera, 2009; Francis & Butler, 1994; Shim,

1995; Stephens, 1985). According to Jacoby et al.'s (1977) Disposition Decision Taxonomy, consumers have three options after they have used a product: keep the product, temporarily dispose of the product, or permanently dispose of the product. In apparel scenarios, consumers retain garments until a decision is made to relinquish possession. While some consumers accomplish this temporarily by renting or loaning their apparel, others opt to get rid of apparel permanently. This process of permanent disposal serves as the focal point for the present study.

Jacoby et al.'s (1977) taxonomy states that when a consumer chooses permanent disposal, he or she can sell, give away, trade, or throw away. Building on this taxonomy, Stephens (1985) discovered that reuse was also a popular method of apparel disposal. This was echoed by Shim (1995), who conducted focus groups to determine prevalent disposal methods and found that reselling, donating, reusing, and discarding were the methods most commonly cited by respondents. Based on this information, four major consumer apparel disposal methods are investigated in this study: resell, donate, reuse, and discard. Resell describes when a consumer sells his or her used apparel for currency (Shim, 1995). The term donate is often used interchangeably with recycling in apparel disposal literature and portrays what happens when a person gives away his or her apparel (Ha-Brookshire & Hodges, 2009; Shim, 1995; Stephens, 1985). Reuse describes when apparel is still utilized by a consumer, but for a different purpose other than for which it was originally intended (Domina & Koch, 1999; Stephens, 1985). Lastly, discard refers to when apparel is thrown away, abandoned, or destroyed in a manner that will eventually contribute to textile waste (Stephens, 1985). Each disposal method is explained in further detail in the subsequent sections.

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Resell.

Apparel resale takes place through direct or indirect channels in conventional and virtual settings (Paden & Stell, 2005). Direct channels allow consumers to sell used merchandise straight to other consumers. Garage sales and flea markets are popular places for vendors to sell used apparel directly to shoppers. Online classified advertisements (e.g. Craigslist) and auction websites (e.g. eBay) also facilitate direct exchanges between apparel buyers and sellers (Claudio, 2007; Paden & Stell, 2005).

Reselling via indirect channel involves using a consignment or resale intermediary to assist with redistribution. The website for the National Association of Resale and Thrift Shops (NARTS, 2013) states there are over 25,000 consignment and resale shops operating in the United States. The organization estimates that between 12% and 15% of the population visits consignment or resale stores annually. Consignment and resale stores both sell used clothing, but take different approaches to secondhand retailing.

Consignment shops are businesses responsible for selling the items of their clients for a percentage of the selling price (NARTS, 2013). Conventional apparel consignment businesses are usually locally owned shops or franchise retailers like Uptown Cheapskate. Online consignment shops, such as Karma Couture, operate in a virtual setting where clients are invited to mail in the items they desire to sell.

In contrast to consignment retailing, resale businesses purchase items upfront (NARTS, 2013). Brick-and-mortar resale retailers like Plato's Closet and Buffalo Exchange buy gently used garments from clients and then resell them to customers inside their stores (Hamilton, 2007; Paden & Stell, 2005). Virtual resale businesses, such as

liketwice.com and thredup.com, buy apparel from clients around the world to sell in their shops online.

Donate.

Apparel donation is carried out using a variety of redistribution channels. In its simplest form, donation involves passing apparel items on to one's friends, family members, or other acquaintances (Paden & Stell, 2005). Apparel that is not donated directly to an individual is usually redistributed through charitable organizations and thrift stores (NARTS, 2013; Paden & Stell, 2005). Garments that are offered to charitable organizations, such as the Red Cross, are used to clothe people who are in need at little to no cost (Paden & Stell, 2005). Apparel items given to thrift stores are utilized in different ways, which are detailed in the succeeding discussion.

The NARTS (2013) estimates that between 16% and 18% of U.S. shoppers visit thrift stores each year. Consumers who choose to donate apparel using the thrift store redistribution channel have the option of giving their items to either a for-profit or non-profit business (NARTS, 2013). For-profit stores like Savers accept donations and then sell them to the public for profit. Contrarily, non-profit retail outlets, such as the Salvation Army and Goodwill, use proceeds from apparel sales to help individuals in need. Only about 20% of apparel that is donated to non-profit retailers is utilized or sold in actual thrift stores (Claudio, 2007). The remaining items are either exported to be sold in bulk to developing countries or sold to textile recyclers who extract raw materials that can be manufactured into textile products (Claudio, 2007; Hawley, 2006a). The revenues generated from the selling of excess textiles are used by non-profit businesses to fund benevolent missions (Claudio, 2007; Paden & Stell, 2005).

Although most consumers recognize that textile donating is a disposal option, many cite the inconvenience of having to take clothing to a recycling facility as a major hindrance to participating in donation programs (Koch & Domina, 1999). In response, organizations and government municipalities are working to make donating more convenient than ever. Koch (2013) states that cities around the country, including New York City, NY, Issaquah, WA, Queen Creek, AZ, and Newtown, PA, have begun offering curbside pickup of apparel and other textiles. The author reports that some areas have even gone a step further by placing apparel collection bins on the streets and in apartment buildings. In addition, businesses like The North Face have positioned apparel recycling bins in their stores and are offering customers vouchers as incentive to donate. Donate Stuff and other online companies offer consumers one more convenient option by accepting apparel donations via mail.

Reuse.

Apparel reuse involves altering a garment to be employed for a new purpose or function (Shim, 1995; Stephens, 1985). Some consumers take old apparel and use it to create cleaning wipes or rags for around the house (Domina & Koch, 1999). Others find more creative ways to reuse their old apparel. New products that can be made using old apparel include pillows, dolls and puppets, quilts, rugs, and reusable grocery bags. Old apparel may also be converted into new garments, accessories, or footwear through a 'makeover' or restyling (Rasband, 2006). 'Makeovers' involve completely reconstructing apparel to make an entirely new garment. In most instances, a larger piece of apparel is transformed into a smaller piece of apparel or components of various garments are

combined to create a new garment. Restyling differs from a 'makeover' in that only a portion of a garment is changed. For instance, a long shirt can be cut into a cropped style.

Discard.

The last apparel disposal option investigated in this study is discarding. Some people have the tendency to choose the discard method purely out of convenience (Koch & Domina, 1999). The discard method is also commonly chosen when consumers feel a garment lacks value or the effort to dispose of it using a different method (i.e. resell, donate, or reuse) outweighs the benefit of diverting waste from the landfill (Paden & Stell, 2005). Individuals are often unaware that even the oldest, dirtiest garments can be diverted from the landfill through donation facilities or textile recycling companies (Hawley, 2006a; Shim, 1995).

When consumers choose to discard apparel and other textile items, it contributes to rising levels of textile waste in landfills (Hawley, 2006a). The EPA (2013) estimates that apparel and other textile waste occupies approximately 5% of the landfill space in the United States. While the percentage may seem small relative to other landfill waste, the number of textiles tossed into the trash bin quickly adds up. To illustrate this point, the EPA states that in 2011, over 11 million tons of apparel and other textiles were discarded and taken to landfills.

Benefits Beyond Discarding.

From an environmental and economic standpoint, reselling, donating, and reusing are preferred over discarding because they reduce the occurrence of textile waste, help charitable causes, and provide employment opportunities (Claudio, 2007; Domina & Koch, 1999; Hawley, 2006a). In addition, these methods contribute to sustainable textile

and apparel business practices in several ways. According to Waste Online (2011), utilizing alternatives to discard reduces the number of textiles sitting in landfills, diminishing the need for landfill space. Reselling, donating, and reusing also contribute to the conservation of water and energy because less textile production is necessary when these methods are implemented (Waste Online, 2011). Recycling firms are able to process 93% of textiles without creating any harmful byproducts, which equates to the preservation of original materials with minimal environmental impact (Hawley, 2006a).

Apparel Disposal Studies

The earliest research to discuss apparel disposal as a part of the apparel consumption process was written by Winakor in 1969. The researcher explained that apparel consumption consists of acquiring a garment, placing it in inventory, and then disposing of it. In reference to disposal, Winakor stated that, "fashion can cause a person to discard an otherwise serviceable garment and buy a new one" (p. 633). Following Winakor's article, apparel disposal was not revisited until 1985, when Stephens created an apparel acquisition and discard scale for use in studies on apparel consumption behaviors. This was followed by Chun's (1987) study which compared the disposal patterns of fashion innovators and non-fashion innovators. The researcher discovered that fashion innovators, who are early trend adopters, were more likely than non-fashion innovators to wear a garment for a shorter period of time and dispose of it for going out of style.

Research on apparel disposal really began to gain momentum in the 90s. First, Francis and Butler (1994) studied consumer satisfaction with respect to apparel disposal. The authors found that while education level had an effect on satisfaction level, product

consumption experience, environmental attitudes, and apparel involvement did not. A year later, Shim (1995) conducted an exploratory study on apparel disposal patterns. The researcher found that in comparison to general waste recycling behavior, environmental attitude had a stronger impact on whether or not consumers used environmentally-friendly apparel disposal methods. In 1997, Koch and Domina examined consumers' use of existing apparel disposal options. The investigators found that gender and environmental attitude had an influence on choice of disposal method. Domina and Koch (1998) profiled female shoppers and segmented them into environmentally-oriented groups. Participants were either classified as environmental recyclers, economic recyclers, charity recyclers, or non-recyclers based on their survey responses. Daneshvary, Daneshvary, and Schwer (1998) investigated potential support for a curbside textile recycling program in Nevada. The authors stated that general recycling habits, political affiliation, size of family, minority status, homeownership, and income were significant influencers of likelihood to support and participate in the program. Afterward, Koch and Domina (1999) explored apparel disposal behavior and found that donation through the Salvation Army, giving away to family and friends, and reuse as rags were the most commonly utilized methods.

Early in the new millennium, Domina and Koch (2002) conducted a study on convenience in relation to apparel and textile recycling. The researchers found that access to recycling had a significant effect on the amount and variety of items donated. In 2009, Albinsson and Perera created a framework for voluntary apparel disposal using information collected from observations and interviews with consumers at apparel exchange events. The authors stated that apparel disposal decisions were made based

upon the method itself, the community, and characteristics of the item being disposed.

Ha-Brookshire and Hodges (2009) also conducted a study on apparel disposal that year,

but focused on consumers in a donation setting. The investigators discovered that

participants experienced both utilitarian and hedonic values regarding their donation

behaviors. Recently, Sung and Kincade (2010) researched the consumption behaviors of

environmentally-friendly Korean consumers. The researchers used responses to

categorize the 'eco-sumers' according to their apparel disposal behaviors.

Fast Fashion

Fast Fashion: Past to Present

Fast fashion is the term used to describe the retailing strategy that "reflects the

current and emerging trends quickly and effectively in current merchandise assortment"

(Choi et al., 2010, p. 473) while allowing retailers to capitalize on product scarcity and

exclusivity (Byun & Sternquist, 2008). Contrary to the belief that fast fashion retailing

suddenly emerged in recent years, the concept has actually been in gradual development

over the last few decades. In the early 80s, apparel companies mass produced

standardized garments to be sold in stores throughout the year (Brooks, 1979).

Consumers lacked sensitivity to fluctuating trends so apparel collections were typically

forecast several seasons in advance and mostly consisted of basics, which are products

with extended lifecycles (Brooks, 1979; Bhardwaj & Fairhurst, 2010).

In the mid-80s, there was a shift in fashion consciousness as women shoppers

became more style-oriented (Bailey, 1993; Bhardwaj & Fairhurst, 2010). This led to

greater levels of competition among the fashion retail companies who found it

increasingly difficult to sell apparel products (Bhardwaj & Fairhurst, 2010; Tyler,

Heeley, & Bhamra, 2006). As overstocks prevailed, markdowns became the norm (Chatvijit, 2012). In response, apparel companies focused on developing an infrastructure to maintain production costs while reducing the time between placing an order and receiving it, also known as lead time (Tyler et al., 2006).

By the 90s, many apparel retailers shifted their supply chain methods from product driven to customer driven using the just-in-time and quick response techniques (Bhardwaj & Fairhurst, 2010, Tyler et al., 2006). The techniques focused on maximizing the cost efficiency of apparel manufacturing by monitoring consumer purchasing trends to determine which items to replenish and discontinue (Barnes & Lea-Greenwood, 2006). The updated supply chain methods provided retailers with the opportunity to introduce supplementary collections into existing apparel seasons (Bhardwaj & Fairhurst, 2010; Tyler et al., 2006). This ultimately enabled companies to expand their product ranges to offer new, more fashionable garments at a more frequent rate (Barnes & Lea-Greenwood, 2006; Hoffman, 2007).

While the incorporation of just-in-time and quick response supply chain strategies were profitable for some retailers, the techniques also proved to have shortcomings. Because the strategies relied heavily on outsourcing to low wage nations, geographical distances led to significantly longer lead times (Birtwistle et al., 2003; Bruce & Daly, 2006). The savings incurred through outsourcing to lower wage nations were often mitigated by the costs associated with in-store markdowns and carrying inventory (Christopher, Lowson, & Peck, 2004). Thus, apparel companies still sought a better way to increase their profits while meeting consumer demand.

As the new millennium began, apparel consumers gained greater access to the fashion industry through the Internet. Consumers were now able to view fashion shows, trade publications, and apparel blogs online which exposed the formerly exclusive fashion process (Mintle, 2008). Increased access to the world of fashion, ongoing sociocultural changes, and desire to be unique led consumers to seek out more fashionable apparel at more affordable prices (Morgan & Birtwistle, 2009; Sproles & Burns, 1994).

Looking to capitalize on the consumer demand for the latest trends, retailers like Zara and H&M employed the fast fashion supply chain strategy, which developed as an improved version of just-in-time and quick response (Birtwistle et al., 2003). Rather than concentrating on efficiency of manufacturing cost, the strategy focused on rapid replenishment of product and flexible ordering (Bhardwaj & Fairhurst, 2010; Choi et al., 2010). This was accomplished by creating a network between buyers and suppliers to share real-time data and trend tracking information from around the world (Chatvijit, 2012; Tokatli, Wrigley, & Kizilgun, 2008).

Using the fast fashion strategy, retailers have been able to introduce new apparel in their stores with low risk in terms of markdowns and carrying costs (Jin, Chang, Matthews, & Gupta, 2012). The strategy has given consumers the urgency to buy because a product may only be available for a short period of time (Birtwistle & Moore, 2007). With fast fashion, items have been produced in smaller quantities to encourage shoppers to visit stores more often (Bhardwaj & Fairhurst, 2010; Choi et al., 2010). By eliminating the traditional four to five apparel production seasons, companies have been able to offer new apparel on a more frequent basis (Christopher et al., 2004, Frings, 2004). In terms of

pricing, most fast fashion retailers remain on the relatively low end, with stores like Forever 21 averaging a price of $15.34 per garment (Karr, 2010). Because fast fashion garments are sold at extremely competitive prices, there has been little to no need for price reductions (Bhardwaj & Fairhurst, 2010, Birtwistle & Moore, 2007).

On a financial level, fast fashion retailers have been outperforming companies with traditional supply chain structures in recent years (Barnes & Lea-Greenwood, 2006). To illustrate, fast fashion apparel companies have reported an average annual profit margin of approximately 16% (Sull & Turconi, 2008). The average annual profit margin has only been about 7% for non-fast fashion retailers. In summary, the fast fashion retailing trend has gained a substantial following over the last decade and continues to grow in both the United States and international apparel markets.

Fast Fashion Studies

Studies emphasizing fast fashion as a potential influencer of apparel disposal behaviors have become increasingly prevalent in literature. Birtwistle and Moore (2007) conducted a study using qualitative and quantitative methods to assess consumers' knowledge of how apparel disposal effects the environment. Finding that consumers' lacked knowledge, the researchers provided suggestions for increasing consumer awareness. Morgan and Birtwistle (2009) supported these findings with their quantitative study on the disposal habits of young U.K. consumers. The investigators found that participants lacked knowledge about apparel disposal and its effects on the environment. Bianchi and Birtwistle (2010) compared the antecedents to apparel disposal behaviors of consumers in Scotland and Australia and found that while some differences did exist, general recycling behavior proved to be the strongest antecedent to disposal behaviors in

both countries. Bianchi and Birtwistle (2012) also compared the apparel disposal behaviors of Australian and Chilean consumers. The strongest antecedent to disposal behavior was found to be general recycling behaviors. The authors also discovered that consumer environmental awareness influenced donating behavior. Recently, the motives and influencers of apparel disposal behaviors in college-aged consumers were examined by Joung and Park-Poaps (2013). The investigators found that students' choice of disposal method was influenced by both economic and environmental concerns. While each of the previously mentioned studies discusses fast fashion in relation to apparel disposal, none of them specifically tested disposal of fast fashion apparel.

<div align="center">

Theoretical Background/Framework

</div>

The Theory of Reasoned Action
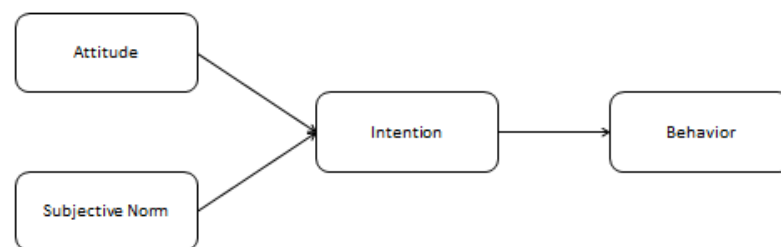
Figure 2.1. Fishbein & Ajzen's Theory of Reasoned Action (1975; 1980)

Martin Fishbein and Icek Ajzen introduced the TRA to help researchers examine precursors to behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; see Figure 2.1). The model explains that there are two major considerations that determine behavioral human intent. The first consideration is attitude, which Ajzen (1989) defines as "an individual's disposition to respond favorably or unfavorably to an object, person, institution, or event, or to any other discriminable aspect of the individual's world" (p. 241). In this instance, the term attitude refers to the beliefs one has about the

consequences of performing a particular action or behavior, not his or her beliefs about an object itself. Based on the given definition, an attitude is developed through evaluation of the consequences of performing a specific behavior.

In the TRA, the second major consideration that contributes to human intention is subjective norm, which is the social pressure to comply with the perceived expectations of others in regard to a given behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Subjective norms are made up of normative beliefs and motivation to comply. Normative beliefs are specific behavioral expectations set forth by a social agent. A normative belief should not be confused with a social norm, which is a term used to describe a broader range of non-mandatory, but acceptable behaviors. Motivation to comply is a person's internal drive to adhere to the beliefs of a reference group or person.

According to Fishbein and Ajzen (1975; 1980), one of the best predictors of human behavior is intention. In the TRA, when attitude and subjective norm are combined, behavioral intention is produced. Intention, which is the cognitive representation or indication of a person's readiness to perform a behavior, is considered a direct antecedent of behavior. Behavior is a person's observable response to an object, person, institution, or event in a given situation.

It should be noted that the TRA holds several assumptions (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). First and foremost, the theory supposes that people are rational in their decision-making processes and actions. Second, the TRA maintains that a person's behavior can be determined by their intention to perform the behavior. Third, the theory assumes that intention is a function of attitude and subjective norm. Therefore, the more positive ones attitude and subjective norm are regarding a behavior, the more

likely he or she is to perform the behavior. Finally, the TRA asserts that only attitudes that are specific toward a given behavior can be expected to predict that behavior.

The Theory of Reasoned Action in Relation to Apparel

In recent years, the TRA has been utilized in several studies concerning attitudes and behaviors in relation to apparel. In 2003, Yoh, Damhorst, Sapp, and Laczniak combined the TRA with innovation adoption theory to create a model of consumer adoption for apparel shopping online. Likewise, Xu and Paulins (2005) used the theory to investigate the attitudes and behavioral intentions of college students pertaining to online shopping for apparel. The theory has also been used to determine purchase intentions of selected consumer groups in relation to controversial leather products such as emu and alligator (Belleau, Summers, Xu, & Pinel, 2007; Summers, Belleau, & Xu, 2006). In addition, Marcketti and Shelley (2009) used the TRA to explore consumer willingness to pay higher price premiums for non-counterfeit apparel. Lee and Park (2009) utilized the theory to explore online apparel retailing and the dynamics of online service personalization. Most recently, Hyllegard, Yan, Ogle, and Lee (2012) employed the theory to examine consumers' attitudes and intentions toward apparel companies based on use of hang tags.

While multiple researchers have utilized the TRA to investigate apparel related topics, a limited number have employed the theory to gain insight specifically into apparel disposal behaviors. Ha-Brookshire and Hodges (2009) used the theory to explore apparel disposal behaviors in an apparel donation setting. The investigators found that the primary reason participants donated apparel was to create space in their closets for new apparel. Then, Joung and Park-Poaps (2013) utilized the TRA to study the factors that

motivate various disposal behaviors. The researchers found that disposal behaviors were influenced by economic, environmental, or charity concerns.

Most prior consumer behavior research employing the TRA has been concentrated on the acquisition stage of the consumption process (Ha-Brookshire & Hodges, 2009). Nonetheless, the studies by Ha-Brookshire and Hodges (2009) and Joung and Park-Poaps (2013) illustrate how the TRA can be useful in apparel disposal research as well. Because this study is concerned with the attitudes, subjective norms, and intentions of consumers in connection with apparel disposal behaviors, it will be useful to employ the TRA to gain a greater understanding of the final stage of the apparel consumption process.

Hypotheses and Model Development

This study proposes a comprehensive model for understanding consumer apparel disposal behavior based upon the TRA (see Figure 2.2). The model is an extension of the original TRA and includes knowledge and motivation. In this study, the model will be utilized to test the relationships between environmental apparel knowledge, apparel disposal motivation, apparel disposal attitude, apparel disposal subjective norm, apparel disposal intention, and apparel disposal behavior. The succeeding review of literature emphasizes the relevance of each variable in consumer behavior research. The review also dissects the interactions among variables in the proposed model.
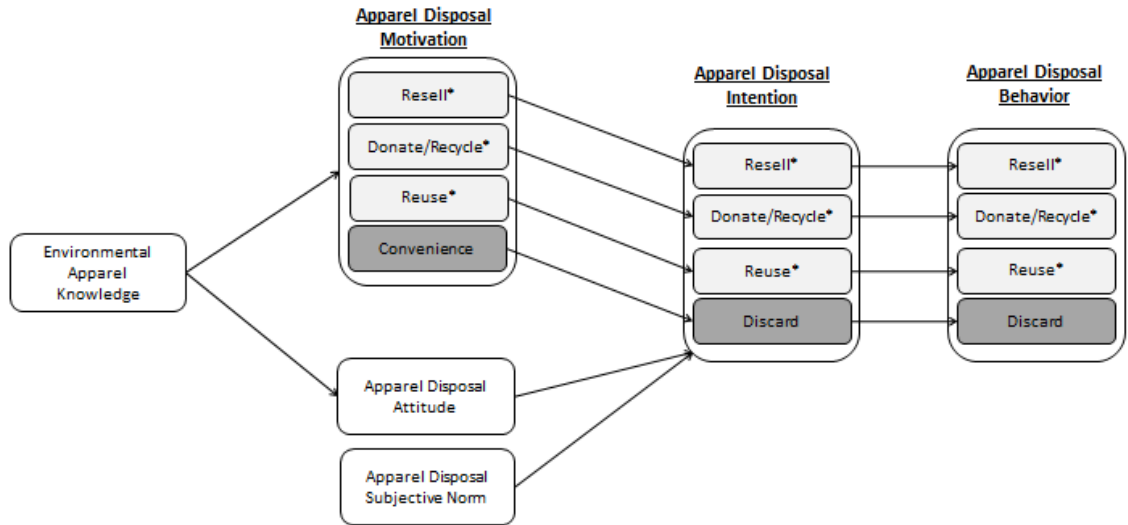
Figure 2.2. Conceptual Model for Apparel Disposal Behavior. This figure is based on Fishbein & Ajzen's Theory of Reasoned Action (1975; 1980). The * indicates methods of disposal that are considered more sustainable.

Environmental Apparel Knowledge

Merriam-Webster's online dictionary defines knowledge as "the fact or condition of knowing something with familiarity gained through experience or association" (n.d., para. 2). Knowledge is a construct that influences consumers' information gathering and organizing (Alba & Hutchinson, 1987). In other words, consumers use knowledge to simplify the decision making process (Babin & Harris, 2010). Overall, knowledge satisfies consumers' need for information and may affect one's attitude toward products, brands, or even behaviors (Schiffman, Kanuk, & Wisenblit, 2010).

Arcury and Johnson (1987) defined environmental knowledge as "factual information that individuals have about the environment, the ecology of the planet, and the influence of human actions on the environment" (p. 32). Studies on the relationship between environmental knowledge and environmentally-friendly behaviors have found a positive relationship between the concepts. Dispoto (1977) investigated environmental

activity among college students and found that environmental knowledge was a predictor of environmentally-friendly behavior. Kaiser, Wolfing, and Fuhrer (1999), also investigated environmental knowledge, but used a probabilistic measurement approach and determined that in conjunction with environmental values, environmental knowledge was a powerful predictor of environmentally-friendly behavior.

While studies on environmental knowledge in general have noted a link to environmentally-friendly behavior, much of the research assessing environmental knowledge of the apparel industry has yielded inconsistent findings. Some researchers have found that environmental apparel knowledge, defined as one's "awareness of the impact of apparel products on the natural environment" (Kim, 1995, p. 16), has little to no effect on consumption practices. Kim and Damhorst (1998) studied environmental apparel knowledge in relation to apparel consumption and environmentalism. The researchers discovered that consumers' knowledge of the environmental impacts associated with the apparel industry only weakly correlated with consumer behavior. Hiller-Connell and Kozar (2012) also measured environmental apparel knowledge and assessed undergraduate students before and after a course on sustainability. The investigators found that knowledge increased after the course, but there was no change in the students' consumption practices.

Contrarily, other researchers have found environmental apparel knowledge to have a relationship with consumption behavior. In Wong and Taylor's (2001) study on the environment in relation to apparel consumption in Hong Kong, the researchers found that knowledge of the environment in relation to the apparel industry had a moderate influence on the local apparel consumption behaviors. Additionally, Brosdahl and

Carpenter (2010) investigated the environmental apparel knowledge of undergraduate

students and found that knowledge led to environmental concern, which then led to

environmentally-friendly consumption behaviors.

Although prior studies on environmental apparel knowledge have explored the

concept in relation to apparel consumption behavior, no research has utilized the TRA.

However, general environmental knowledge has been linked to apparel consumption in

prior TRA research. According to Sampson (2009), the TRA logic implies that

consumers who have greater environmental knowledge are more likely to feel motivated

to engage in environmentally-friendly behaviors. The researcher used the theory to

examine the attainment of 'green' apparel products and found that as environmental

knowledge increased so did purchase motivation. Sampson identified a relationship

between knowledge and motivation in the acquisition stage of the apparel consumption

process. Therefore, it is reasonable to believe that there would also be a relationship

between knowledge and motivation in the final stage of the apparel consumption process,

which is disposal.

Based collectively on this information, the following hypothesis is proposed.

H1: Consumer knowledge of the environment regarding apparel production positively
influences motivation to use the a) resell, b) donate, and c) reuse methods for apparel
disposal, but negatively influences motivation to use the d) discard method for apparel
disposal.

According to Marcketti and Shelley (2006), knowledge is encompassed in the

belief component of the TRA. Within the theory, these beliefs are precursors to attitudes

(Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). There is a lack of literature exploring

potential links between environmental apparel knowledge and apparel disposal attitude,

but previous studies on environmental knowledge and environmental attitude have

established a positive relationship between the two concepts, Arcury (1990) focused on

environmental attitudes and knowledge in relation to socio-demographic factors. The

author found that environmental knowledge was consistently and positively related to

environmental attitude. Similarly, Synodinos (1990), who studied the environmental

attitudes and knowledge of business students, concluded that increasing knowledge about

the environment could result in more positive environmental attitudes. Based on these

findings, it is reasonable to believe that there would also be a positive relationship

between environmental apparel knowledge and attitudes toward the more

environmentally-friendly or sustainable apparel disposal behaviors.

      The following hypothesis is based on the previously discussed literature.

H2: Consumer knowledge of the environment regarding apparel production positively
influences attitude toward the more sustainable methods of apparel disposal (i.e. resell,
donate, and reuse).

Apparel Disposal Motivation

      Motivations are the internal reasons or forces that activate a person's behavior

(Babin & Harris, 2010; Solomon, 2010). They are of interest in consumer behavior

research because they provide the intended reason for a person's behavior (Babin &

Harris, 2010). When a consumer has an unfulfilled need, he or she will feel tension

which, in turn, produces motivation (Schiffman et al., 2010; Solomon, 2010). When

tension occurs, consumers strive subconsciously and unsubconsciously to reduce it

through their behaviors.

      Although it is considered an integral part of consumer behavior, motivation was

not included in the original TRA. However, Fitzmaurice (2005) extended the theory by

adding variables that reflected motivations. The researcher's model linked different types

of motivation to behavioral intention, which was ultimately used to predict behavior.

Fitzmaurice rationalized the addition of motivations by stating that they are what push consumers to act. In the study, the model was tested and a relationship was established between motivation and intention.

Up to the present time, apparel disposal has not been explored using the extended TRA that includes the link between motivation and intention (Fitzmaurice, 2005). Yet, apparel disposal motivations, which are the underlying and internal reasons or forces that activate apparel disposal behavior (Babin & Harris, 2010; Shim, 1995; Solomon, 2010), have been explored in two prior studies. Shim (1995) studied apparel disposal and determined that consumers were motivated by economic, environmental, charitable, awareness, or convenience reasons. Similarly, Joung and Park-Poaps (2013) researched apparel disposal motivations and found that environmental, economic, charity, and convenience concerns were factors that influenced apparel disposal behaviors.

While Joung and Park-Poaps (2013) utilized the TRA as the framework for their research, the researchers did not provide empirical information on the relationship between the apparel disposal motivations and intentions. Fitzmaurice's (2005) study shows that motivations may influence intentions when they are added to the TRA. According to the TRA (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), behavior is preceded by intention, so it is logical to think that the same motivations that influenced behavior in the Joung and Park-Poaps (2013) study would have first influenced the behavior intentions.

Accordingly, the following is hypothesized.

H3: Apparel disposal motivation to a) resell positively influences intention to resell, b) donate positively influences intention to donate, c) reuse positively influences intention to reuse, and d) discard positively influences intention to discard.

Apparel Disposal Attitude

Fishbein and Ajzen (1975; 1980) maintained that an attitude consists of a person's negative or positive beliefs about the consequences associated with a given behavior. Further explanation of attitude is given in Schiffman et al.'s (2010) definition, which states that attitudes are "a learned predisposition to behave in a consistently favorable or unfavorable way with respect to a given object" (p. 228). The authors explained that attitudes are learned because they are acquired through experience, secondhand information, and other forms of exposure. They are consistent in that they are what stimulate consumers to behave in a reliable manner (Babin & Harris, 2010; Schiffman et al., 2010). Attitudes are enduring over long periods of time (Solomon, 2010), but should not be considered permanent because they are subject to change (Schiffman et al., 2010).

Many apparel disposal studies that evaluate attitude have specifically focused on environmental attitudes. An environmental attitude is a person's negative or positive beliefs about the relationship between individuals and the environment (Dunlap & Van Liere, 1978). Shim (1995) discovered that environmental attitude was an influencer of certain disposal behaviors. In particular, the researcher revealed that environmental attitude had a positive effect on donate and reuse behaviors, but a negative effect on discard behaviors. Resale behaviors were not predicted by environmental attitude in Shim's study. Koch and Domina (1997) also found that higher levels of environmental attitude had a positive relationship with donate and reuse as textile disposal methods, but had non-significant results for resale behaviors. Prior findings were further supported in the most recent research, which was conducted by Joung and Park-Poaps (2013). The

investigators found that while environmental attitude influenced donation behavior, it did not have a significant effect on resale behavior.

Although several studies have focused on environmental attitudes, others have connected apparel disposal to recycling and/or reusing attitudes. Morgan and Birtwistle (2009) found that while consumers were generally concerned with the environment, there was no correlation between textile recycling or reusing attitudes and disposal behaviors. Bianchi and Birtwistle (2010) conducted a cross-cultural study in Scotland and Australia. The researchers found that Scottish consumers with positive attitudes toward recycling were more likely to donate, give away, or sell clothing. Although Australian consumers with positive attitudes toward recycling were also likely to use donation as a method of apparel disposal, they were less likely to give it away or sell it to secondhand retailers. In addition, Bianchi and Birtwistle (2012) studied attitude and apparel disposal in both Australian and Chilean consumers. The authors stated that attitude toward recycling was collectively the strongest influencer of donation behavior.

As previously discussed, there are studies that include apparel disposal behaviors and attitudes. However, these studies deviate from the TRA in two notable ways. First, the link between attitudes and intentions is commonly omitted in apparel disposal behavior research. According to the TRA, attitudes lead to intentions, which subsequently lead to behaviors (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Second, most studies evaluate general attitudes instead of behavior specific ones. The TRA states that attitudes toward a specific behavior, not general attitudes, are what determine intentions and ultimately, behaviors.

The study of apparel disposal behaviors using the TRA warrants the investigation of apparel disposal attitudes, which are one's negative or positive beliefs about the consequences associated with apparel disposal behaviors. The only apparel disposal behavior study to date that connects a specific apparel disposal attitude to intention was conducted by Ha-Brookshire and Hodges (2009). The researchers found that consumer donation attitudes were not strongly associated with donation intentions. It should be noted that the researchers in the study utilized a qualitative research method, so the study was limited to 15 participants. Including more participants and using a quantitative method could have provided a different outcome. It is also worth reiterating that donate was the only disposal method included in this study.

Fishbein and Ajzen (1975; 1980) explained that the more favorable a person's attitude is toward a specific behavior, the more likely he or she is to have intentions to perform the behavior. This TRA logic implies that the more positive a person's attitude is toward reselling, donating, or reusing apparel, the more likely he or she to intend on engaging in these environmentally-friendly apparel disposal methods. On the other hand, a person with a more negative attitude toward the environmentally-friendly apparel disposal is more likely to intend on discarding garments without much contemplation.

Using this rationale, the following hypothesis is proposed.

H4: Apparel disposal attitude positively influences apparel disposal intention to use the a) resell, b) donate, and c) reuse methods for apparel disposal, but negatively influences intention to use the d) discard method for apparel disposal.

Apparel Disposal Subjective Norms

Subjective norms are a person's perceptions of what the people who are most important to him or her think about a given behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Babin and Harris (2010) explain that a consumer's subjective norms are

based on his or her beliefs about a reference group. The authors state that a reference group consists of "individuals who have significant relevance for a consumer and who have an impact on the consumer's evaluations, aspirations, and behavior" (p. 169). Reference groups may assist in shaping a consumer's attitudes about the redistribution or disposal of unwanted items (Paden & Stell, 2005). These same people also have the potential to influence a consumer's choice of disposal method. The TRA holds that subjective norms are directly related to behavioral intentions (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

In the realm of apparel, little research has been conducted on subjective norms in relation to disposal intention. The studies that have explored the two concepts have inconsistent results. While Ha-Brookshire and Hodges (2009) found that social pressure did not have a strong association with the apparel intentions to donate, Joung and Park-Poaps (2013) observed that family subjective norms influenced resale and donation apparel disposal behaviors. The discrepancy in results from these studies can most likely be attributed to the fact that the researchers utilized different research approaches. Ha-Brookshire and Hodges (2009) used a qualitative research method, focused solely on donation disposal behavior, and had a relatively small sample size. On the other hand, Joung and Park-Poaps (2013) utilized a quantitative research method, focused on all four apparel disposal behaviors, and had a much larger sample size than the other study.

Though Joung and Park-Poaps (2013) used the TRA to investigate the apparel disposal behavior process, the authors did not test the relationship between subjective norms and intentions. Instead, the relationship between subjective norm and actual apparel disposal behavior was tested. The TRA states that subjective norms influence

behavior intentions, which then turn into actual behaviors (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Thus, the connection between subjective norms and apparel disposal intentions should be explored. The TRA states that the more positive a person's subjective norm is regarding a behavior, the more likely he or she is to develop intentions to perform the behavior. This rationale means that the higher a person's subjective norm is toward reselling, donating, and/or reusing apparel, the more likely he or she is to develop intentions to dispose of apparel using an environmentally-friendly method. For purposes of this study, apparel disposal subjective norms are defined as a person's perception of the social pressure to comply with others expectations regarding apparel disposal behaviors (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Lee, 2011).

Using the logic of TRA, the following hypothesis is offered.

H5: Apparel disposal subjective norm positively influences apparel disposal intention to use the a) resell, b) donate, and c) reuse methods for apparel disposal, but negatively influences intention to use the d) discard method for apparel disposal.

Apparel Disposal Intention

In the TRA, behavioral intentions directly precede behaviors. Ajzen (1991) explained that behavioral intention describes the amount of effort one is willing to exert to perform a given behavior. Behavioral intention is the result of combining attitude with subjective norm (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). While the TRA seeks to measure behavioral intentions, the theory recognizes that additional factors beyond one's control limit the ability to predict future behaviors with absolute accuracy (Solomon, 2010).

Behavioral intention has rarely been discussed in apparel disposal research. The sole study that has touched upon the topic yielded results that were consistent with the TRA. In the study, Ha-Brookshire and Hodges (2009) found a relationship between

apparel donation intention and apparel donation behavior. For this research, apparel

disposal intention is defined as the amount of effort a person is willing to exert in order to

perform (Ajzen, 1991) a designated apparel disposal behavior.

Based on the TRA and previous finding, the following hypothesis is proposed.

H6: Apparel disposal intention to a) resell positively influences resell disposal behavior,
b) donate positively influences donate disposal behavior, c) reuse positively influences
reuse disposal behavior, and d) discard positively influences discard disposal behavior.

Apparel Disposal Behavior

The TRA considers a behavior to be a person's observable action or response to a

given situation (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). In this study, apparel

disposal behavior refers to person's observable action for permanently removing apparel

from his or her possession or reusing it for a different purpose other than for which it was

originally intended. Apparel disposal behavior is carried out using a variety of methods.

While discard is widely regarded as the most convenient method, research has shown that

most respondents have utilized an alternative apparel disposal method at some point

(Koch & Domina, 1997, 1999; Shim, 1995).

Over the years, several researchers have conducted studies to determine which

apparel disposal methods are most popular among consumers (see Table 2.1). Shim

(1995) sought out to determine the most commonly used methods of apparel disposal, so

the researcher held focus groups and conducted a pilot test prior to questionnaire

development. Through these data collection methods, the author discovered four major

methods for apparel disposal: resell, donate, reuse, and discard. Koch and Domina (1997)

were more specific in their assessment of alternatives and found that passing textiles on

to friends or family and reuse as rags were the most frequently used apparel disposal

methods. The researchers indicated that donation to the Salvation Army or Goodwill was

also a commonly used method, but donation to church, consignment, and returning to parents for recycling were among the least utilized. Domina and Koch echoed these findings in further studies which found that donation through the Salvation Army, using as rags, and passing on to family and friends were the apparel disposal methods most often employed by consumers (Domina & Koch, 1999; Koch & Domina, 1999). In 2007, Birtwistle and Moore explored consumer disposal of fashionable apparel and found that participants were more likely to donate apparel that was more expensive. In contrast, cheaper apparel was discarded. Similarly, Morgan and Birtwistle (2009) found that expensive apparel was donated to charity, while cheaper apparel was discarded via trash. Bianchi and Birtwistle (2010) evaluated consumers in Australia and Scotland and found that donation to charities and giving to family members or friends were the most popular apparel disposal methods in both countries.

Researchers evaluating actual apparel disposal behaviors have recognized that studying the reasons consumers engaged in such behaviors provides additional insight (see Table 2.1). In Koch and Domina's (1997) study, lack of fit was the reason most commonly associated with apparel disposal. The authors also revealed that consumers often modified apparel or reused it as rags if the garment was worn out or damaged in some way. A garment being old or out of style was the least chosen reason for apparel disposal. In the study, Koch and Domina (1997) also indicated that convenience and familiarity played a role in which methods were commonly utilized by respondents. In Koch and Domina's (1999) subsequent study, fit and not disposing of in a wasteful manner were the most commonly cited reasons for choice of apparel disposal method. Convenience and feeling that apparel was still valuable were also frequently mentioned

reasons. Domina and Koch (1999) found that participants were more likely to resell items that they felt still had value or that did not fit. Donation via Salvation Army was based on convenience and familiarity, while donation though religious organizations was done out of a desire to help those in need and to avoid being wasteful. Recycling by giving away to family and friends was attributed to convenience. Reasons for reuse as rags included that apparel items were damaged or worn out. Birtwistle and Moore (2007) revealed that respondents in their study disposed of apparel because it was out of style or of a lower quality. Morgan and Birtwistle (2009) discovered that damaged apparel was often discarded. Additionally, most apparel was donated through charity and the charity was chosen based on convenience. In their cross-cultural study, Bianchi and Birtwistle (2010) found that helping those in need served as the most important reason for donating to charity.

There have been no studies to date that compare consumer behaviors regarding the influence of fast-fashion and non-fast fashion on the rate of disposal, disposal methods, or reasons for disposal. However, Jacoby et al. (1977) states that for products with a higher value, consumers are more likely to resell than use any other method of disposal. The author also explains that as the value of a product increases, so does the variety in his or her choice of disposal method. Because fast fashion is believed to be of lower quality and value than non-fast fashion (McLaughlin, 2010; Morgan & Birtwistle, 2009), differences in disposal behaviors can be theorized.

Therefore, the following hypotheses are presented.

H7: Fast fashion apparel is disposed of at a different rate than non-fast fashion apparel.

H8: Fast fashion apparel is disposed of using a) resell, b) donate, c) reuse, and d) discard methods at a different rate than non-fast fashion apparel.

H9: Fast fashion is a) resold, b) donated, c) reused, and d) discarded for different reasons than non-fast fashion apparel.

Table 2.1

Literature on Apparel Disposal Methods and Reasons for Disposal

Author(s), Year	Focus of Study	Research Method	Disposal Methods	Reasons for Disposal	Key Findings
Shim (1995)	Influence of environmental attitude and waste recycling behavior on apparel disposal patterns	Mixed (Qualitative & Quantitative)	**Resell, donate, reuse, & discard**	N/A	Focus groups revealed that resell, donate, reuse, and discard were most commonly used methods for apparel disposal
Koch & Domina (1997)	Use of existing textile recycling options in relation to attitudes, fashion opinion leadership, and textile recycling behavior	Quantitative	**Resell** (consignment, or garage sales), **donate** (Goodwill or Salvation Army, church organizations, give to family or friends, or returned to parents for recycling), & **reuse** (used as rags, or modified for use in different form)	Worn out or damaged; out of style; no fit; tired or bored; not used	Most frequently used methods of disposal were given to family or friends and use as rags; donation to Goodwill or Salvation Army had also been utilized by most of respondents; the least utilized methods were church donation, returning to parents for recycling, and consignment
Koch & Domina (1999)	Consumer postconsumer textile disposal practices	Quantitative	**Resell** (consignment, or garage sales), **donate** (Goodwill	Originally valuable, no fit, out of style, bored or tired,	Most frequently used methods of textile disposal were donation through Salvation Army or Goodwill, donation through giving to family or friends, and

			or Salvation Army, religious organizations, or give to family or friends), & **reuse** (used as rags, or modified for use in different form)	sold to recoup some costs, damaged or worn out, convenience, convenience, avoid wasting garment	reuse as rags; fit and not wasted were the most common reasons for textile disposal method in all categories
Domina & Koch (1999)	Consumer recycling and reuse as means of post-consumer textile disposal	Quantitative	**Resell** (consignment, or garage sales), **donate** (Goodwill or Salvation Army, religious organizations, or give to family or friends), & **reuse** (used as rags, or modified for use in different form)	Avoid wasting garment, no fit, originally valuable, convenience, out of style, tired or bored, damaged, helps needy	Most commonly used methods were donation through Salvation Amy or Goodwill, and donation through giving away to family or friends, and reuse as rags; least used methods were resell via consignment, modifying for reuse, and donation through religious organization; fit and not wasted were most frequently cited reasons for disposal across categories; valuable and convenience were also popular reasons for disposal method choice
Birtwistle & Moore (2007)	Consumer disposal of fashionable apparel	Qualitative	**Resell** (eBay or secondhand shops), **donate** (charity or give to family or friends), **reuse** (household rags; make new items), & **discard**	Lower quality, out of style, purchased for one-time event; garment damage; convenience	Participants were more likely to keep expensive apparel or donate it to charity; cheaper apparel ended up damaged and was discarded; apparel was taken to charity out of convenience
Morgan & Birtwistle (2009)	Disposal habits of young	Mixed (Qualitative & Quantitative)	**Resell** (eBay or secondhand shops), **donate** (charity,	Garment damage; convenience	Higher quality, expensive apparel was donated to charity; cheap apparel would quickly be damaged and discarded;

			fashion consumers'	recycling bins, or give to family or friends), **reuse** (in the home make new items or household rags), & **discard**		majority of apparel was given to charity; choice of charity determined by convenience
Bianchi & Birtwistle (2010)	Comparison of apparel disposal behaviors in Scotland and Australia	Quantitative	**Resell** (secondhand shops or eBay), **donate** (charity, give to family or friends, or curbside recycling), & **reuse**	Helps needy		Most common methods of apparel disposal in both countries are donation via charity or giving away to family or friends; the common methods are utilized because they make participants feel good about helping those in need; reuse, recycling through curbside programs, and reselling on eBay or in secondhand shops are all less commonly used

CHAPTER III

METHODOLOGY

The purpose of this study is to investigate apparel disposal behaviors and rates of disposal for both fast fashion and non-fast fashion apparel. In particular, the study seeks to examine the relationship between environmental apparel knowledge, apparel disposal motivation, apparel disposal attitude, apparel disposal subjective norms, apparel disposal intention, and apparel disposal behavior. A modified version of the TRA that includes knowledge and motivations in addition to the original TRA components, serves as the research framework (see Figure 3.1). Based on the review of literature, the following hypotheses are proposed:

H1: Consumer knowledge of the environment regarding apparel production positively influences motivation to use the a) resell, b) donate, and c) reuse methods for apparel disposal, but negatively influences motivation to use the d) discard method for apparel disposal.

H2: Consumer knowledge of the environment regarding apparel production positively influences attitude toward the more sustainable methods of apparel disposal (i.e. resell, donate, and reuse).

H3: Apparel disposal motivation to a) resell positively influences intention to resell, b) donate positively influences intention to donate, c) reuse positively influences intention to reuse, and d) discard positively influences intention to discard.

H4: Apparel disposal attitude positively influences apparel disposal intention to use the a) resell, b) donate, and c) reuse methods for apparel disposal, but negatively influences intention to use the d) discard method for apparel disposal.

H5: Apparel disposal subjective norm positively influences apparel disposal intention to use the a) resell, b) donate, and c) reuse methods for apparel disposal, but negatively influences intention to use the d) discard method for apparel disposal.

H6: Apparel disposal intention to a) resell positively influences resell disposal behavior, b) donate positively influences donate disposal behavior, c) reuse positively influences reuse disposal behavior, and d) discard positively influences discard disposal behavior.

H7: Fast fashion apparel is disposed of at a different rate than non-fast fashion apparel.

H8: Fast fashion apparel is disposed of using a) resell, b) donate, c) reuse, and d) discard methods at a different rate than non-fast fashion apparel.

H9: Fast fashion is a) resold, b) donated, c) reused, and d) discarded for different reasons than non-fast fashion apparel.
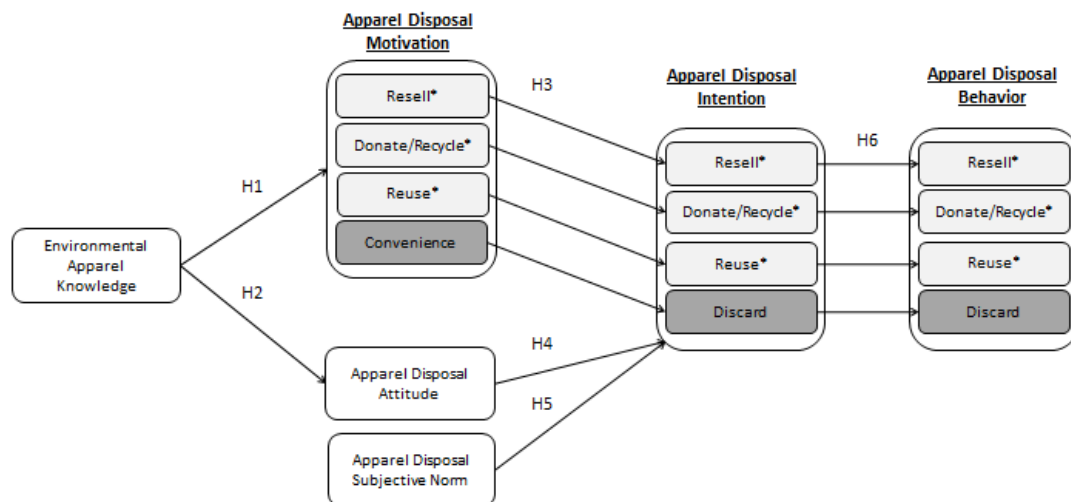
Figure 3.1. Conceptual Model for Apparel Disposal Behavior. This figure is based on Fishbein & Ajzen's Theory of Reasoned Action (1975). The * indicates methods of disposal that are considered more sustainable.

The remainder of this chapter includes detailed information on the instrument

development, population and sample, data collection, and data analysis for this study.

Instrument Development

Previous literature on textiles and disposal was utilized to obtain and create measurement items for the questionnaire (Appendix C). The online questionnaire consisted of seven sections that assessed the following: environmental apparel knowledge, apparel disposal motivation, apparel disposal attitude, apparel disposal subjective norms, apparel disposal intention, apparel disposal behavior, and demographics. An analysis of prior studies revealed that the most commonly cited apparel disposal behaviors (i.e. methods) are resell, donate, reuse, and discard. Therefore, different scale items corresponding with each of these four disposal behaviors were included for apparel disposal motivation, apparel disposal intention, and apparel disposal behavior. For participant clarification, the questionnaire began with a brief explanation of all four disposal methods.

The questions in Section 1 of the questionnaire evaluated respondents' environmental apparel knowledge using a scale developed and refined by Kim and Damhorst (1998; see Table 3.1). The five item scale specifically measures participants' knowledge of the environmental impacts of apparel production. In Kim and Damhorst's study, the refined scale yielded a Cronbach's *alpha* of .74, which indicated an acceptable reliability. For this study, respondents were asked to rate each statement using a 7-point Likert-type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Table 3.1

Environmental Apparel Knowledge

1.	Chemical pollutants are produced during manufacturing of synthetic or manufactured fibers such as polyester.
2.	Air pollution can occur during some common dye processes of textiles.
3.	Dyeing and finishing processes use a lot of water.

4.		Special finishes on fabrics may create problems for recycling.
5.		Phosphate-containing detergents can be a source of water pollution.

Section 2 of the questionnaire, made up of 20 questions, addressed apparel disposal motivations (see Table 3.2). The questions were developed by Shim (1995) to assess motivation types associated with popular methods of apparel disposal. In Shim's study, four disposal methods, resell, donate, reuse, and discard, were evaluated using two constructs per disposal behavior. In total, there were eight apparel disposal constructs that consisted of two to four scale items apiece. All eight constructs yielded acceptable Cronbach's *alpha* values which ranged from .74 to .88. In the present study, the two constructs for each disposal option were merged to create four comprehensive motivation scales representative of resell, donate, reuse, and discard. Each construct included four to six scale items. A 7-point Likert-type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree") was utilized to assess the motivations of participants in this study.

Table 3.2

Apparel Disposal Motivation

1.	Resell	
	a.	I sell my clothing for the money.
	b.	I sell much of my clothing at second-hand stores for economic reasons.
	c.	I often trade my clothing at second-hand stores to save money.
	d.	To reduce landfill problems, I sell my unwanted clothing rather than throwing it away.
	e.	I sell my old garments for environmental reasons.
	f.	I resell clothing to recycle the garments that are in good condition.
2.	Donate	
	a.	It is very important to me to donate my clothes to charity for needy people.
	b.	I always give away my clothing to help others.
	c.	I donate my clothes to charity to do my part in decreasing the environmental problems.

	d.	Donating to charity is a good way of recycling old clothes.
3.	Reuse	
	a.	I often reuse garments for other purposes to get the most out of them.
	b.	I always use worn out garments for rags to save money.
	c.	I reuse clothing because it can significantly benefit the environment.
	d.	I try to use my old garments for crafts or sewing purposes because throwing away can significantly contribute to the landfill problem.
4.	Discard	
	a.	I don't reuse/recycle clothing because it is time-consuming.
	b.	Recycling clothing is a hassle for me.
	c.	It is time-consuming to donate my clothes to charity.
	d.	I find it convenient to throw away unwanted garments.
	e.	I never reuse/recycle clothing because I don't know how to go about doing it.
	f.	I'm not aware of how clothing can be recycled.

The third section of the questionnaire was based on the attitudes toward recycling component of the clothing acquisition and discard scale developed by Stephens (1985; see Table 3.3). Stephens' five item scale focused solely on clothing recycling, so alterations were necessary for inclusion in the present research. For each scale item, the word 'recycle' or 'recycling' was replaced by 'resell, donate, and reuse' or 'reselling, donating, and reusing.' For consistency with the remainder of the questionnaire, questions 1 through 3 and 5 were reworded from 'clothes' to 'clothing' and question 4 was rephrased from 'garments' to 'clothing.' It should be noted that question 4 was written in reverse in both the original and present study. In the original study, the researcher found the scale to have a Cronbach's *alpha* value of .83, which is an acceptable reliability. This portion of the questionnaire was also rated using a 7-point Likert-type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Table 3.3

Apparel Disposal Attitude

1.	Reselling, donating, and reusing clothing are good ideas.
2.	I would be willing to spend time and/or money to resell, donate, and reuse my old clothing.
3.	More information about ways to resell, donate, and reuse clothing should be made available.
4.	Reselling, donating, and reusing clothing are more trouble than they are worth. (r)
5.	People should be encouraged to resell, donate, and reuse clothing.

Note. (r) denotes that scale items are reverse coded.

Section 4 included six questions adapted from George's (2004) study on Internet purchasing (see Table 3.4). In the original study, George utilized a two-item subjective norm scale and an eight-item normative structure scale. While the entire subjective norm scale (questions 1 and 2) was included in this study, only two items from the normative structure scale were retained (questions 3 and 4). The other four items, which all focused on student normative beliefs in relation to their professors, were considered irrelevant for this study. George's scale was modified for the present study by changing the term 'Internet' in each question to the phrase 'resell, donate, or reuse.' The original subjective norm scale yielded a Cronbach's *alpha* value of .90 and the normative structure scale yielded a .81, which indicated fairly high and fairly good reliabilities. To rate the apparel disposal subjective norms, respondents used a 7-point Likert-type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Table 3.4

Apparel Disposal Subjective Norms

1.	People who influence my behavior think that I should resell, donate, or reuse clothing.
2.	People who are important to me would think that I should resell, donate, or reuse clothing.

3.	My friends would think that I should resell, donate, or reuse clothing.
4.	Generally speaking, I want to do what my friends think I should do.
5.	My family would think that I should resell, donate, or reuse clothing.
6.	Generally speaking, I want to do what my family thinks I should do.

For Section 5 of the questionnaire, Ajzen's (2002) instructional guide on constructing a questionnaire was used to develop twelve questions that measure the intention to perform apparel disposal behaviors (see Table 3.5). Scale items were included to measure intention to perform each apparel disposal behavior (i.e. resell, donate, reuse, discard). Participants were asked to rate the questions using a 7-point Likert-type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Table 3.5

Apparel Disposal Intention

1.	Resell	
	a.	I have considered reselling my used clothing.
	b.	I intend to resell my used clothing to others directly or through a retailer.
	c.	I want to resell my used clothing to others directly or through a retailer.
2.	Donate	
	a.	I have considered donating my used clothing to charity.
	b.	I intend to donate my used clothing to a charitable organization or cause.
	c.	I want to donate my used clothing to a charitable organization or cause.
3.	Reuse	
	a.	I have considered reusing my used clothing for other purposes.
	b.	I intend to reuse my used clothing for other purposes.
	c.	I want to reuse my used clothing for other purposes.
4.	Discard	
	a.	I have considered throwing my used clothing in the trash.
	b.	I intend to throw my used clothing in the trash.
	c.	I want to throw my used clothing in the trash.

After the fifth section of the questionnaire, a brief, objective explanation of the differences between fast fashion and non-fast fashion retailers was given (Appendix C). Names of popular U.S. fast fashion retailers and non-fast fashion retailers were also provided. Section 6 was comprised of questions that relate to the disposal of apparel goods. In this section, the same questions were asked twice, once in relation to fast fashion apparel and once in relation to non-fast fashion apparel. The section began by asking respondents, "How often do you dispose of fast fashion/non-fast fashion apparel items?" This item was measured on a 7-point Likert-type scale with ratings that included "never," "annually," "bi-annually (every 6 months)," "seasonally (every 3 to 4 months)," "monthly," "weekly," or "daily." Subsequently, respondents were asked to check how often and how much they have resold, donated, reused, and discarded fast fashion and non-fast fashion apparel in the last year (see Table 3.6). The ratings on the 7-point Likert-type scale for questions regarding 'how often' included "never," "annually," "bi-annually (every 6 months)," "seasonally (every 3 to 4 months)," "monthly," "weekly," or "daily." The questions about 'how much' were rated on a 7-point Likert-type scale that ranged from "none" to "all."

Table 3.6

Apparel Disposal Behavior

1.	Resell	
	a.	How often have you resold fast fashion/non-fast fashion clothing in the last year?
	b.	How much of your fast fashion/non-fast fashion clothing have you resold in the last year?
2.	Donate	
	a.	How often have you donated fast fashion/non-fast fashion clothing in the last year?
	b.	How much of your fast fashion/non-fast fashion clothing have you donated in the last year?

3.		Reuse	
	a.		How often have you reused fast fashion/non-fast fashion clothing in the last year?
	b.		How much of your fast fashion/non-fast fashion clothing have you reused in the last year?
4.		Discard	
	a.		How often have you discarded fast fashion/non-fast fashion clothing in the last year?
	b.		How much of your fast fashion/non-fast fashion clothing have you discarded in the last year?

The remainder of Section 6 included a modified version of Domina and Koch's (1999) textile recycling and discarding scale which was used to evaluate participants' reasons for disposing of apparel (see Table 3.7). In the original study, Domina and Koch listed the following categories: consignment/resale shops or garage sales; Salvation Army, Goodwill, or religious organizations; passed on to family or friends or modified it and then used it in another form; and used as rags. In the present study, the categories were resell, donate, reuse, and discard. The reasons for disposal were the same as those listed in the original questionnaire for each category, except discard, where the item listed as "garment not wasted" was deleted. Participants were asked to check the reason(s) why each disposal option had been utilized. Because they potentially had multiple answers, respondents were allowed to choose multiple methods and reasons in this section.

Table 3.7

Textile Disposal Methods and Reasons

1.		Resell	
	a.		Originally valuable or expensive
	b.		Did not fit
	c.		Out of style
	d.		Bored or tired of garment
	e.		Sold to recoup some of the original cost
	f.		Damaged or worn out
	g.		Convenience of disposal
	h.		Garment was not wasted

2.		Donate	
	a.		Originally valuable or expensive
	b.		Did not fit
	c.		Out of style
	d.		Bored or tired of garment
	e.		Helps needy people
	f.		Damaged or worn out
	g.		Convenience of disposal
	h.		Garment was not wasted
3.		Reuse	
	a.		Originally valuable or expensive
	b.		Did not fit
	c.		Out of style
	d.		Bored or tired of garment
	e.		Damaged or worn out
	f.		Convenience of disposal
	g.		Garment was not wasted
4.		Discard	
	a.		Did not fit
	b.		Out of style
	c.		Tired or bored with garment
	d.		Damaged or worn out
	e.		Convenience of disposal

The final section of the questionnaire, Section 7, requested information about respondents' demographics. Specifically, the questions asked about gender, age, ethnicity, school classification, and major/area of study. Demographic questions were placed at the end of the survey to ensure that respondents would answer the most personal questions last. Therefore, if they opted out of answering these questions, data could still be obtained from the other sections of the survey.

Population and Sample

Generation Y (Gen Y), which makes up one-third of the American population and consists of consumers who were born between the early 1980s and early 2000s (Solomon, 2010), was the ideal age group for this study for several reasons. First, this cohort of technologically savvy consumers exerts large amounts of buying power, spending

approximately $170 billion each year. Second, these avid shoppers look to the mass media to stay familiar with the latest fashion trends and use clothing to build esteem through conformity to peer reference groups (Birtwistle & Moore, 2007; de Klerk & Tselepis, 2007; Morgan & Birtwistle, 2009). Members of Gen Y desire to be like celebrities and live the aspirational lifestyles depicted on television shows such as Gossip Girl and 90210 (Birtwistle & Moore, 2007). Furthermore, these young consumers tend to be more concerned with trends and are more devoted to fashion following than any other age group (Martin & Bush, 2000; Morgan & Birtwistle, 2009).

Being the primary target market for fast fashion retailers, Gen Y shoppers are more likely to patronize fast fashion stores than shoppers from any other generation (Byun & Sternquist, 2008). Perhaps this is due to the fact that members of Gen Y prefer low-quality clothing that is affordable, but stylish and do not expect to keep apparel items for long periods of time (Bhardwaj & Fairhurst, 2010). In fact, research has stated that consumers from this cohort purchase fashion garments more often than any other demographic age group and purposely limit the number of times they wear an apparel item (Birtwistle & Moore, 2007).

Despite Gen Y's undeniable desire to be fashionable, the generation is believed to be much 'greener' than its predecessors (McKayn, 2010; McMahon, 2010). Growing up with ample exposure to environmental activism has resulted in high levels of environmental awareness among members of this generation (McKayn, 2010). As a result, Gen Y is interested in environmentally-friendly companies who take a sustainable approach to business (Harris, Stiles, & Durocher, 2011). For instance, it has been shown

that 47% of Gen Y is willing to pay a higher price for sustainable products or brands (McMahon, 2010).

Undergraduate students were an ideal population for the present study because the majority of them are members of Gen Y. Therefore, data were collected using a convenience sample of undergraduate students at Oklahoma State University-Stillwater (OSU). The sample consisted of randomly selected undergraduate students. As of the Fall 2012 semester, the undergraduate student population at OSU was approximately 23,000 and the average undergraduate student was 21-years-old (Institutional Research, 2013). The target sample size for the study was 200 or more due to the use of structural equation modeling (SEM) as a primary analysis method. A widely accepted principle states that SEM should be conducted on samples of no less than 200 (Flora & Curran, 2004; Garver & Mentzer, 1999; Hoelter, 1982; Kline, 2005).

Data Collection

Pilot Test

A pilot test of the study's questionnaire was conducted to check reliabilities for multi-item scales. During the Fall 2013 semester, 51 participants were recruited from a Design, Housing and Merchandising course. The preliminary questionnaire was administered in the classroom setting. The sample (see Table 3.8) included both males (5.5%) and females (94.1%). Participant ages ranged from 19 to 23 with a mean age of 20. Student classifications included freshman (2%), sophomore (58.8%), junior (31.4%), and senior (5.9%).The majority of the respondents had declared majors within the College of Human Sciences (84.3%). The ethnic distribution was Caucasian (74.5%), African American (9.8%), Asian (3.9%), and Other (11.8%).

Table 3.8

Pilot Test Descriptive Statistics

Item	Category	Frequency	Percent
Gender	Male	3	5.9
	Female	48	94.1
		51	100.0%
Age	19-22	47	92.2
	23-26	4	7.8
		51	100.0%
Ethnicity	Caucasian	38	74.5
	African American	5	9.8
	Asian	2	3.9
	Other	6	11.8
		51	100.0%
Major/Area of Interest	College of Arts and Sciences	1	2.0
	College of Human Sciences	43	84.3
	Spears School of Business	6	11.8
	Other	1	2.0
		51	100.0%
Classification	Freshman	1	2.0
	Sophomore	30	58.8
	Junior	16	31.4
	Senior	4	7.8
		51	100.0%

Note. n = 51.

Due to the fact that 11.8% of respondents classified their ethnicities as other, the fill-in the-blank answers for this question were reviewed. It was determined that several students identified themselves as either Native American or Multiracial. Therefore, these categories were added to the ethnicity options listed on the final questionnaire.

Upon review of the multi-item scale reliabilities (see Table 3.9), it was determined that all were acceptable ($\alpha > .70$) except the value for the apparel disposal motivation to donate scale. The scale initially produced a Cronbach's *alpha* of .675, which is less than the designated .70 cutoff (Nunnally, 1978). Based on observation of the scale item if deleted table in SPSS 21, it was determined that removal of the fourth

question, "Donating to charity is a good way of recycling old clothes," would improve
the reliability of the scale. After the item was eliminated, the apparel disposal motivation
scale for donate generated an *alpha* value of .702, which is considered acceptable.

Table 3.9

Pilot Test Reliabilities

Variable	Disposal Method	Cronbach's Alpha- Original Scale	Cronbach's Alpha-Revised Scale
Knowledge		.865	
Motivation	Resell	.847	
	Donate	.675	.702
	Reuse	.726	
	Discard	.828	
Attitude		.804	
Subjective Norm		.842	
Intention	Resell	.841	
	Donate	.910	
	Reuse	.853	
	Discard	.844	
Behavior	FF-Resell	.862	
	NF-Resell	.908	
	FF-Donate	.753	
	NF-Donate	.825	
	FF-Reuse	.909	
	NF-Reuse	.879	
	FF-Discard	.880	
	NF-Discard	.910	

Note. FF = Fast Fashion; NF = Non-Fast Fashion.

Online Survey

For the primary portion of the study, data were collected using an online survey
questionnaire that was made available between October and November 2013. The survey
was administered through Qualtrics, which is an online software used for survey design,
distribution, analysis, and reporting. Sections 1 through 5 of the questionnaire were
randomized to avoid issues with redundancy of questions within each block. All students
who were currently enrolled in undergraduate courses at Oklahoma State University-

Stillwater were eligible to participate. To obtain a list of potential respondents, a request

was submitted through Institutional Research and Information Management for the names

and email addresses of 5,000 undergraduate students.

Upon receipt of the list, the primary researcher sent participants an email

invitation to participate (Appendix A). The invitation covered the purpose of the research

and offered an inducement of entry into a drawing for one out of four $50.00 cash awards

for study participation. Award recipients were determined before the end of the semester.

A link to the online survey was included in the email for students who chose to

participate in the study. Follow-up emails were sent out to all students who had not yet

responded four weeks after the initial request for participation.

Data Screening.

Once the data were collected through the online survey, it was subjected to

various screening procedures. The initial step in the data screening process involved

using the mean substitution method to address missing values in the dataset (Kline,

2005). This conservative method, which involves substituting the overall mean of the

sample for missing data, was preferred because it does not change the sample mean for a

given variable. While it is noted that mean substitution can distort data distribution

through a reduction in variability, the method can be employed successfully in instances

when the missing values are proportionately small (Tabachnick & Fidell, 2007).

Specifically, in situations where variables contain missing data on 5% or fewer cases, the

mean substitution is considered an acceptable method for replacement. In the present

dataset, none of the variables had missing data on more than 2% of the cases, so the mean

substitution method was utilized.

After the missing data were substituted, the data were screened for outlying variables. First, univariate outliers, or scores that are extreme on a single variable (Kline, 2005), were observed using the standardized z-scores for each variable. Scores that are more than three standard deviations away from the mean of a variable ($z > 3.29$) are considered univarate outliers (Tabachnick & Fidell, 2007). Data for this study showed outliers for numerous variables. However, univariate outliers made up no more than 2.5% of the cases per variable in each instance. Cohen, Cohen, West, and Aiken (2003) state that when there are only a few outliers (around 2% or less) and they are not extreme, it is acceptable to leave them in the dataset. Still, outliers have the potential to seriously impact SEM results (Hoyle, 1995). Therefore, univariate outliers were dealt with using an approach suggested by Tabachnick and Fidell (2007) that involved assigning each "outlying case a raw score on the offending variable that is one unit larger (or smaller) than the next most extreme score in the distribution" (p. 77).

Next, cases that have extreme values on two or more variables, known as multivariate outliers, were detected using Mahalanobis distance (Tabachnick & Fidell, 2007). After Mahalanobis distance was calculated, it was compared to the critical chi-square value at the $p < .001$ level for all variables to be included in the analyses. If Mahalanobis distance is greater than the critical chi-square, the variable is considered a multivariate outlier. Through an iterative process, it was determined that several (i.e. 45) multivariate outliers existed in the dataset for this study. These cases were reviewed and it was determined that they were legitimate, and not due to some form of error. Judd and McClelland (1989) recommend removal of both erroneous and valid multivariate outliers in order to achieve most accurate estimate of population parameters statistically possible.

Because multivariate outliers are extreme values that have potential significant effects on SEM analysis (Hoyle, 1995), these cases were excluded from impending analyses.

Data Analysis

The data analyses used for this research included descriptive statistics, SEM, paired *t*-test, and cross-tabulation with chi-square statistic. SPSS 21 was employed for the descriptive statistics, reliability estimations, paired *t*-tests, and cross-tabulation with chi-square. AMOS 21 was utilized to assess the hypothesized conceptual model through SEM. Further details on each analysis are discussed in the following sections.

Descriptive Statistics

Sample demographics and characteristics were presented using descriptive statistics including frequencies and percentages.

Structural Equation Modeling

SEM is a multivariate statistical technique that takes a confirmatory approach to analyzing the structural theory behind a given phenomenon (Byrne, 2010). SEM represents causal processes through a series of structural equations and pictorials. SEM has been described as a combination of factor analysis, path analysis, and multiple regression (Salkind, 2010), but is preferred over each independently for a few reasons. First, while other multivariate procedures tend to take an exploratory approach to data analysis, SEM takes a confirmatory approach (Byrne, 2010). Second, SEM can "estimate a series of separate, but interdependent, multiple regression equations simultaneously" (Hair, Black, Babin, Anderson, & Tatham, 2006, p. 711). Third, like other multivariate techniques, SEM allows researchers to evaluate observed measurements (Byrne, 2010; Hair et al., 2006). However, SEM differs from the other techniques in that it allows the

measurement of latent (i.e. unobserved) variables as well. Finally, point and interval

indirect effects can be estimated using SEM (Byrne, 2010).

In the present study, Anderson and Gerbing's (1988) two-stage approach to SEM

was utilized. First, the validity of the measurement model scales was tested using

confirmatory factor analysis (CFA). Second, the structural models were analyzed through

SEM to establish validity and test hypotheses. Hypothesized SEM models are tested

statistically to determine whether or not there is an adequate goodness-of-fit. If the model

is consistent with the data, the relationships outlined between the variables are deemed

plausible. If the model is not consistent with the data, or has inadequate goodness-of-fit,

it is rejected. Four sets of models were constructed to investigate the hypotheses related

to each apparel disposal method (i.e. resell, donate, reuse, and discard). The AMOS 21

maximum likelihood procedure was used to obtain the estimates (Bollen, 1989).

Assumptions Testing.

The underlying SEM assumptions of normality, reliability, and multicollinearity

were explored prior to the analyses. The assumption of normality assumes that the

population of interest is normally distributed along a given variable or variables (Sirkin,

2006). In this research, the normality assumption was assessed through evaluation of data

skewness and kurtosis (Kline, 2005; Tabachnick and Fidell, 2007). The threshold was set

based on Kline's (2005) recommendation that absolute values of skewness and kurtosis

not exceed 3 and 10, respectively.

After normality was established, the reliability of each multi-item scale was

investigated. Reliability focuses on the likelihood that a scale is actually measuring what

it intends to measure (Sirkin, 2006). Scales that are reliable are minimally impacted by

measurement error. Cronbach's *alpha* value was employed in this research to assess scale reliability with the threshold set at the recommended level of .70 or greater (Nunnally, 1978).

Lastly, multicollinearity, which is the degree of overlap among predictor variables (Urdan, 2010), was assessed using a collinearity diagnostic test (Meyers, Gamst, & Guarino, 2006). High multicollinearity was particularly of concern because it makes the detection of unique relationships among independent and dependent variables problematic (Urdan, 2010). The collinearity diagnostic test checked for high multicollinearity between all variables to be included in SEM analyses. Value Inflation Index (VIF) and tolerance values were used to analyze the test results. According to Hair et al. (2006), Value Inflation Index (VIF) values greater than 10 or tolerance values less than .10 indicate a collinearity issue.

Measurement Model.

The quality of each measurement was evaluated using CFA (Anderson & Gerbing, 1988). The fit of the measurement models was assessed using several goodness-of-fit indices (Hoe, 2008). The most commonly used method for evaluating goodness of fit, the chi-square statistic, was employed. However, the statistic is extremely sensitive to sample size, especially in instances where the sample exceeds 200 (Hoe, 2008; Lei & Wu, 2007). Because the sample in this study was greater than 200, the recommendation that researchers examine the ratio of chi-square to degrees of freedom was followed (Joreskog & Sorbom, 1993). For this ratio, a value that is less than three is considered acceptable (Hair et al., 2006; Hoe, 2008).

The comparative fit index (CFI), the Tucker-Lewis index (TLI; i.e. the nonnormed fit index), and the root mean square error of approximation (RMSEA), which are other generally recommended fit indices (Garver & Mentzer, 1999), were also used to determine model fit. The CFI and TLI have values that run on a continuum from zero to 1.00 and values of .90 or greater are considered acceptable (Hair et al., 2006; Hoe, 2008). RMSEA values range from zero to 1.00, with below .08 indicating an acceptable fit.

In instances where model fit was not considered acceptable, factor loadings, correlation coefficients, and modification indices were examined to assist in respecifying the model. Per the recommendation of Hair et al. (2006), factor loadings below the .05 threshold were deleted. Correlation coefficients above .70 were reviewed to determine whether or not it was theoretically appropriate to transform them into second-order factors (Garver & Mentzer, 1999). Modification indices were examined to determine if the model fit could be improved by freeing up parameters associated with high values (Ho, 2013). Modification indices with high values, or those exceeding 7.88, indicated options to improve model fit through covariance of error terms (Garver & Mentzer, 1999). However, covariance between error terms was only permitted in the instance that the relationship between indicators was theoretically justifiable (Ho, 2013). After adjustments were made to the apparel disposal models, the measurement models were retested to ensure all fit levels were acceptable.

When fit was achieved for each model, the composite reliability was assessed with a threshold of .70 or greater indicating good reliability (Hair, Black, Babin, & Anderson, 2010) and a value of .60 indicating acceptable reliability (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Then, convergent validity was investigated using two

recommendations by Hair et al. (2010). The authors suggest that critical reliability be greater than the average variance extracted, which is the shared variance among indicators of a construct. Additionally, Hair et al. recommend that the average variance extracted be greater than .50. In instances where both criteria were not met, follow-up exploratory factor analyses (EFA) were utilized to investigate the latent structures of highly correlated factors (Schmitt, 2011).

The principal component analysis (PCA) extraction method with promax rotation was used for EFA. PCA is a method that is commonly used to transform a large number of variables into a limited number of components (Tabachnick & Fidell, 2007). Regarding rotation, Russell (2002) states that oblique options, which are those that allow factors to correlate, are preferred over orthogonal methods, which are those that maintain variable independence. This is due to the fact that some correlation among variables is quite likely, so oblique rotation is more realistic (Ho, 2013; Russell, 2002). Promax rotation, the most popular oblique option (Fernandez, 2002), was utilized for analyses in conjunction with the PCA technique.

The number of factors extracted was set at two because the analyses were based on bivariate correlation values. Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin measures of sampling adequacy (KMO-MSA) were observed for each analysis to ensure the data were suitable for EFA. KMO-MSA indices that surpassed .50 (Hair et al., 2006) and Bartlett's Test of Sphericity scores statistically significant at the $p < .05$ level were considered satisfactory (Tabachnick & Fidell, 2007). Indicators with high cross-loadings ($> .32$) across multiple factors were identified (Tabachnick & Fidell, 2007). Misspecified indicators, or those with high loadings ($> .32$) on the wrong factor, were also detected.

Cross-loading and misspecified indictors were systematically eliminated one at a time until distinct factors were attained (Hair et al., 2006). Only indictors that made up the distinct factors were included in further CFA analyses. Convergent validity and composite reliability was reassessed on all adjusted models prior to moving forward.

Once composite reliability and convergent validity were achieved across all models, discriminant validity was investigated. Hair et al. (2010) suggest that average variance extracted exceed the shared variance between constructs (i.e. correlations). However, Kline (2005) states that when correlations between factors are below .85, discriminant validity is established. Both of these guidelines were utilized in determining discriminant validity. After reliability and validity were successfully established in all four models, fit was reevaluated to ensure that all values were satisfactory.

Structural Model.

Based on the CFA results, four structural models were built. Model fit was assessed using the chi-square ratio, CFI, TLI, and RMSEA. The thresholds outlined in the previous section on measurement model fit were applied. No further modifications were deemed necessary on any of the models. Once model fit was established, regression values were used to evaluate the first six hypotheses, H1 through H6 (Byrne, 2010). A *p-value* of less than .05 was employed as the criterion statistic.

Paired *t*-Tests

Paired *t*-tests were used to evaluate H7 and H8. Statistical testing involved exploring natural pairings between indicators to directly measure differences (Elliot & Woodward, 2007; Harmon, 2011). The paired *t*-test is similar to the independent *t*-test in that it compares mean values (Bui, 2013). Unlike the independent *t*-test, the paired *t*-test

does not require a control group and scores are systematically related. While the paired *t*-test is often used for pre- and post-observations, it is also useful in testing for differences between two separate responses given by the same subjects (Verma, 2012).

Prior to statistical analysis in this research, paired t-test assumptions were considered. Lack of outliers and normality are primary assumptions of the paired *t*-test (Kinnear & Gray, 1999). Outliers in this dataset were identified and adjusted or eliminated through the previously outlined data screening procedures. The normality assumption was investigated using skewness and kurtosis values (see previous Assumptions Tests section). Then, the *t*-tests were performed with the critical probability set at .05.

Cross-tabulation and Chi-square Tests

Finally, H9 was analyzed using the most commonly employed nonparametric test, the chi-square test of statistical significance (Rubin, 2012). According to Rubin (2012), "The chi-square test of statistical significance assesses the probability that sampling error explains the relationships we observe between nominal-level variables displayed in cross-tabulation tables." The chi-square statistic is particularly useful in conjunction with cross-tabulation because it helps determine whether relationships between categorical indicators are small enough to attribute to chance or large enough to imply existence throughout the population (Meier, Brudney, & Bohte, 2014).

There are certain underlying assumptions regarding the chi-square test of statistical significance (Michael, 2001). First, observations must be independent of one another. Second, the row and column variable categories should be mutually exclusive. In other words, there should be no overlap between the categories. Third, fairly large

frequencies should be expected. Michael specifically suggests that no expected frequency be less than 1. The author also adds that frequencies of less than 5 should represent no more than 20% of the values obtained.

All assumptions were met in this research, so the analyses were executed. The cross-tabulation tables included frequencies on fast fashion and non-fashion in relation to various reasons for apparel disposal. Each apparel disposal method (i.e. resell, donate, reuse, and discard) was assessed separately. In order to determine whether the variables in this study were statistically independent or associated, the chi-square statistic was employed with an alpha level set at .05.

CHAPTER IV

FINDINGS

This chapter presents the results of the main apparel disposal study. The chapter begins with sample descriptives and assumptions tests. Then, findings from SEM procedures involving CFA and EFA are provided. Next, paired *t*-test calculations are revealed. The chapter closes with cross-tabulation and chi-square statistic outcomes.

Sample Descriptives

An invitation to participate in the study was sent out to 5,000 students. A total of 451 students elected to partake in the study, but only complete questionnaires were utilized for the data analysis. Incompletion led to the deletion of 38 surveys, including those from respondents who were discharged from survey based on the pre-screening question. The study focused on members of Gen Y, so 10 participants born prior to 1980 were also removed from the sample. As the remaining 403 surveys were vetted using the data screening procedures outlined in Chapter 3, 45 surveys proved to be multivariate outliers. These cases were deleted as well, leaving a final sample of 358 usable surveys.

Demographics and other sample characteristics are summarized in Table 4.1. Females accounted for 72.3% of the sample and males made up 27.7%. The average age was 22, with participant ages ranging from 19 to 34. The sample was mostly Caucasian

(81.3%), but other ethnicities were represented as well (5% Native American, 4.5% African American, 3.4% Asian, 2.5% Multiracial, 2% Hispanic, 1.4% Other). Students from every college/school on campus participated, but the majority were from the College of Arts and Sciences (30.2%). All undergraduate classifications were represented in the sample including freshman (26.8%), sophomore (22.1%), junior (20.7%), and senior (30.4%).

Table 4.1

Apparel Disposal Descriptive Statistics

Variable	Items	Frequency	Percentage
Gender	Male	99	27.7
	Female	259	72.3
		358	100.0%
Age	18-19	53	14.8
	20-24	278	77.7
	25-29	17	4.8
	30-34	10	2.8
		358	100.0%
Ethnicity	Caucasian	291	81.3
	African American	16	4.5
	Hispanic	7	2.0
	Asian	12	3.4
	Native American	18	5.0
	Multiracial	9	2.5
	Other	5	1.4
		358	100.0%
College/Area of Study	Agricultural Sciences/ Natural Resources	54	15.1
	Arts and Sciences	108	30.2
	Education	27	7.5
	Engineering, Architecture, and Technology	49	13.7
	Human Sciences	51	14.2
	Business	66	18.4
	Other	3	.8
		358	100.0%

Classification	Freshman		96	26.8
	Sophomore		79	22.1
	Junior		74	20.7
	Senior		109	30.4
			358	100.0%

Structural Equation Models

Assumptions Tests

Prior to conducting the CFA and SEM analyses, the data were investigated to ensure that normality, reliability, and multicollinearity assumptions were satisfied. The assumption of normality was assessed through an examination of data skewness and kurtosis (Appendix E). Symmetrical data distribution was indicated by skewness with absolute values less than 3 and kurtosis with absolute values less than 10 (Kline, 2005). The skewness values ranged from -1.41 to 1.78 and the kurtosis values ranged from -1.38 to 3.00. All values fell below the designated thresholds, so normality was established.

Scale reliability was determined through a review of Cronbach's *alpha* with the recommended minimum of .70 (Nunnally, 1978). With alpha values between .73 and .95, all scales except the non-fast fashion donate behavior scale (α= .68) exceeded the cutoff and were deemed reliable (see Table 4.2). The non-fast fashion donate behavior scale was not altered because it only consisted of two items. The poor reliability of this scale was addressed and resolved during the CFA.

Multicollinearity was assessed using the VIF and tolerance values of scale items. All VIF values were below 10 and all tolerance values exceeded .10 (Hair et al., 2006). This indicated that there were no issues with collinearity.

Table 4.2

Apparel Disposal Scale Reliabilities

Scale	Items	Cronbach's alpha	Mean	SD
Environmental Apparel Knowledge	5	.95	5.00	1.18
Apparel Disposal Motivation to Resell	6	.87	3.75	1.40
Apparel Disposal Motivation to Donate	3	.73	5.03	1.18
Apparel Disposal Motivation to Reuse	4	.76	4.22	1.34
Apparel Disposal Motivation to Discard	6	.83	2.71	1.17
Apparel Disposal Attitude	5	.74	5.78	.82
Apparel Disposal Subjective Norm	6	.79	4.72	1.02
Apparel Disposal Intention to Resell	3	.85	4.47	1.51
Apparel Disposal Intention to Donate	3	.89	5.86	1.02
Apparel Disposal Intention to Reuse	3	.88	4.94	1.37
Apparel Disposal Intention to Discard	3	.83	2.81	1.38
Fast Fashion Resell Behavior	2	.82	1.78	.99
Non-Fast Fashion Resell Behavior	2	.84	1.68	.90
Fast Fashion Donate Behavior	2	.74	2.70	1.24
Non-Fast Fashion Donate Behavior	2	.68	2.53	1.05
Fast Fashion Reuse Behavior	2	.81	2.85	1.67
Non-Fast Fashion Reuse Behavior	2	.86	2.69	1.59
Fast Fashion Discard Behavior	2	.78	1.57	.81
Non-Fast Fashion Discard Behavior	2	.88	1.60	.82

Measurement Models

Four CFA's were conducted to assess the measurement model for each disposal method (i.e. resell, donate, reuse, and discard). Each model originally consisted of seven latent variables, which included the five proposed apparel disposal behavior antecedents (i.e. knowledge, motivation, attitude, subjective norm, and intention) and two apparel categories (i.e. fast-fashion and non-fast fashion). The donate and reuse models were each made up of 27 indicators, while the resell and discard models each contained 29 indicators. Based on the previously outlined fit criteria, the initial fit indices values indicated that three out of the four models had poor fit (see Table 4.3). Reuse, the only

model to achieve acceptable fit, had values that were considered borderline. For that

reason, all four models were respecified using factor loadings, correlation coefficients,

and modification indices.

Table 4.3

Initial Fit for Apparel Disposal Models

Model	χ^2	*Df*	χ^2/df	TLI	CFI	RMSEA
Resell	933.729	356	2.623	.895*	.908	.067
Donate	776.853	278	2.794	.891*	.907	.071
Reuse	765.101	303	2.525	.904	.917	.065
Discard	1133.842	357	3.176*	.856*	.873*	.078

Note. * indicates values that are above or below the acceptable fit level.

Initially, indicators in all four models were inspected for factor loadings of less

than .50 (Hair et al., 2006). There were four problematic indicators (i.e. apparel disposal

attitude question 2, apparel disposal attitude question 4, apparel disposal subjective norm

question 4, and apparel disposal subjective norm question 6) that yielded low factor

loadings in two or more of the models (see Table 4.4). These indicators were removed

from all four models to ensure consistency during analyses. Updated reliabilities for the

apparel disposal attitude and apparel disposal subjective norm scales are listed in Table

4.6.

Table 4.4

Problematic Factor Loadings in Apparel Disposal Measurement Models

Model	ADA2	ADA4	ADSN4	ADSN6
Resell	.492*	.461*	.219*	.392*
Donate	.519	.481*	.209*	.385*
Reuse	.498*	.463*	.214*	.389*
Discard	.521	.528	.213*	.387*

Note. * indicates values that are below the .50 level. ADA = Apparel Disposal Attitude; ADSN = Apparel Disposal Subjective Norm

Next, the correlation coefficients were reviewed to determine if second-order

factors were appropriate (see Table 4.5). In three out of four models, the correlation

coefficient between fast fashion disposal behavior and non-fast fashion disposal behavior

was above .70. It was theoretically appropriate to combine these two variables into a

second-order factor labeled apparel disposal behavior (Garver & Mentzer, 1999). The

correlation coefficient between apparel disposal motivation and apparel disposal intention

was also above .70 in all four models, but was not converted into a second order factor

because the latent variables measured two distinct behavior antecedents. Reliabilities for

the composite apparel disposal scales all exceeded the .70 minimum (see Table 4.6),

which remedied the previous issue with the non-fast fashion donate behavior scale.

Table 4.5

Correlation Coefficients for Apparel Disposal Models

Resell							
	EAK	ADM	ADA	ADSN	ADI	FF	NF
EAK	1.00						
ADM	.01	1.00					
ADA	.35	-.04	1.00				
ADSN	.28	.12	.64	1.00			
ADI	.09	.84*	.10	.22	1.00		
FF	-.08	.67	-.18	-.02	.55	1.00	
NF	-.11	.58	-.15	-.04	.49	.89*	1.00
Donate							
	EAK	ADM	ADA	ADSN	ADI	FF	NF
EAK	1.00						
ADM	.28	1.00					
ADA	.36	.51	1.00				
ADSN	.28	.52	.67	1.00			
ADI	.32	.82*	.67	.60	1.00		
FF	.12	.32	.10	.27	.26	1.00	
NF	.05	.31	.13	.21	.30	.57	1.00

Reuse							
	EAK	ADM	ADA	ADSN	ADI	FF	NF
EAK	1.00						
ADM	.11	1.00					
ADA	.35	.24	1.00				
ADSN	.28	.20	.64	1.00			
ADI	.20	.92*	.28	.21	1.00		
FF	.02	.38	.06	.06	.25	1.00	
NF	.05	.37	.04	.08	.32	.77*	1.00
Discard							
	EAK	ADM	ADA	ADSN	ADI	FF	NF
EAK	1.00						
ADM	-.21	1.00					
ADA	.37	-.47	1.00				
ADSN	.28	-.29	.67	1.00			
ADI	-.21	.76*	-.49	-.32	1.00		
FF	-.11	.32	-.33	-.16	.52	1.00	
NF	-.11	.34	-.33	-.17	.49	.78*	1.00

Note. * indicates bivariate correlations greater than .70. EAK = Environmental Apparel Knowledge; ADM = Apparel Disposal Motivation; ADA = Apparel Disposal Attitude; ADSN = Apparel Disposal Subjective Norm; ADI = Apparel Disposal Intention; FF = Fast Fashion Disposal Behavior; NF = Non-Fast Fashion Disposal Behavior

Table 4.6

Updated Reliabilities for Modified Apparel Disposal Scales

Scale	Number of Items	Cronbach's *alpha*	Mean	SD
Apparel Disposal Attitude	3	.77	6.00	.84
Apparel Disposal Subjective Norm	4	.85	5.15	1.12
Apparel Disposal Behavior-Resell	4	.89	1.73	.88
Apparel Disposal Behavior-Donate	4	.77	2.61	1.00
Apparel Disposal Behavior-Reuse	4	.87	2.77	1.49
Apparel Disposal Behavior-Discard	4	.87	1.58	.74

After the models were adjusted based on factor loadings and correlation

coefficients, the modification indices were inspected for values greater than 7.88 (Garver

& Mentzer, 1999). Starting with the highest indices value, error terms deemed

theoretically justifiable were systematically covaried. Overall, three to four sets of error

terms were covaried in each apparel disposal model (see Table 4.7).

Table 4.7

Modification Indices for Apparel Disposal Models

Model	Covariances	Modification Index	Par Change
Resell	ADMRS4 <---> ADMRS5	88.48	.92
	EAK1 <---> EAK2	29.17	.11
	EAK1 <---> EAK5	18.28	.10
	FFRS2 <---> NFRS2	17.37	.10
Donate	EAK1 <---> EAK2	29.43	.11
	EAK1 <---> EAK5	18.25	.10
	FFDO2 <---> NFDO2	8.75	.17
Reuse	FFRU1 <---> NFRU1	42.44	.42
	EAK1 <---> EAK2	29.86	.11
	EAK1 <---> EAK5	18.45	.10
Discard	ADMDS5 <---> ADMDS6	86.58	.83
	EAK1 <---> EAK2	29.06	.10
	FFDS1 <---> NFDS1	24.13	.07
	EAK1 <---> EAK5	18.55	.10

The adjustments collectively resulted in good fit for all four models (see Table 4.8). Once fit was achieved, composite reliability, convergent validity, and discriminant validity were explored (see Table 4.9). In all four models, the composite reliability for every factor was above .70 (Hair et al., 2010). Accordingly, all composite reliabilities were considered good.

Table 4.8

Updated Fit for Apparel Disposal Measurement Models

Model	χ^2	*Df*	χ^2/df	TLI	CFI	RMSEA
Resell*	409.213	254	1.611	.969	.974	.041
Donate*	350.186	189	1.853	.960	.967	.049
Reuse*	339.492	209	1.624	.969	.975	.042
Discard*	423.812	254	1.669	.963	.969	.043

Note. * denotes models that were altered based on factor loadings, correlation coefficients, and/or modification indices.

Table 4.9

Reliability and Variance Statistics for Apparel Disposal Models

Resell			
	CR	AVE	MSV
EAK	.94	.77	.14
ADM	.86	.51	.71
ADA	.80	.58	.41
ADSN	.85	.59	.41
ADI	.85	.65	.71
ADB	.92	.85	.49
Donate			
	CR	AVE	MSV
EAK	.94	.77	.13
ADM	.75	.51	.67
ADA	.80	.58	.42
ADSN	.85	.59	.42
ADI	.90	.74	.67
ADB	.72	.57	.15
Reuse			
	CR	AVE	MSV
EAK	.94	.77	.14
ADM	.75	.44	.86
ADA	.80	.58	.41
ADSN	.85	.59	.41
ADI	.88	.72	.86
ADB	.83	.72	.17
Discard			
	CR	AVE	MSV
EAK	.94	.77	.13
ADM	.83	.45	.60
ADA	.80	.58	.42
ADSN	.85	.59	.42
ADI	.85	.65	.60
ADB	.85	.73	.33

Note. CR = Composite Reliability; AVE = Average Variance Extracted; MSV = Maximum Shared Variance; EAK = Environmental Apparel Knowledge; ADM = Apparel Disposal Motivation; ADA = Apparel Disposal Attitude; ADSN = Apparel Disposal Subjective Norm; ADIDS = Apparel Disposal Intention; ADB = Apparel Disposal Behavior.

The exploration of convergent validity was two-fold (Hair et al., 2010). First, composite reliability was found to be greater than average variance extracted for every factor in all four models. Second, the average variance extracted exceeded .50 for all factors in the resell and donate models. Therefore, convergent validity was satisfactory for these two models. However, the average variance extracted for apparel disposal motivation was below .50 in the reuse and discard models. This meant that on average, the error remaining in the scale items exceeded the variance explained by the latent motivation factors. Motivation was highly correlated with intention in both models (>.70), so a follow-up EFA was employed to verify latent factor structures and check for cross-loading (Schmitt, 2011).

Using PCA extraction with promax rotation, analyses were conducted on the motivation and intention indicators from the reuse and discard models. Three separate analyses were run on each set of indicators. Prior to each test, the data were found to be suitable for analysis based on the KMO-MSA index scores (>.50) and the statistically significant values for Bartlett's Test of Sphericity (see Table 4.10). Table 4.11 displays the outcome of each analysis. Apparel disposal motivation question 1 and apparel disposal motivation question 2 were deleted from the reuse indicators due to high loading on the wrong factor, also known as misclassification. With regard to discard, apparel disposal motivation question 3 was eliminated for high cross-loading (>.32) on both factors (Tabachnick & Fidell, 2007). Apparel disposal motivation question 5 was also removed from the discard indicators due to misclassification.

Table 4.10

KMO-MSA and Bartlett's Test of Sphericity

Model		1st analysis	2nd analysis	3rd analysis
Reuse				
	Kaiser-Meyer-Olkin measures of sampling adequacy	.90	.88	.83
	Bartlett's Test of Sphericity			
	Approx. χ^2	1279.04	1114.08	855.24
	Df	21	15	10
	Sig.	.00	.00	.00
Discard				
	Kaiser-Meyer-Olkin measures of sampling adequacy	.88	.86	.83
	Bartlett's Test of Sphericity			
	Approx. χ^2	1579.99	1413.65	1185.41
	Df	36	28	21
	Sig.	.00	.00	.00

Table 4.11

Factor Analyses of Motivation and Intention Indicators for Reuse and Discard Models

Model	Indicator/Question	1st analysis		2nd analysis		3rd analysis	
		Factor 1	Factor 2	Factor 1	Factor 2	Factor 1	Factor 2
Reuse	*Motivation 1*. I often reuse garments for other purposes to get the most out of them.	.748		.726			
	Motivation 2. I always use worn out garments for rags to save money.	.827					
	Motivation 3. I reuse clothing because it can significantly benefit the environment.		.893		.915		.920
	Motivation 4. I try to use my old garments for crafts or sewing purposes because throwing away can significantly contribute to		.861		.815		.812
	Intention 1. I have considered reusing my used clothing for other purposes.	.851		.924		.936	
	Intention 2. I intend to reuse my used clothing for other purposes.	.843		.869		.849	
	Intention 3. I want to reuse my used clothing for other purposes.	.817		.897		.895	
Discard	*Motivation 1*. I don't reuse/recycle clothing because it is time-consuming.		.656		.645	.636	
	Motivation 2. Recycling clothing is a hassle for me.		.662		.642	.624	
	Motivation 3. It is time-consuming to donate my clothes to charity.	.364	.386				
	Motivation 4. I find it convenient to throw away unwanted garments.	.810		.808			
	Motivation 5. I never reuse/recycle clothing because I don't know how to go about doing it.		.903		.909	.917	
	Motivation 6. I'm not aware of how clothing can be recycled.		.922		.926	.927	
	Intention 1. I have considered throwing my used clothing in the trash.	.940		.935			.936
	Intention 2. I intend to throw my used clothing in the trash.	.788		.791			.823
	Intention 3. I want to throw my used clothing in the trash.	.808		.807			.838

Note. Shaded spaces denote indicators that were excluded from the analysis.

The measurement models were refined to reflect the distinct motivation and intention factors revealed in the EFA analyses. As a result, all remaining indicators contributed to latent motivation and intention factors that met the two-fold validity criteria (see Table 4.12). Thus, convergent validity was established in the updated reuse and discard models. Model fit remained good for both updated models (see Table 4.13). Additionally, the discard model had good composite reliability (>.70; Hair et al., 2010) and the reuse model had acceptable composite reliability (>.60; Bagozzi & Yi, 1988; Fornell & Larcker, 1981).

Table 4.12

Updated Reliability and Variance Statistics for Apparel Disposal Models

Resell			
	CR	AVE	MSV
EAK	.94	.77	.14
ADM	.86	.51	.71
ADA	.80	.58	.41
ADSN	.85	.59	.41
ADI	.85	.65	.71
ADB	.92	.85	.49
Donate			
	CR	AVE	MSV
EAK	.94	.77	.13
ADM	.75	.51	.67
ADA	.80	.58	.42
ADSN	.85	.59	.42
ADI	.90	.74	.67
ADB	.72	.57	.15

	Reuse		
	CR	AVE	MSV
EAK	.94	.77	.14
ADM	.69	.53	.56
ADA	.80	.58	.41
ADSN	.85	.59	.41
ADI	.88	.72	.56
ADB	.85	.74	.09
	Discard		
	CR	AVE	MSV
EAK	.94	.77	.13
ADM	.80	.50	.48
ADA	.80	.57	.42
ADSN	.85	.59	.42
ADI	.85	.65	.48
ADB	.84	.73	.32

Note. CR = Composite Reliability; AVE = Average Variance Extracted; MSV = Maximum Shared Variance; EAK = Environmental Apparel Knowledge; ADM = Apparel Disposal Motivation; ADA = Apparel Disposal Attitude; ADSN = Apparel Disposal Subjective Norm; ADIDS = Apparel Disposal Intention; ADB = Apparel Disposal Behavior.

Table 4.13

Final Fit for Apparel Disposal Measurement Models

Model	χ^2	*Df*	χ^2/df	TLI	CFI	RMSEA
Resell	409.213	254	1.611	.969	.974	.041
Donate	350.186	189	1.853	.960	.967	.049
Reuse*	256.950	169	1.520	.977	.981	.038
Discard*	274.822	209	1.315	.984	.987	.030

Note. * denotes models that were adjusted based on EFA.

Finally, discriminant validity was assessed in all four models (see Table 4.12). The stringent guideline that states the average variance extracted should exceed the shared variance between constructs was only fully met in the discard model (Hair et al., 2010). Still, all bivariate correlations between factors in the resell, donate, and reuse models were less than .85 (Kline, 2005), so discriminate validity was established in these models as well. Figures 4.1 through 4.4 display the final resell, donate, reuse, and discard CFA's with factor loadings and correlation coefficients.
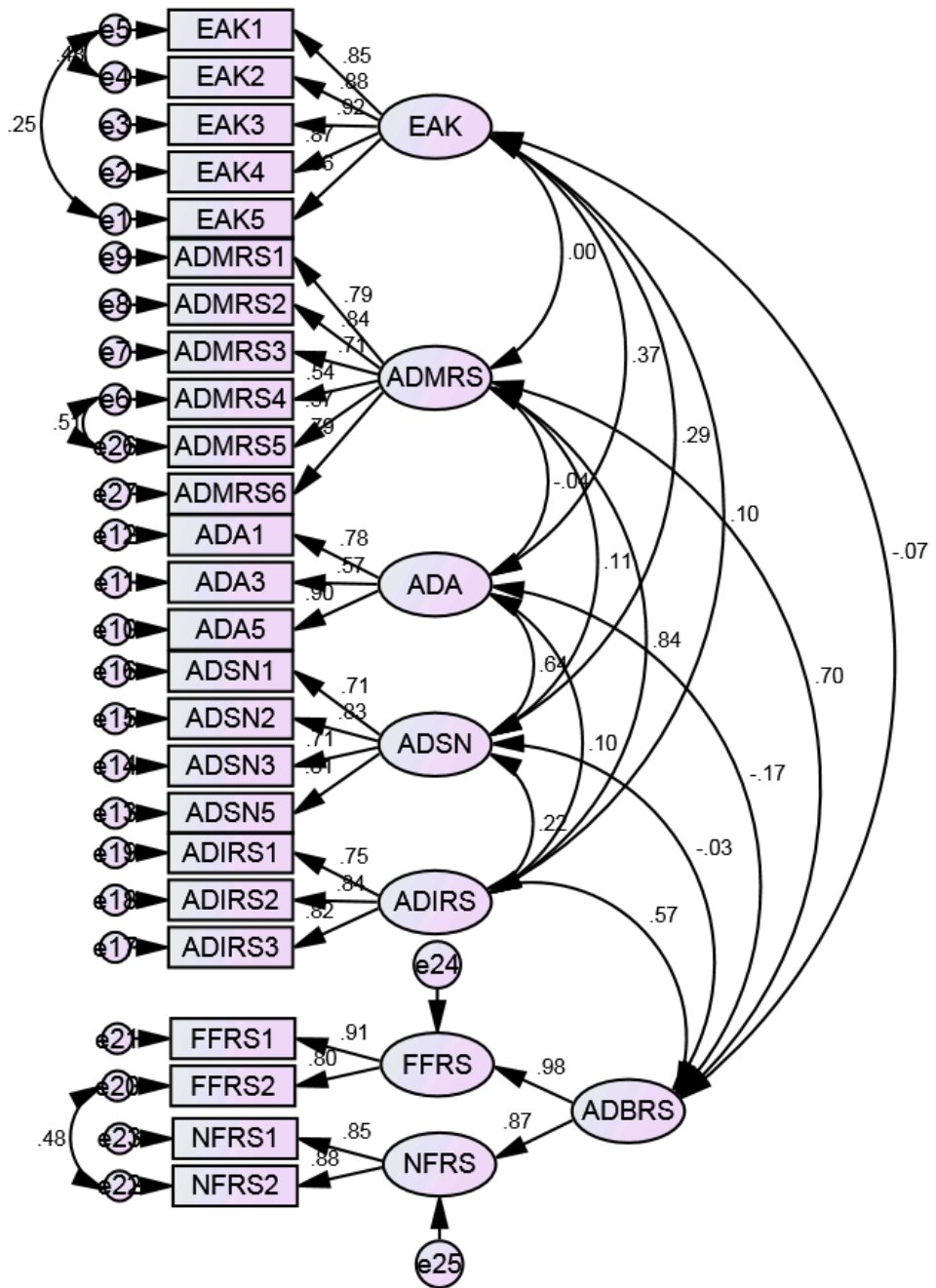
Figure 4.1. Confirmatory Factor Analysis for Resell Apparel Disposal Behavior
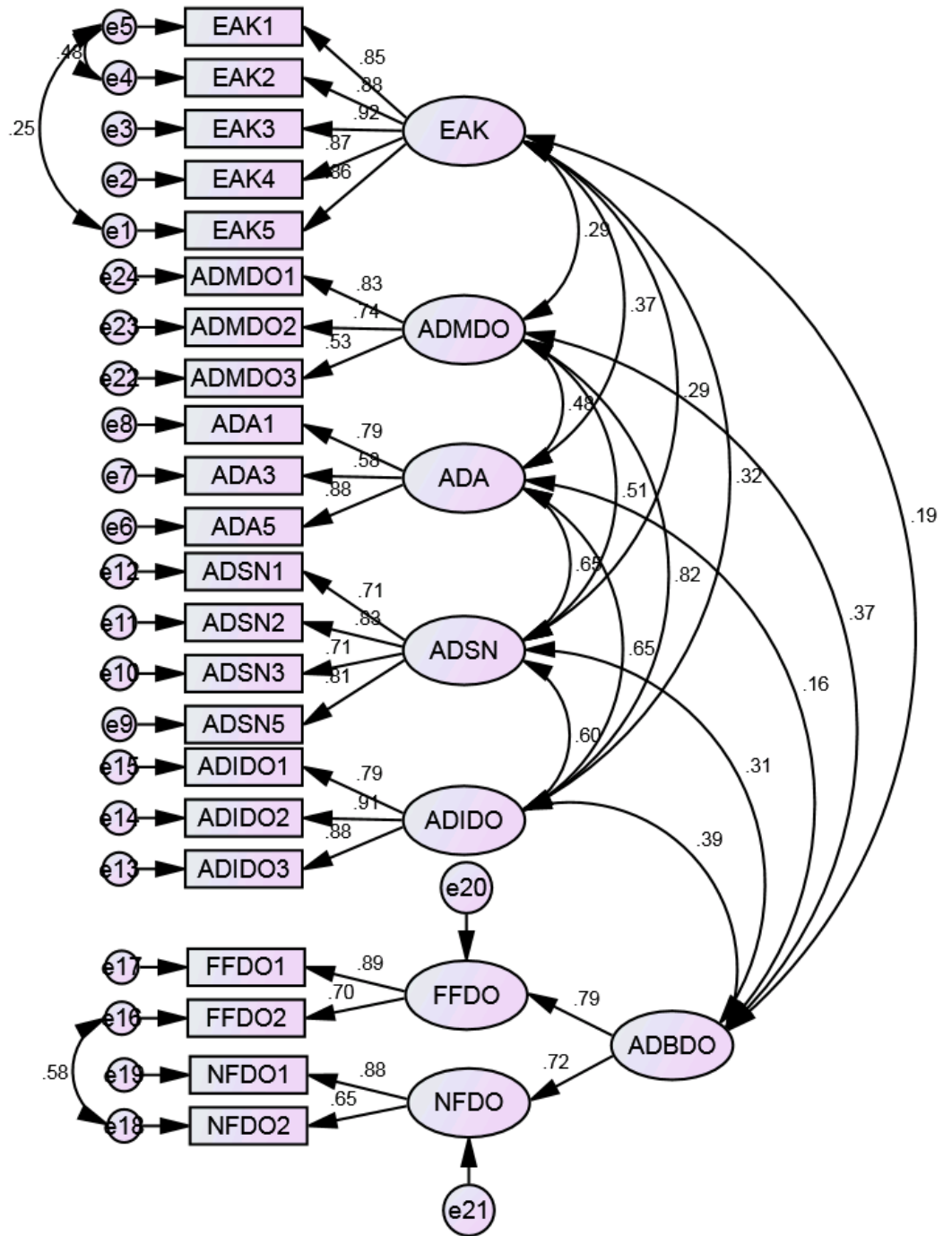
Figure 4.2. Confirmatory Factor Analysis for Donate Apparel Disposal Behavior
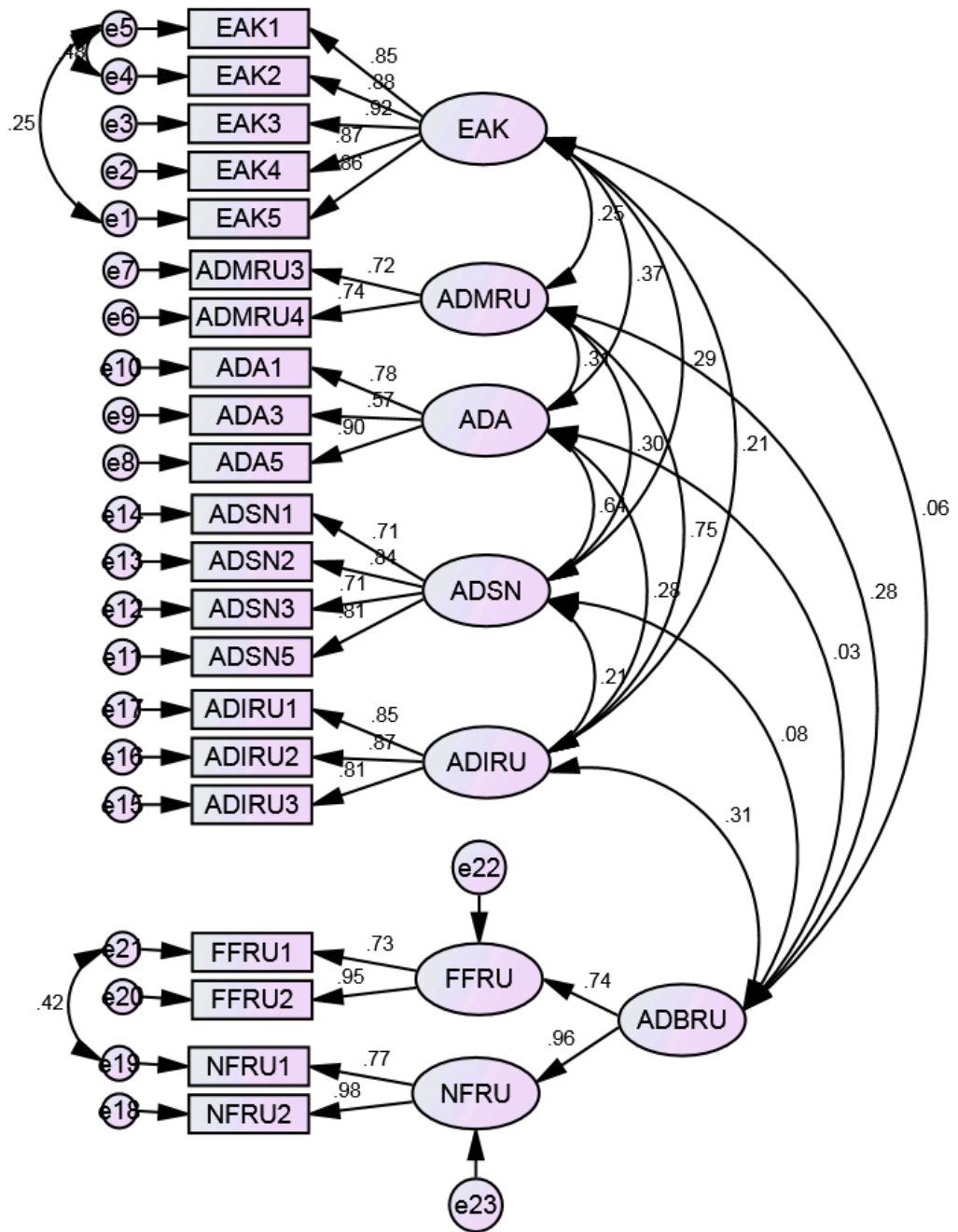
Figure 4.3. Confirmatory Factor Analysis for Reuse Apparel Disposal Behavior
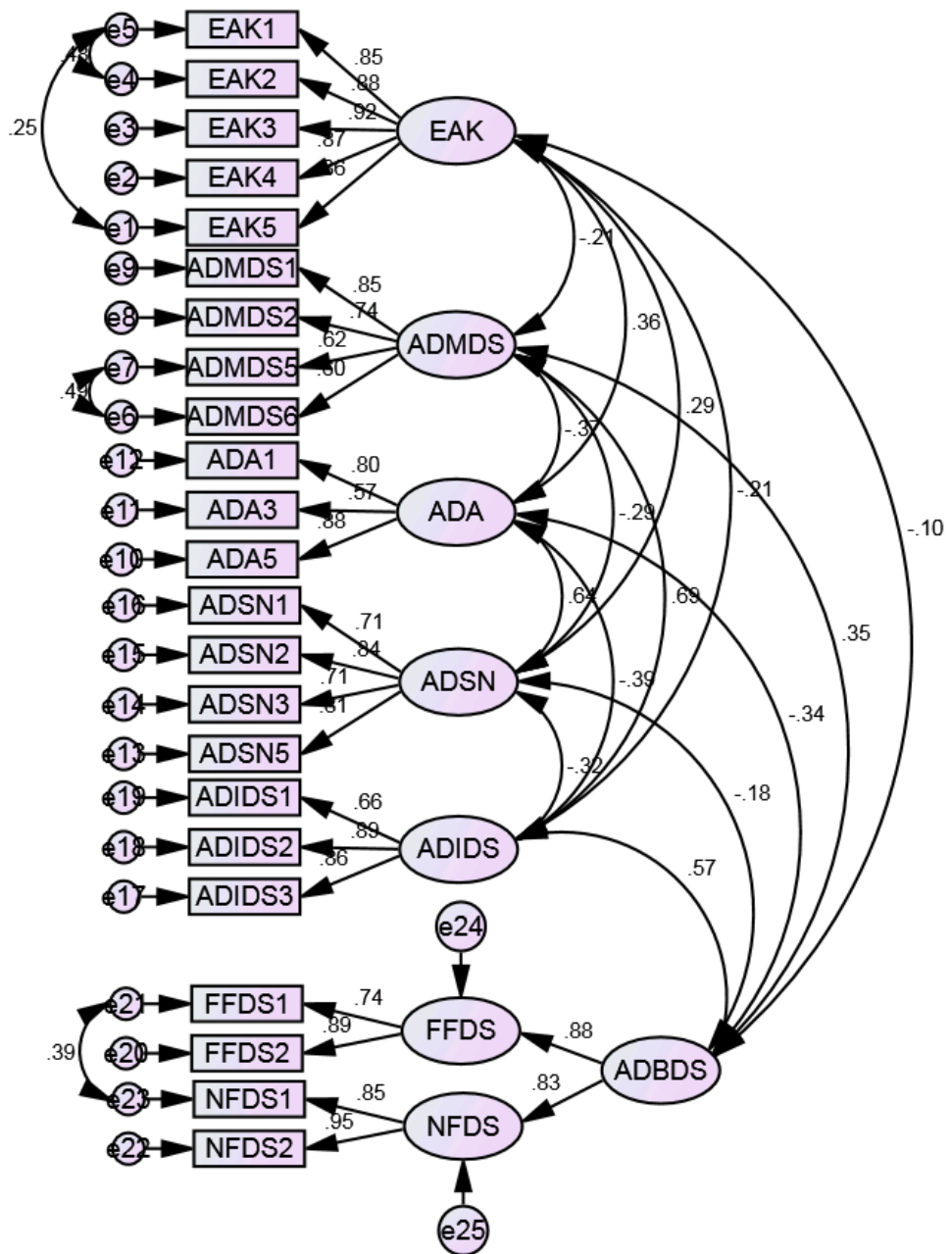
Figure 4.4. Confirmatory Factor Analysis for Discard Apparel Disposal Behavior

Structural Models

The four structural models in Figures 4.5 through 4.8 were built based on the CFA

outcomes. Each model illustrates the proposed causal relationships among two exogenous

variables (i.e. environmental apparel knowledge and apparel disposal subjective norm)

and four endogenous variables (i.e. apparel disposal motivation, apparel disposal attitude,

apparel disposal intention, and apparel disposal behavior). All four structural models

produced acceptable fit values (see Table 4.14).

Table 4.14

Fit for Apparel Disposal Structural Equation Models

Model	χ^2	*Df*	χ^2/df	TLI	CFI	RMSEA
Resell	603.875	263	2.296	.934	.942	.060
Donate	557.231	158	2.814	.915	.927	.071
Reuse	408.600	178	2.296	.942	.951	.060
Discard	443.674	218	2.035	.949	.956	.054

The standardized regression weights were used to investigate H1through H6 (see

Table 4.15). The findings were as follows:

H1. Environment apparel knowledge was a significant, positive influencer of apparel

disposal motivation in the donate ($\beta = .291$, $p < .001$) and reuse ($\beta = .254$, $p <$

.001) models, but a significant, negative influencer in the discard model ($\beta = -$

.217, $p < .001$). There was no statistically significant relationship found in the

resell model ($\beta = .013$, $p = .828$). Thus, H1 was partially supported.

H2. Environmental apparel knowledge was found to be a significant, positive

influencer of apparel disposal attitude in the resell ($\beta = .367$, $p < .001$), donate (β

$= .363$, $p < .001$), and reuse ($\beta = .369$, $p < .001$) models. Therefore, H2 was fully

supported.

H3. Apparel disposal motivation was a significant, positive influencer of apparel

disposal intention in all four models (resell- β = .874, $p < .001$; donate- β = .696,

$p < .001$; reuse- β = .728, $p < .001$; discard- β = .644, $p < .001$), so H3 was fully

supported.

H4. Apparel disposal attitude proved to be a significant, positive influencer of apparel

disposal intention in the donate (β = .354, $p < .001$) and reuse (β = .115, p =

.021) models. The relationship was also significant, but negative in the discard

model (β = -.160, p = .002). Conversely, the resell model (β = .055, p = .169) did

not produce a statistically significant relationship between the concepts. Hence,

H4 was partially supported.

H5. The resell (β = .089, p = .026) and donate (β = .194, $p < .001$) models

exemplified a positive, significant relationship between apparel disposal

subjective norm and apparel disposal intention. However, the reuse (β = -.017, p

= .724) and discard (β = -.085, p = .086) models showed no statistically

significant relationship between the two factors. Only partial support was shown

for H5.

H6. Apparel disposal intention was found to be a positive and significant influencer

of apparel disposal behavior in all four models (resell- β = .630, $p < .001$; donate-

β = .354, $p < .001$; reuse- β = .305, $p < .001$; discard- β = .554, $p < .001$). As a

result, H6 was fully supported.

In summation, H2, H3, and H6 were fully supported across all four models while

only partial support was shown for H1, H4, and H5.

Table 4.15

Summary of Support for Hypotheses based on SEM Results for Apparel Disposal Models

Model	Hypothesis	Paths	Coefficient	*p*-value	Proposed Effect	Actual Effect	Supported
Resell	H1a	Environmental Apparel Knowledge (EAK) to Apparel Disposal Motivation to Resell (ADMRS)	.013	.828	+	+	N
	H2	Environmental Apparel Knowledge (EAK) to Apparel Disposal Attitude (ADA)	.367***	.000	+	+	Y
	H3a	Apparel Disposal Motivation to Resell (ADMRS) to Apparel Disposal Intention to Resell (ADIRS)	.874***	.000	+	+	Y
	H4a	Apparel Disposal Attitude (ADA) to Apparel Disposal Intention to Resell (ADIRS)	.055	.169	+	+	N
	H5a	Apparel Disposal Subjective Norm (ADSN) to Apparel Disposal Intention to Resell (ADIRS)	.089*	.026	+	+	Y
	H6a	Apparel Disposal Intention to Resell (ADIRS) to Apparel Disposal Behavior- Resell (ADBRS)	.630***	.000	+	+	Y
Donate	H1b	Environmental Apparel Knowledge (EAK) to Apparel Disposal Motivation to Donate (ADMDO)	.291***	.000	+	+	Y
	H2	Environmental Apparel Knowledge (EAK) to Apparel Disposal Attitude (ADA)	.363***	.000	+	+	Y
	H3b	Apparel Disposal Motivation to Donate (ADMDO) to Apparel Disposal Intention to Donate (ADIDO)	.696***	.000	+	+	Y
	H4b	Apparel Disposal Attitude (ADA) to Apparel Disposal Intention to Donate (ADIDO)	.354***	.000	+	+	Y
	H5b	Apparel Disposal Subjective Norm (ADSN) to Apparel Disposal Intention to Donate (ADIDO)	.194***	.000	+	+	Y
	H6b	Apparel Disposal Intention to Donate (ADIDO) to Apparel Disposal Behavior- Donate (ADBDO)	.354***	.000	+	+	Y
Reuse	H1c	Environmental Apparel Knowledge (EAK) to Apparel Disposal Motivation to Reuse (ADMRU)	.254***	.000	+	+	Y
	H2	Environmental Apparel Knowledge (EAK) to Apparel Disposal Attitude (ADA)	.369***	.000	+	+	Y
	H3c	Apparel Disposal Motivation to Reuse (ADMRU) to Apparel Disposal Intention to Reuse (ADIRU)	.728***	.000	+	+	Y

	H4c	Apparel Disposal Attitude (ADA) to Apparel Disposal Intention to Reuse (ADIRU)	.115*	.021	+	+	Y
	H5c	Apparel Disposal Subjective Norm (ADSN) to Apparel Disposal Intention to Reuse (ADIRU)	-.017	.724	+	-	N
	H6c	Apparel Disposal Intention to Reuse (ADIRU) to Apparel Disposal Behavior- Reuse (ADBRU)	.305***	.000	+	+	Y
Discard	H1d	Environmental Apparel Knowledge (EAK) to Apparel Disposal Motivation to Discard (ADMDS)	-.217***	.000	-	-	Y
	H2	Environmental Apparel Knowledge (EAK) to Apparel Disposal Attitude (ADA)	.370***	.000	+	+	Y
	H3d	Apparel Disposal Motivation to Discard (ADMDS) to Apparel Disposal Intention to Discard (ADIDS)	.644***	.000	+	+	Y
	H4d	Apparel Disposal Attitude (ADA) to Apparel Disposal Intention to Discard (ADIDS)	-.160**	.002	-	-	Y
	H5d	Apparel Disposal Subjective Norm (ADSN) to Apparel Disposal Intention to Discard (ADIDS)	-.085	.086	-	-	N
	H6d	Apparel Disposal Intention to Discard (ADIDS) to Apparel Disposal Behavior Discard (ADBDS)	.554***	.000	+	+	Y

Note. ***Significant at $p < .001$; **Significant at $p < .01$, *Significant at $p < .05$.
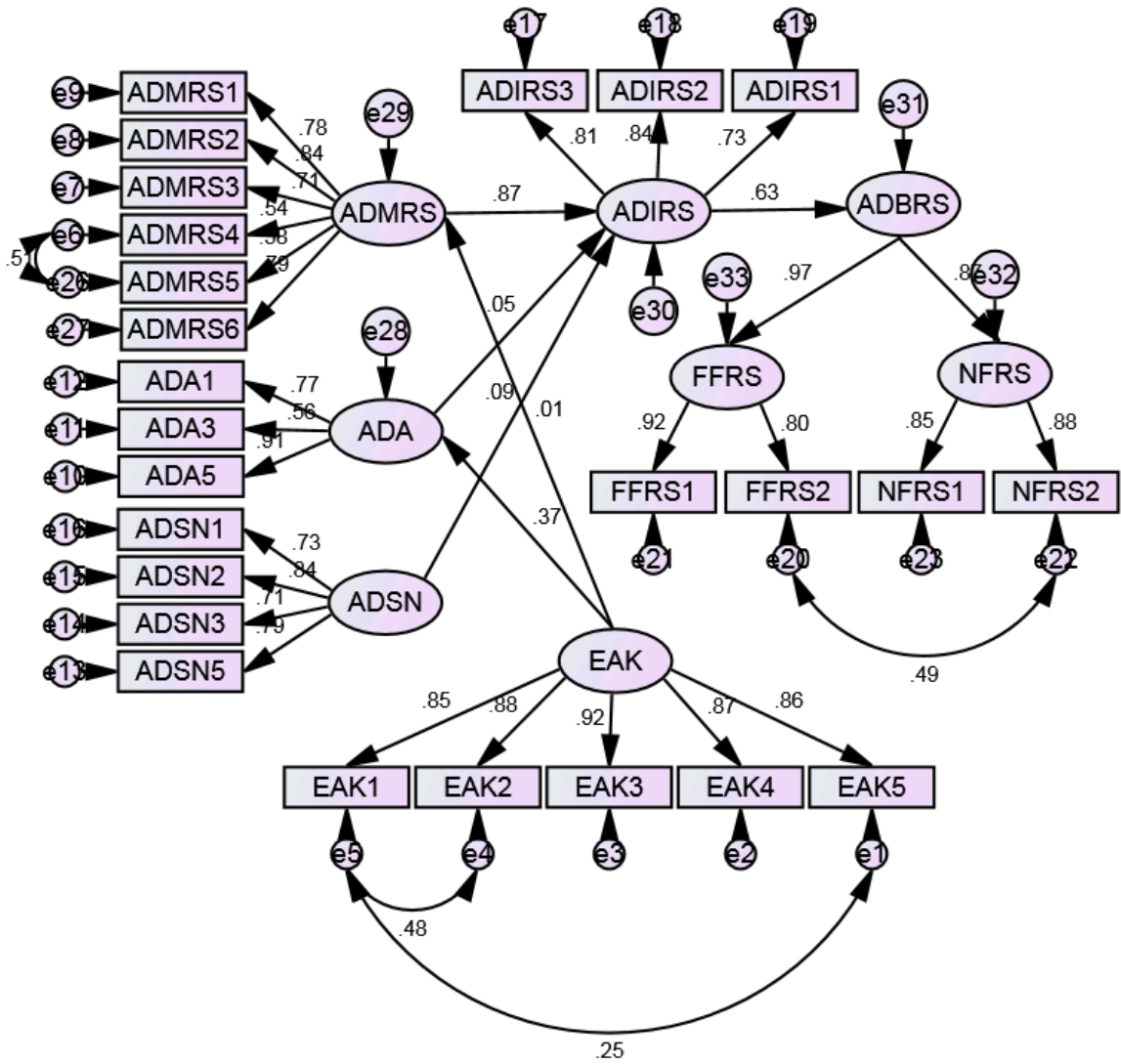
Figure 4.5. Structural Equation Model for Resell Apparel Disposal Behavior

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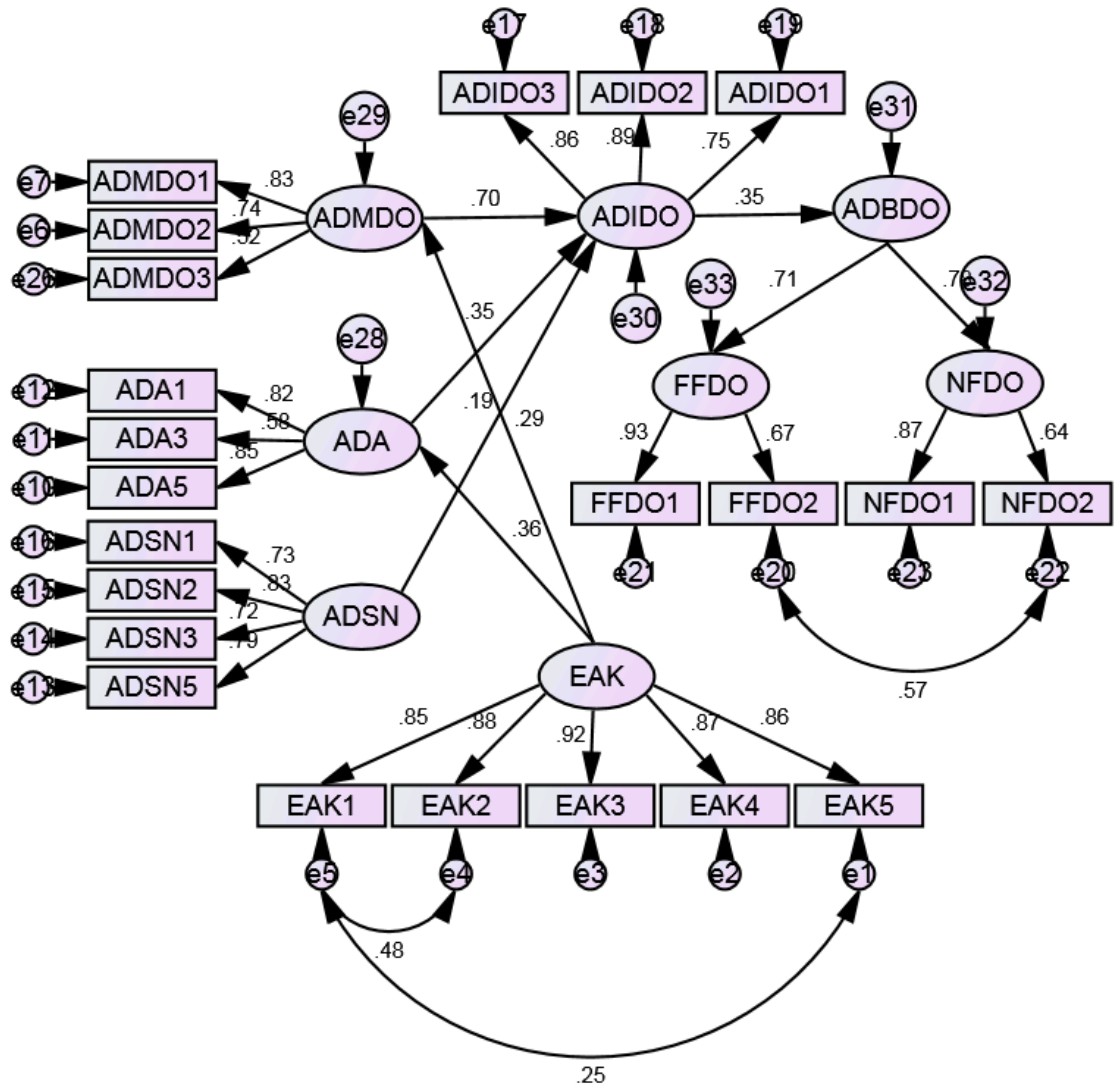
Figure 4.6. Structural Equation Model for Donate Apparel Disposal Behavior
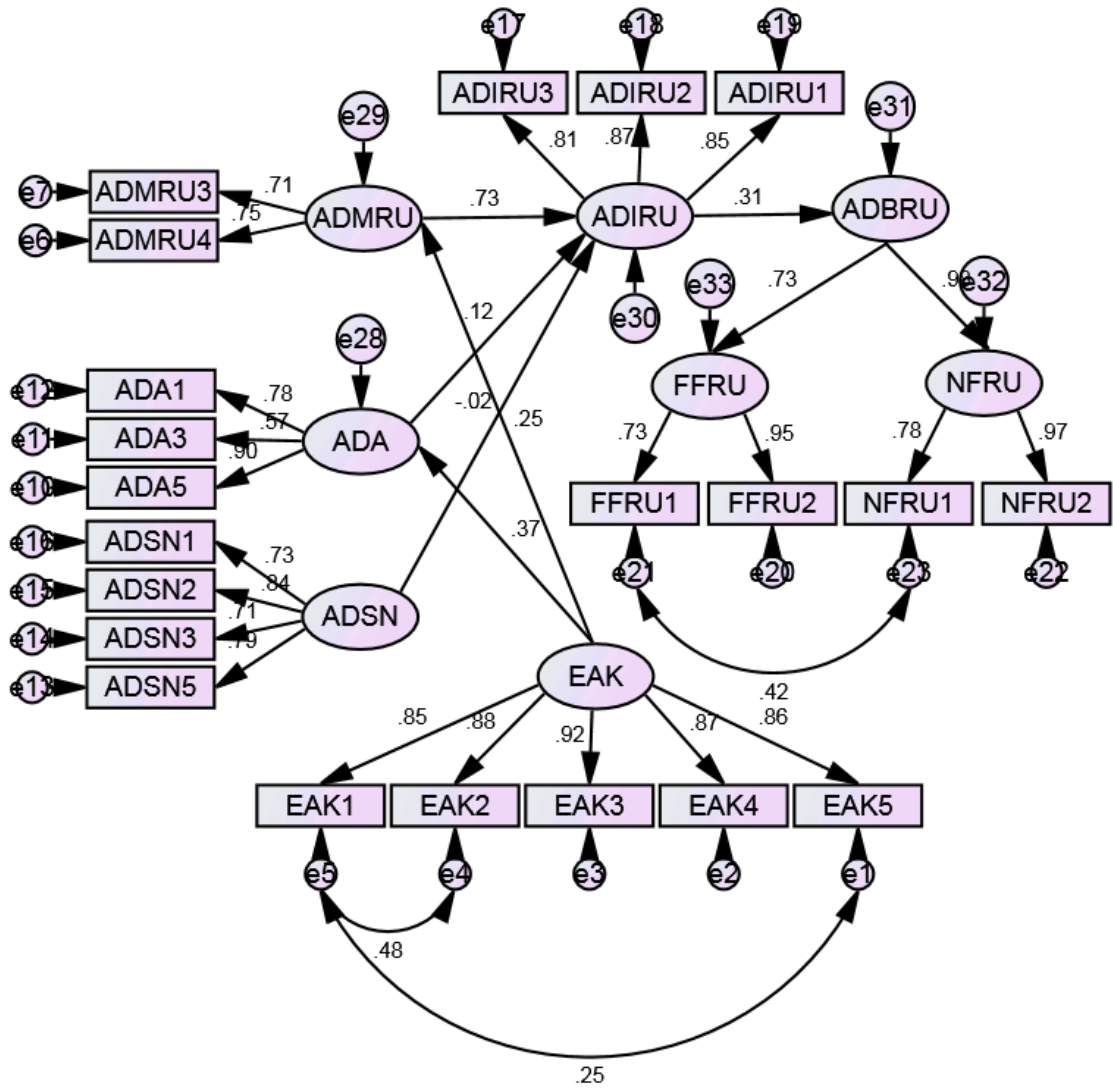
Figure 4.7. Structural Equation Model for Reuse Apparel Disposal Behavior
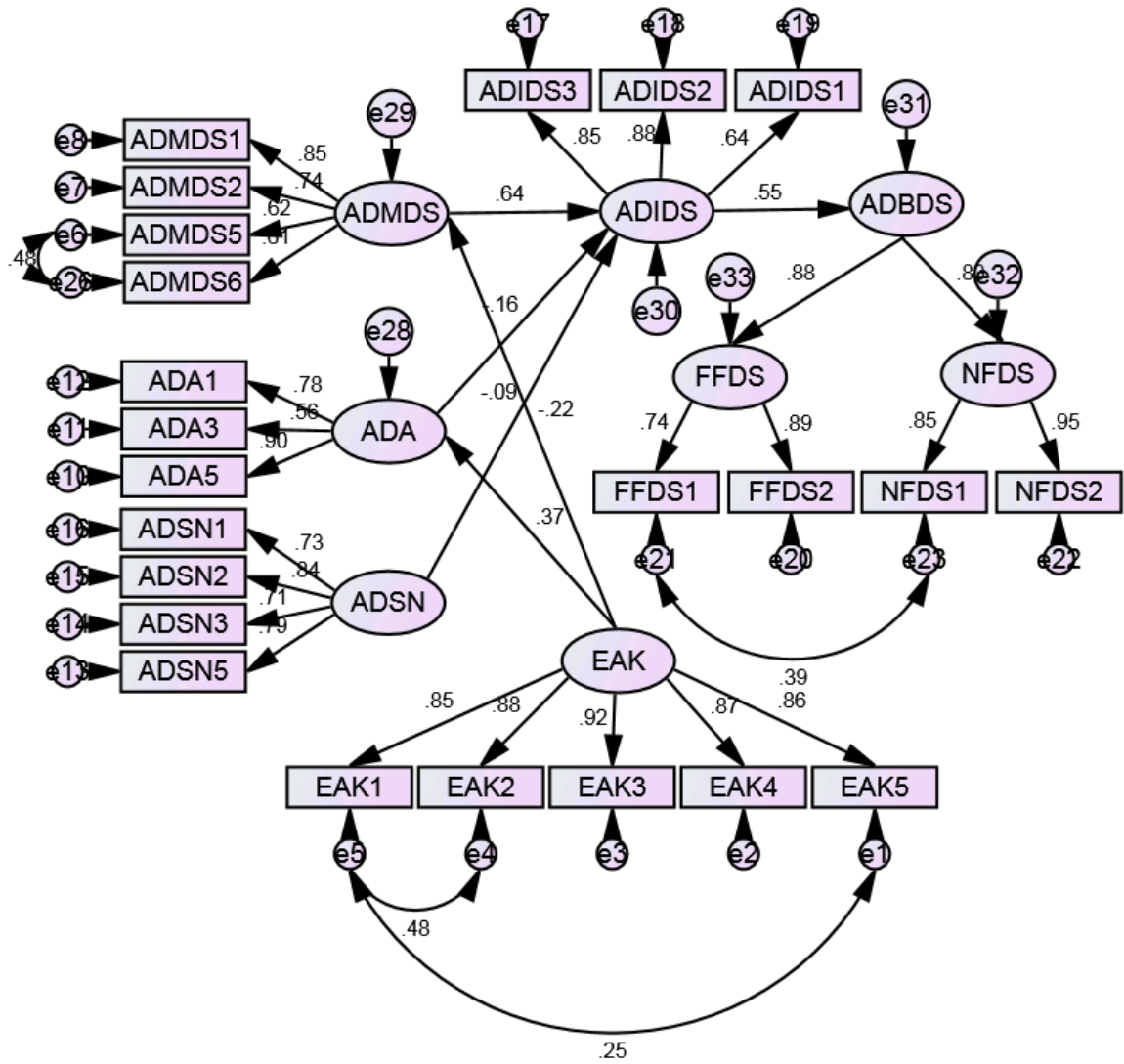
Figure 4.8. Structural Equation Model for Discard Apparel Disposal Behavior

Paired *t*-Tests

A set of paired t-tests were employed to investigate H7 and H8. Regarding H7 (see Table 4.16), the average disposal rate for fast fashion apparel ($M = 3.29$, $SD = 1.52$) differed significantly from the average disposal rate of non-fast fashion apparel ($M = 1.94$, $SD = .82$; $t = 14.51$; $p < .001$). In reference to H8 (see Table 4.17), the average rate of disposal for fast fashion and non-fast fashion differed significantly in the resell ($t = 2.22$; $p = .027$) and donate ($t = 2.66$; $p = .008$) apparel disposal categories. No significant difference was found between fast fashion and non-fast fashion apparel in relation to reuse ($t = 1.330$; $p = .184$) and discard ($t = -1.23$; $p = .260$) disposal methods. Thus, H7 was fully supported and H8 was partially supported.

Table 4.16

Paired t-test Results for Overall Apparel Disposal Rates

	Fast Fashion		Non-Fast Fashion				
	M	*SD*	*M*	*SD*	*T*	*df*	Sig. (*p*)
Disposal	3.29	1.52	1.94	.82	14.51	357	***

Note. *** $p < .001$; Significant at $p < .05$.

Table 4.17

Paired t-test Results for Apparel Disposal Rates According to Method

	Fast Fashion		Non-Fast Fashion				
	M	*SD*	*M*	*SD*	*T*	*Df*	Sig. (*p*)
Resell	1.68	.89	1.60	.82	2.22	357	.027
Donate	2.46	1.16	2.30	.97	2.66	357	.008
Reuse	2.75	1.69	2.64	1.60	1.33	357	.184
Discard	1.52	.80	1.56	.78	-1.13	357	.260

Note. Significant at $p < .05$.

Cross-tabulation and Chi-square Tests

The final hypothesis, H9, was investigated using cross-tabulation tables and chi-square tests of statistical significance (see Table 4.18). In relation to reasons for reselling,

reusing, and discarding apparel, none of the, chi-square statistics were found to be significant. This meant that none of the reasons for disposing of fast fashion apparel significantly differed from reasons for disposing of non-fast fashion apparel in these disposal categories. Nevertheless, several of the chi-square statistics associated with reasons for donating fast-fashion and non-fast fashion were found to be statistically significant. In particular, the originally valuable or expensive ($\chi^2 = 4.41$, $p = .021$), bored or tired of garment ($\chi^2 = 6.41$, $p = .007$), damaged or worn out ($\chi^2 = 4.80$, $p = .017$), convenience of disposal ($\chi^2 = 3.03$, $p = .048$), and garment not wasted ($\chi^2 = 3.85$, $p = .030$) were disposal reasons cited more often in relation to donating non-fast fashion. Therefore, H9 was partially supported.

Table 4.18

Cross-tabulation and Chi-square Statistics for Apparel Disposal Reasons

		Fast Fashion		Non-Fast Fashion			
Model	Reason	Frequency	Percentage	Frequency	Percentage	χ^2 Statistic	Sig. (p)
Resell	Originally valuable or expensive	215	60.1	202	56.4	.97	.182
	Did not fit	141	39.4	143	39.9	.02	.470
	Out of style	77	21.5	93	26.0	1.98	.094
	Bored or tired of garment	113	31.6	108	30.2	.16	.373
	Sold to recoup some of the original cost	202	56.4	186	52.0	1.44	.130
	Damaged or worn out	11	3.1	15	14.2	.64	.275
	Convenience of disposal	31	8.7	42	11.7	1.85	.108
	Garment was not wasted	93	26.0	91	25.4	.03	.466
Donate	Originally valuable or expensive	151	42.2	179	50.0	4.41	.021*
	Did not fit	267	74.6	281	78.5	1.52	.126
	Out of style	266	74.3	283	79.1	2.26	.079
	Bored or tired of garment	257	71.8	286	79.9	6.41	.007*
	Helps needy people	325	90.8	325	90.8	.00	.551
	Damaged or worn out	112	31.3	140	39.1	4.80	.017*
	Convenience of disposal	195	54.5	218	60.9	3.03	.048*
	Garment was not wasted	221	61.7	246	68.7	3.85	.030*
Reuse	Originally valuable or expensive	91	25.1	89	24.9	.01	.500
	Did not fit	56	15.6	70	19.6	1.89	.101
	Out of style	97	27.1	95	26.5	.03	.466
	Bored or tired of garment	84	23.5	96	26.8	1.07	.172
	Damaged or worn out	167	46.6	168	46.9	.01	.500
	Convenience of disposal	90	25.1	94	26.3	.12	.399
	Garment was not wasted	142	39.7	136	38.0	.21	.351
Discard	Did not fit	19	5.3	17	4.7	.12	.432
	Out of style	20	5.6	22	6.1	.10	.437
	Tired or bored with garment	13	3.6	22	6.1	2.43	.082
	Damaged or worn out	141	39.4	146	40.8	.15	.380
	Convenience of disposal	116	32.4	105	29.3	.79	.209

Note. n = 358; * significance at $p < .05$.

CHAPTER V

DISCUSSION

This chapter provides an interpretive discussion of the research findings. The study was designed to examine apparel disposal antecedents using the TRA. It also sought to compare fast fashion and non-fast fashion apparel disposal behaviors. The objectives outlined for this study are as follows:

1. Examine the effects of environmental apparel knowledge on apparel disposal motivation and apparel disposal attitude.

2. Explore the impact of apparel disposal motivation, apparel disposal attitude, and apparel disposal subjective norms on apparel disposal intention.

3. Study the influence of apparel disposal intention on apparel disposal behavior.

4. Investigate the differences in disposal rates, disposal methods, and reasons for disposal used by consumers for fast fashion and non-fast fashion apparel.

The review of literature assisted in the creation of four models that were utilized to accomplish the first three study objectives using SEM. In addition, paired t-tests and cross-tabulations with chi-square statistics were employed to address the fourth and final research objective.

Objective 1

Hypothesis 1 (H1)

According to Sampson (2009), consumers that have greater levels of environmental knowledge are more likely to feel motivated to partake in environmentally-friendly behaviors. Based on this notion, it was hypothesized (H1) that consumer knowledge of the environment regarding apparel production would positively impact motivation to resell, donate, and reuse apparel. It was also predicted that a negative relationship would be shown between environmental apparel knowledge and motivation to discard apparel. The proposed relationships between environmental apparel knowledge and apparel disposal motivation were all supported except in the instance of resell, where no significance was found in the connection between these factors.

In general, respondents with higher levels of knowledge regarding the environmental impacts of apparel production were more likely to be motivated to donate or reuse apparel. Conversely, those with lower knowledge levels were more likely to be motivated to discard their garments. The absent relationship between environmental apparel knowledge and motivation to resell is inconsistent with Sampson's supposition, but falls in line with Shim's (1995) statement that there is a lack of relationship between apparel resale and environmentalism. Perhaps the environment is not a factor people consider when they are deciding whether or not they should resell their items. Other factors, such as economic gain, may have a greater influence on one's motivation to resell apparel.

Hypothesis 2 (H2)

Belief elements, such as knowledge, are precursors to attitudes in the TRA (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Marcketti & Shelley, 2006). Additionally, previous studies have linked environmental apparel knowledge to environmental attitudes (Arcury, 1990; Synodinos, 1990). For that reason, it was hypothesized (H2) that knowledge of the environmental impacts of apparel production would positively influence attitude toward sustainable methods of apparel disposal. This hypothesis was supported in the resell, donate, and reuse disposal models. This supports the assertion that the more consumers know about the environmental effects of apparel production, the more likely they are to have positive attitudes toward reselling, donation, and reusing apparel. This outcome is similar to the previous findings of Arcury (1990) and Synodinos (1990) that highlight the relationship between environmental attitudes and environmental knowledge. However, it is distinct in that the attitude measured is specific to the behavior being evaluated, per TRA guidelines. Also, this discovery supports the concept that knowledge is a belief and beliefs precede attitudes in the TRA.

<div align="center">

Objective 2

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Hypothesis 3 (H3)

The TRA was extended to include motivations by Fitzmaurice (2005), who established a relationship between motivation and intention. Hence, the third hypothesis (H3) proposed that apparel disposal motivation to resell, donate, reuse, and discard would positively influence intention to resell, donate, reuse, and discard, respectively. This hypothesis was supported in the resell, donate, reuse, and discard models. Participants' level of motivation to engage in a particular apparel disposal behavior corresponded with

the intention to engage in the apparel disposal behavior. For example, a person who was highly motivated to reuse apparel would also have high intentions to reuse apparel. This discovery supports Fitzmaurice's (2005) proposal to broaden the TRA to include motivation variables.

Hypothesis 4 (H4)

The TRA explains that the more favorable a person's attitude is toward a specific behavior, the more likely he or she is to intend on engaging in the behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). In accordance with the TRA, the fourth hypothesis (H4) predicted that apparel disposal attitude would positively influence intention to use the more sustainable disposal methods (i.e. resell, donate, and reuse), but negatively influence intention to discard. The study results indicated that the hypothesized relationships regarding donate, reuse, and discard intentions were supported. There was no significant connection found between apparel disposal attitude and intention to resell. This meant that respondents who had positive attitudes toward using sustainable apparel disposal methods were more likely to plan on disposing through donating or reusing. Participants with negative attitudes toward using sustainable disposal methods were more likely to intend to discard their apparel.

The finding that apparel disposal attitude was not a significant influencer of intention to resell is inconsistent with the TRA, but connects to the previous finding in H1. If respondents failed to consider the relationship between the environment and apparel resale, they also may not have cognitively classified resale as a sustainable disposal behavior. Therefore, methods that are widely recognized as being environmentally-friendly, such as donating and reusing, would have been more closely

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associated with attitudes regarding use of sustainable disposal methods. This inference is in line with Shim (1995) and Koch and Domina (1997), who found that environmental attitudes were not significant predictors of resale behaviors, but were significant predictors of apparel donation and reuse.

It should also be mentioned that the H4 finding regarding donation intention and apparel disposal attitudes contradicts the previous finding by Ha-Brookshire and Hodges (2009). The authors, who specifically studied donation behaviors, found that consumer donation attitudes were not strongly associated with their donation intentions. The discrepancy in these outcomes is most likely due to the fact that Ha-Brookshire and Hodges (2009) took a qualitative approach to research and only included 15 participants. For this study, the sample was larger (n = 358) and a quantitative methodology was utilized.

Hypothesis 5 (H5)

The TRA maintains that subjective norm influences intention (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Thus, it was hypothesized (H5) that apparel disposal subjective norms would positively influence apparel disposal intention to use the resell, donate, and reuse apparel disposal methods. It was also predicted that apparel disposal subjective norm would negatively influence intention to discard. While a significant and positive relationship between apparel disposal subjective norm and apparel disposal behavior was revealed in the resell and donate models, no significant relationship was evident in the reuse and discard models. This means that participants were influenced by their perceptions of what their family and friends think about reselling and donating apparel disposal behaviors. Respondents who believed that their family or friends think

they should resell or donate garments were more likely to intend on participating in these apparel disposal behaviors.

This outcome is consistent with Joung and Park-Poaps' (2013) discovery that family subjective norms influenced resale and donation disposal behaviors. Nevertheless, the finding is inconsistent with Ha-Brookshire and Hodges' (2009) observation that social pressure was not associated with intentions to donate apparel. As in the instance of H4, this discrepancy is probably due to Ha-Brookshire and Hodges' use of qualitative research methods.

Contrary to the TRA, there was not a relationship between apparel disposal subjective norm and intention to reuse or discard. These outcomes indicate that the perceived expectations of family and friends did not influence whether or not participants planned to engage in reuse or discard behaviors. This finding may be related to the fact that reuse and discard are more private apparel disposal behaviors that take place inside a person's home. These two behaviors typically go unseen by household outsiders. Perhaps respondents only consider the perceived opinions of others in the instance that the behavior may be witnessed by those outside the household. Resell and donate disposal behaviors are usually carried out in public, which is probably why subjective norms have greater influence on these behaviors. Still, reuse and discard of apparel may not be affected by the perceived thoughts of others because they normally take place behind closed doors.

Objective 3

Hypothesis 6 (H6)

According to the TRA, intentions directly precede behaviors (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Therefore, it was hypothesized (H6) that apparel disposal intention to resell, donate, reuse, and discard would influence actual resell, donate, reuse, and discard behaviors, respectively. This hypothesis was supported in all four models. In other words, participants who intended to utilize a particular disposal method were likely to actually perform that specific disposal behavior. For instance, a person who intended to discard his or her apparel was likely to engage in the actual discard behavior. This outcome was consistent the TRA and revealed that intentions, which are commonly omitted in apparel disposal research, are important direct influencers of apparel disposal behavior.

Objective 4

Hypothesis 7 (H7)

The seventh hypothesis (H7) predicted that fast fashion and non-fast fashion would be disposed of at different rates. A statistically significant difference was found between the two disposal rates, so this hypothesis was fully supported. In general, fast fashion was disposed of at a faster rate than non-fast fashion. On average, participants disposed of fast fashion apparel twice a year, but only disposed of non-fast fashion apparel on an annual basis, if at all. This difference is probably due to the nature of fast-fashion apparel, which has been noted for being of lower quality (McAfee et al., 2004; McLaughlin, 2010; Morgan & Birtwistle, 2009). It is likely that most fast fashion apparel items would break down at a faster rate than their non-fast fashion counterparts, causing

consumers to dispose of fast fashion at a faster rate. This outcome supports McLaughlin (2010) and Morgan and Birtwistle (2009), who presume that the rate at which consumers dispose of cheap, trendy apparel items is rising.

Hypothesis 8 (H8)

The eighth hypothesis (H8) proposed that fast fashion and non-fast fashion apparel is disposed of at different rates in relation to the specific apparel disposal methods (i.e. resell, donate, reuse, and discard). Average disposal rates for fast fashion and non-fast fashion were significant in the resell and donate apparel categories. There was no significant relationship shown in the reuse or discard categories.

Statistically, respondents resold and donated fast fashion at a significantly faster rate than non-fast fashion. This finding negates Jacoby et al.'s (1977) assertion that consumers are more likely to resell products of a higher value. The higher figure for fast fashion resale is likely due to the fact that resale stores dedicated to fast fashion clothing are becoming more prevalent (Hamilton, 2007). Stores like Plato's Closet specialize in reselling gently used, trendy items originally purchased from fast fashion retailers including H&M and Forever 21. Although the figure was statistically higher for fast fashion, respondents typically resold both fast fashion and non-fast fashion once to twice a year (i.e. annually or biannually).

Respondents donated fast fashion at a statistically faster rate, but both fast fashion and non-fast fashion apparel was generally donated on a biannual basis. This outcome is contrary to Birtwistle and Moore (2007) and Morgan and Birtwistle (2009) who found that consumers were more likely to donate expensive apparel than cheaper apparel. It is likely that fast fashion was donated more often because it is trendy (Choi et al., 2010) and

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goes out of style more quickly. Further, the materials utilized to construct fast fashion garments are often of lower quality than of those used to make non-fast fashion garments (McLaughlin, 2010; Morgan & Birtwistle, 2009). Therefore, fast fashion apparel probably gets damaged faster than non-fast fashion apparel.

Study respondents did not show significant variation between fast fashion and non-fast fashion in the reuse and discard disposal categories. Overall, participants replied that they reused fast fashion and non-fast fashion apparel every 3 to 4 months. Fast fashion and non-fast fashion apparel was discarded on an annual to biannual basis. The lack of significant difference between fast fashion and non-fast fashion in the reuse and discard categories indicates that respondents did not consider apparel origin when they engaged in these two behaviors. For instance, a person who is deciding whether or not to use an old t-shirt as a cleaning rag is not likely to check where the t-shirt was made as a part of the decision making process. Likewise, a person who is deciding which garments to throw away probably does not contemplate where items were purchased as he or she tosses them into the trash bin.

It is also worth noting that reuse was utilized the most often, followed by donate. This finding is consistent with Koch and Domina (1997; 1999) who found that reuse as rags, give away to friends or family, and donation to the Goodwill or Salvation Army were the most commonly used apparel disposal methods. However, the reuse and donate outcome partially contradicts the work of Bianchi and Birtwistle (2010). The authors discovered that donation through charity of giving away to family or friends were commonly cited, but observed that reuse was among the less commonly used apparel disposal methods.

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Discard was the apparel disposal method that participants used the least. This is likely due to the fact that the sample, which is made up of members of Gen Y, is a 'greener' cohort than previous generations (McKayn, 2010; McMahon, 2010). According to McKayn (2010), this generation has grown up with plenty of exposure to environmental activism. Having knowledge of the environmental effects of discarding, it is likely that Gen Y consumers prefer to use apparel disposal methods that are less damaging to the planet.

Hypothesis 9 (H9)

For the final hypothesis (H9), it was predicted that there would be a difference between the reasons for reselling, donating, reusing, and discarding fast fashion and non-fast fashion apparel. There were no significant differences between the reasons for disposing of fast fashion and non-fast fashion in the resell, reuse, and discard categories. The most commonly cited reasons for apparel resale were originally valuable or expensive and sold to recoup some of the original cost. Damaged or worn out and garment was not wasted were the most frequently mentioned reasons for apparel reuse. Generally, participants discarded apparel for damaged or worn out and convenience of disposal reasons.

It was found that reasons for apparel disposal significantly differed between the two types of apparel in the donate category. More respondents cited originally valuable or expensive, bored or tired of garment, damaged or worn out, convenience of disposal, and garment not wasted as reasons for donation of non-fast fashion. Non-fast fashion apparel being donated on the basis of **original value or price** is logical because these garments tend to be more expensive and have greater quality than their fast fashion counterparts.

Fast fashion is usually associated with lower quality materials and reduced pricing (Karr, 2010; McLaughlin, 2010; Morgan & Birtwistle, 2009), so respondents would not typically donate it based on original value or cost. Moreover, participants would be more likely to donate non-fast fashion apparel so that originally expensive or valuable **garments are not wasted.** This sentiment is echoed in the work of Birtwistle and Moore (2007) who stated that respondents felt guilty disposing of items that were more expensive and of a higher quality.

Garments being **damaged or worn-out** was another reason participants donated their non-fast fashion apparel. Again, this may have been done to avoid the feelings of guilt associated with being wasteful environmentally or economically. It is likely that participants specifically chose donation as the disposal method for non-fast fashion apparel due to the increasing number of apparel donation programs available through stores, curbside pick-up, and online (Koch, 2013). With apparel donation programs becoming widely available throughout the country, it's more **convenient** than ever to give used garments away.

Donation of non-fast fashion based on **boredom** is likely due to the fact that members of Gen Y, which made up the sample in this study, are very fashionable. Non-fast fashion is not usually considered as stylish and chic as fast fashion. Therefore, participants would be more likely to donate the less trendy, non-fast fashion garments based on the fact that they no longer find them interesting.

CHAPTER VI

CONCLUSION

This study focused on obtaining a comprehensive view of the apparel disposal behaviors of young U.S. consumers. The research evaluated antecedents to apparel disposal behaviors using a framework based on the TRA and prior literature. The study also compared the actual disposal behaviors of consumers in relation to fast fashion and non-fast fashion apparel. This chapter presents the summary and conclusion of the empirical study. Study implications and suggestions for future research are included as well.

Summary and Conclusion

Although it has been a topic of interest since the 1970s, sustainable consumption has recently been positioned at the forefront of the apparel and retailing industries. Sustainable consumption, which is a subsection of general consumption, is inclusive of the acquisition, use, and discard phases of the apparel consumption process (Jacoby, Berning, & Dietvorst, 1977; Winakor, 1969). The acquisition and use components of the apparel consumption process have been extensively covered in previous studies (Mohr et al., 2001). However, the subject of apparel disposal has only gained popularity in recent years (Birtwistle & Moore, 2007; de Coverly et al., 2008; Holbrook, 1995).

Apparel disposal is a timely research topic because textile waste rates are steadily increasing throughout the United States (Hawley, 2006a). The evolution of fast fashion retailing, which typically involves selling garments made with cheaper materials at a lower price, is believed to be a major contributor to these rising waste levels (McLaughlin, 2010). The negative effects of fast fashion on disposal consumption behaviors are often suggested in apparel studies (Bianchi & Birtwistle, 2010, 2012; Birtwistle & Moore, 2007; Claudio, 2007; Joung & Park-Poaps, 2013; Morgan & Birtwistle, 2009), but research specifically investigating this implication is scarce. Therefore, the overall goals of this study were to assess apparel disposal antecedents and examine the influence of fast fashion versus non-fast fashion on apparel disposal habits.

To investigate apparel disposal antecedents, a conceptual framework was built through an extensive review of apparel disposal literature and was rooted in the TRA (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Based on the theory, it was argued that attitudes and subjective norms collectively produce intentions, which then lead to behaviors. The original theory was extended to include knowledge and motivation, which were established as behavioral antecedents in previous TRA studies (Fitzmaurice, 2005; Sampson, 2009). In the conceptual model, the motivation, intention, and behavior components were each comprised of four categories that were based on the most commonly used apparel disposal methods (i.e. resell, donate, reuse, and discard). In the main study, the model was split into four separate models so that each apparel disposal method could be assessed independently using SEM.

After antecedents were explored, the influence of fast fashion and non-fast fashion was assessed. Paired *t*-tests were used to compare fast fashion and non-fast

fashion disposal behaviors in general and specifically in relation to each disposal method. Reasons for the utilization of each method were also explored using cross-tabulations and chi-square statistics.

Results for the conceptual framework varied from model to model. The resell model showed no significant relationship between environmental apparel knowledge and apparel disposal motivation. No significant connection was revealed between apparel disposal attitude and apparel disposal intention either. The lack of these relationships in the resell model may be attributed to the fact that consumers don't perceive the connection between resell disposal behavior and environmentalism. All relationships between antecedents were found to be significant in the donate model. The connection between apparel disposal subjective norm and apparel disposal intention was not found to be significant in the reuse or discard model. The findings regarding the relationship between subjective norms and intentions indicate that subjective norms are not a primary influence in instances where the disposal behavior is carried out in a more private setting. All other relationships in the reuse and discard models were statistically significant. Altogether, the conceptual framework proved to be a useful tool in evaluating and comparing the four apparel disposal methods.

In the comparison of disposal behaviors, it was found that participants disposed of fast fashion apparel overall at a faster rate than non-fast fashion apparel. This is likely due to either the lower quality materials utilized for fast fashion production or the trendy nature of fast fashion. In addition, the average disposal rate for fast fashion apparel was significantly faster than the average rate for non-fast fashion apparel in both the resell and donate categories. The higher resale rate of fast fashion is most likely related to the fact

that resale shops geared toward younger generations often specialize in reselling fast fashion (e.g. Plato's Closet). Frequent use of donation for fast fashion disposal may be explained by the increasing number of donation programs available throughout the country. No significant difference was found regarding reuse or discard disposal behaviors. This is probably because one wouldn't typically consider where a garment was purchased when deciding to reuse it or throw it away. The reasons for apparel disposal were generally the same for both apparel types in the resell, reuse, and discard categories. However, a significantly higher number of participants stated that they donated non-fast fashion apparel because it was originally valuable or expensive, they were bored or tired of garments, garments were worn out or damaged, donation was a convenient method of disposal, and donation was a way to avoid wasting the garment.

Implications

Research Implications

This study contributes to the literature on apparel disposal behavior by addressing inconsistencies and gaps in previous literature on antecedents. In this study, the original TRA model was extended to include knowledge and motivation as antecedents. Incorporation of the additional antecedents increased the predictive ability of all four apparel disposal behavior models. Therefore, it is highly recommended that apparel disposal antecedent research be inclusive of knowledge and motivation factors, in addition to attitude, intention, and subjective norm.

Moving forward, this conceptual framework can be utilized by apparel disposal researchers in their assessments of disposal behaviors. Because the framework separates motivation, intention, and behavior based on the commonly cited apparel disposal methods, scholars are able to tailor the model to their specific research needs. For

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instance, the model could be utilized to evaluate the use of a specific disposal method or to directly compare the more sustainable disposal methods (i.e. resell, donate, and reuse) to discard.

The model could also be employed by apparel retailers who wish to evaluate the final stage of the product lifecycle, which is disposal. Disposal assessments are crucial in apparel retailing because garments tend to have a strong environmental impact during the latter stage of the product lifecycle (Fletcher, 2008; Hawley, 2006a; Waste Online, 2011). Broadening the study of apparel disposal behavior to include the aforementioned antecedents provides apparel scholars with a thorough appraisal of consumers' cognitive and behavioral processes during the concluding stage of the product lifecycle.

Managerial Implications

This study offers managerial implications that may be useful to retailers, apparel disposal businesses, and environmental or textile-related organizations. Findings related to antecedents of each apparel disposal method can be utilized in the planning and execution of promotional campaigns. Research outcomes can be used to create customized marketing plans that educate consumers about specific apparel donation behaviors. Suggestions related to antecedent findings pertaining to each apparel disposal behavior are as follows:

Resell.

Motivations related to economics and the environment were collectively found to have the greatest influence on intention to engage in resale behaviors. Therefore, resale store marketing should highlight the fact that sellers are both gaining money and assisting in environmental preservation through participation in the resale process. Subjective

norms of friends and family also influenced resale behaviors, so promotional materials should highlight the social aspects of reselling. In addition, resale businesses should consider hosting social events that promote reselling, such as in-store family and friends days.

Donate.

For donation, environmental apparel knowledge led to increased apparel disposal motivation. Therefore, donation companies should strive to increase consumer knowledge through providing information about the environmental effects of apparel production to customers. This could be carried out on the company website, through in-store pamphlets, or via partnership with environmental groups that host educational forums and other events.

Apparel disposal motivation, attitude toward sustainable apparel disposal, and apparel disposal subjective norm all influenced intention to engage in apparel donation behavior. Therefore, donation businesses are encouraged to take a multilayered approach to consumer marketing. The apparel disposal motivations associated with donation were both charitable and environmental. In addition, the positive attitudes that encouraged donation intention were specifically related to utilizing sustainable apparel disposal methods. Thus, donation companies should utilize all points of contact (e.g. in-store, online, mobile apps, etc.) to remind consumers of the charitable and environmentally-friendly aspects of donating. Because subjective norm was also an influencer of donation behavior intention, promotions and events emphasizing the social aspects of the donation processes are also highly recommended for donation businesses.

Reuse and Discard.

Reuse and discard are disposal behaviors that are not typically linked to a specific type of retail or apparel-disposal business. Still, research findings regarding these methods can be utilized by organizations and entities interested in preserving the environment and reducing textile waste. Organizational messages should promote apparel reuse and discourage apparel discard. The environment and sustainability should be the focal points of organizational marketing efforts to promote reuse because environmental apparel knowledge, environmentally-focused reuse motivation, and attitude toward sustainable apparel disposal were found to be positive precursors to reuse behavioral intention. Environmental apparel knowledge and attitude toward sustainable apparel disposal were negative precursors to apparel discard intentions. Thus, efforts to discourage the use of discard should emphasize environmental repercussions and highlight alternative apparel disposal methods (i.e. resell, donate, and reuse). Convenience and lack of awareness motivations were positive influencers of apparel discard intention. Environmental and textile entities should work together to make utilization of resell, donate, and reuse apparel disposal methods more convenient and also strive to inform consumers of where and how to utilize these alternatives. Information related to the reuse and discard apparel disposal methods can be communicated virtually via organizational websites, blogs, and videos or face- to-face using flyers, brochures, posters, and other collateral.

Additional Retailing Implications

Study findings on actual apparel disposal behaviors are particularly pertinent for fast fashion retailers. This study, which is the first to empirically compare the differences in fast fashion and non-fast fashion apparel disposal behaviors, reveals that fast fashion

apparel is generally disposed of at a faster rate. This outcome supports the assertion that fast fashion may be contributing to the acceleration of the apparel consumption process (McLaughlin, 2010; Morgan & Birtwistle, 2009). As a result, fast fashion retailers should make a conscious effort to assess the lifecycle of their apparel products and make adjustments to prolong product use or to educate consumers on how to give products a second life.

In addition, retailers should strive to influence their customers' disposal behaviors through educational marketing and programs that promote usage of the more sustainable disposal methods. Information on sustainable apparel disposal can be disbursed in-stores, via company websites, and through cooperative media partnerships. Fast fashion retailers should consider shifts toward more sustainable consumption to be an opportunity, rather than a burden. Bianchi and Birtwistle (2012) explain that "fast fashion retailers that are perceived as supporting the environment will receive more patronage from consumers," (p. 340). Thus, retailers that choose to engage in more sustainable practices will be rewarded in terms consumer investment and support.

Based on study results, consumers are more likely to utilize the resell and donate apparel disposal methods to dispose of fast fashion. Thus, fast fashion retailers should focus on encouraging their customers to take advantage of resale and donation opportunities. To encourage these disposal behaviors, companies can offer information on resale and donation programs in-store and online. Further, they can provide incentives for customers who opt to utilize these methods of disposal.

Retailers also have the opportunity to take it a step further by creating in-house apparel disposal programs, collaborating with established resale and donation companies,

or hosting occasional buy-back and donate events. Fast fashion retailer H&M has noted this opportunity and successfully implemented an in-store donation program that allows customers to return used garments in exchange for a purchase incentive (Koch, 2013). Programs like the one implemented by H&M demonstrate retailers' ability to influence the disposal behaviors of their customers. Thus, other fast fashion and non-fast fashion retailers are encouraged to follow suit through dissemination of information on apparel disposal alternatives and/or creation of apparel disposal programs.

Future Research

This study provides a general overview of the apparel disposal behaviors of young U.S. consumers. While most relationships in the apparel disposal models were found to be significant and supportive of study hypotheses, there were a few antecedent-related outcomes that warrant further study. The study revealed that knowledge of apparel production in relation to the environment and apparel disposal attitude lacked influence in the resell model. Further investigation into potential influencers of resale behavior is needed to gain greater clarification regarding this disposal method. Additionally, subjective norm was only influential in the resell and donate models. It is presumed that this is due to the fact that resale and donation are the more public apparel disposal behaviors, but additional research is necessary to confirm this assertion.

Most retailers in today's U.S. market cater to both male and female customers, so both genders were included in this study. However, no comparison was made regarding gender in relation to fast-fashion and non-fast fashion apparel disposal. Gender, which has both been connected to apparel disposal in previous studies (Koch & Domina, 1997;

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Shim, 1995; Sung & Kincade, 2010), should be investigated as a potential influencer of fast fashion and non-fast fashion apparel disposal behavior.

It is recommended that additional studies on apparel disposal focus on obtaining information that would assist in building consumer profiles of those who are most likely to engage in resell, donate, reuse, and discard apparel disposal behaviors. Demographics, psychographics, and lifestyle patterns are all factors that should be considered to construct comprehensive consumer profiles. Profiles of consumers likely to engage in each type of disposal behavior could be utilized by retailers and apparel disposal businesses in the development of educational programs and marketing initiatives.

Closing Remarks

The acceleration of the apparel consumption process has made research on apparel disposal more important than ever. Information from studies should be disseminated to the public to increase awareness of disposal options. Educators, policymakers, apparel disposal businesses, fast fashion retailers, and non-fast fashion retailers should work collectively to inform consumers about the apparel disposal options that are more environmentally-friendly. Consumers should be encouraged to avoid discarding in instances where apparel can still provide value through the use of a more sustainable disposal method.

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APPENDICES

Appendix A

Email for Recruitment

Dear FIRSTNAME,

My name is Cynthia Goudeau and I am a doctoral student in the College of Human

Sciences. I am writing to request your participation in a research project investigating the

apparel disposal behaviors of students. If you are interested in participating, you would

be eligible for entry into a drawing for one of four $50.00 cash awards to thank you for

your time. The survey is available online, and includes additional information about the

study. The link can be found below:

LINK TO SURVEY

I appreciate you for your time! The IRB number for this research project is IRB

NUMBER.

Please feel free to contact me if you have any questions or concerns regarding the study.

Sincerely,

Cynthia V. Goudeau
Doctoral Candidate
Department of Design, Housing and Merchandising
College of Human Sciences
Oklahoma State University

Appendix B

Participant Information Sheet

Project Title: Ready to Tear? A Study on Fast Fashion and Consumer Disposal Behavior

Investigator(s):   Cynthia Goudeau, M.S.   Oklahoma State University
                        Hyun-Joo Lee, Ph. D.   Oklahoma State University

Procedures: A survey that should take no more than 30 minutes to complete follows this information sheet. There are questions about your views on the environment in general and the apparel industry as it relates to the environment. In addition, there are questions about the views of those around you regarding the environment. You will also encounter questions about your apparel disposal behaviors. Demographic information is requested as well.

Risks of Participation: There are no known risks associated with this project that are greater than those ordinarily encountered in daily life.

Benefits: It is expected that this project will enhance understanding of the cognitive processes associated with apparel disposal. In addition, the study will provided insight on apparel disposal behaviors and how different types of garments are disposed of using different methods.

Compensation: You will be able to enter a drawing after completing the study for one of four $50.00 cash awards to be given before the end of this semester. At the end of the survey, you will be directed to enter you email address and name to be eligible for this drawing. Your name and email address will not be associated with your research responses, and will be stored in a separate database used only for the purposes of the drawing.

Confidentiality: All information will be anonymous, and none of your information will be stored with the collected data. No individual responses will be reported as all results will be presented as aggregated data. The OSU IRB has the authority to inspect consent records and data files to assure compliance with approved procedures. The records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored on a password protected network drive and online back-up service (i.e. Dropbox). Only researchers and individuals responsible for research oversight will have access to these records. The collected data will be destroyed three years after the study has been completed.

Contacts: If you have any questions or concerns about the research or your rights as a participant in this study, please feel free to contact Cynthia Goudeau at cynthia.goudeau@okstate.edu or 405-744-5035; or Hyun-Joo Lee at

hyunjoo.lee@okstate.edu or 405-744-3015. If you have questions about your rights as a research volunteer, you may contact the Institutional Review Board at irb@okstate.edu or 405-744-3377.

Participant Rights: Your participation in this project is appreciated and completely voluntary. You may choose not to participate at any time without penalty or problem. Your agreement to participate in this research study is signified by your participation.

Appendix C

Online Questionnaire

The primary methods used for clothing disposal are resell, donate or recycle, reuse, or discard. The following sections provide a brief description of each method.

Resell refers to selling clothing items directly to other people, through consignment shops, to resale or secondhand shops (i.e. Plato's Closet and Buffalo Exchange), through online websites (i.e. eBay or Craigslist), and at garage sales or flea markets.

Donate or recycle refers to giving away clothing to family or friends. Donating can also be done through charitable organizations (i.e. Goodwill, Salvation Army, or religious organizations), thrift stores (i.e. Savers), curbside recycling programs, retail recycling programs, online companies (i.e. DonateStuff).

Reuse refers to using clothing for a purpose other than for which it was originally intended. For example, old t-shirts may be used as cleaning rags around the house or made into other products such as quilts.

Discard refers to when clothing is thrown away, abandoned, or destroyed. Examples include throwing clothing items away in trash bins or garbage cans as well as dropping clothing off at landfills.

While completing this survey, please be mindful of these definitions and refer back to them as needed.

<u>Introductory Question:</u>

In the last year, have you utilized <u>at least one</u> of the four clothing disposal methods described above?

        a.Yes

        b. No

<u>SECTION 1. Environmental Apparel Production Knowledge</u>

	Question	Strongly Disagree						Strongly Agree
1	Chemical pollutants are produced during manufacturing of synthetic or manufactured fibers such as polyester.	1	2	3	4	5	6	7
2	Air pollution can occur during some common dye processes of textiles.	1	2	3	4	5	6	7

		Strongly Disagree						Strongly Agree
3	Dyeing and finishing processes use a lot of water.	1	2	3	4	5	6	7
4	Special finishes on fabrics may create problems for recycling.	1	2	3	4	5	6	7
5	Phosphate-containing detergents can be a source of water pollution.	1	2	3	4	5	6	7

SECTION 2. Apparel Disposal Motivation

	Question	Strongly Disagree						Strongly Agree
1	I sell my clothing for the money.	1	2	3	4	5	6	7
2	It is very important to me to donate my clothes to charity for needy people.	1	2	3	4	5	6	7
3	I often reuse garments for other purposes to get the most out of them.	1	2	3	4	5	6	7
4	I don't reuse/recycle clothing because it is time-consuming.	1	2	3	4	5	6	7
5	I sell much of my clothing at second-hand stores for economic reasons.	1	2	3	4	5	6	7
6	I always give away my clothing to help others.	1	2	3	4	5	6	7
7	I always use worn out garments for rags to save money.	1	2	3	4	5	6	7
8	Recycling clothing is a hassle for me.	1	2	3	4	5	6	7
9	I often trade my clothing at second-hand stores to save money.	1	2	3	4	5	6	7
10	I donate my clothes to charity to do my part in decreasing the environmental problems.	1	2	3	4	5	6	7

11	I reuse clothing because it can significantly benefit the environment.	1	2	3	4	5	6	7
12	It is time-consuming to donate my clothes to charity.	1	2	3	4	5	6	7
13	To reduce landfill problems, I sell my unwanted clothing rather than throwing it away.	1	2	3	4	5	6	7
14	I sell my old garments for environmental reasons.	1	2	3	4	5	6	7
15	Donating to charity is a good way of recycling old clothes.	1	2	3	4	5	6	7
16	I try to use my old garments for crafts or sewing purposes because throwing away can significantly contribute to the landfill problem.	1	2	3	4	5	6	7
17	I find it convenient to throw away unwanted garments.	1	2	3	4	5	6	7
18	I resell clothing to recycle the garments that are in good condition.	1	2	3	4	5	6	7
19	I never reuse/recycle clothing because I don't know how to go about doing it.	1	2	3	4	5	6	7
20	I'm not aware of how clothing can be recycled.	1	2	3	4	5	6	7

SECTION 3. Apparel Disposal Attitude

	Question	Strongly Disagree						Strongly Agree
1	Reselling, donating, and reusing clothing are good ideas.	1	2	3	4	5	6	7
2	I would be willing to spend time and/or money to resell, donate, and reuse my old clothing.	1	2	3	4	5	6	7

3	More information about ways to resell, donate, and reuse clothing should be made available.	1	2	3	4	5	6	7
4	Reselling, donating, and reusing clothing are more trouble than they are worth.	1	2	3	4	5	6	7
5	People should be encouraged to resell, donate, and reuse clothing.	1	2	3	4	5	6	7

SECTION 4. Apparel Disposal Subjective Norm

1	People who influence my behavior think that I should resell, donate, or reuse clothing.	1	2	3	4	5	6	7
2	People who are important to me would think that I should resell, donate, or reuse clothing.	1	2	3	4	5	6	7
3	My friends would think that I should resell, donate, or reuse clothing.	1	2	3	4	5	6	7
4	Generally speaking, I want to do what my friends think I should do.	1	2	3	4	5	6	7
5	My family would think that I should resell, donate, or reuse clothing.	1	2	3	4	5	6	7
6	Generally speaking, I want to do what my family thinks I should do.	1	2	3	4	5	6	7

SECTION 5. Apparel Disposal Intention

	Question	Strongly Disagree						Strongly Agree
1	I have considered reselling my used clothing.	1	2	3	4	5	6	7
2	I have considered donating my used clothing to charity.	1	2	3	4	5	6	7

3	I have considered reusing my used clothing for other purposes.	1	2	3	4	5	6	7
4	I have considered throwing my used clothing in the trash.	1	2	3	4	5	6	7
5	I intend to resell my used clothing to others directly or through a retailer.	1	2	3	4	5	6	7
6	I intend to donate my used clothing to a charitable organization or cause.	1	2	3	4	5	6	7
7	I intend to reuse my used clothing for other purposes.	1	2	3	4	5	6	7
8	I intend to throw my used clothing in the trash.	1	2	3	4	5	6	7
9	I want to resell my used clothing to others directly or through a retailer.	1	2	3	4	5	6	7
10	I want to donate my used clothing to a charitable organization or cause.	1	2	3	4	5	6	7
11	I want to reuse my used clothing for other purposes.	1	2	3	4	5	6	7
12	I want to throw my used clothing in the trash.	1	2	3	4	5	6	7

SECTION 6. Apparel Disposal Behavior

Fast Fashion: A fast fashion retailer is a company that sells clothing that is inspired by fashion shows, street fashion, blogs, trade publications, and apparel designers at low, affordable prices. Fast fashion retailers sell clothing that reflects current trends during the same seasons that the trends emerge. These companies stock their brick-and-mortar and online stores with new merchandise on a frequent, continuous basis.

Popular fast fashion retailers include:

> ➤ Zara, H&M, Forever 21, Mango, Topshop, ASOS, Uniqlo, Rue 21, Charlotte Russe, and Wet Seal.

Non-Fast Fashion: The strategy of retailers who produce durable clothing merchandise that is typically not sensitive to rapidly changing trends in fashion. The majority of items sold at these retail stores are considered basics or staple items that may be worn from season to season, year after year.

Popular non-fast fashion retailers include:

> ➤ big box retailers (i.e. Walmart and Target),
> ➤ department stores (i.e. Macy's, Dillard's, Belk, and JC Penney's),
> ➤ luxury or designer retailers (i.e. Louis Vuitton, Michael Kors, and Coach),
> ➤ specialty retailers (i.e. Express, Urban Outfitters, the Limited, and Anthropologie),
> ➤ and off-price retailers (i.e. TJ Maxx and Marshalls).

1. In general, how often have you disposed of fast fashion clothing items in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

2. In general, how often have you disposed of non-fast fashion clothing items in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

3. How often have you **resold** fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

4. How much of your fast fashion clothing have you **resold** in the last year?

None			Half			All
1	2	3	4	5	6	7

5. How often have you **donated or recycled** fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

6. How much of your fast fashion clothing have you **donated or recycled** in the last year?

None			Half			All
1	2	3	4	5	6	7

7. How often have you **reused** fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

8. How much of your fast fashion clothing have you **reused** in the last year?

None			Half			All
1	2	3	4	5	6	7

9. How often have you **discarded** fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

10. How much of your fast fashion clothing have you **discarded** in the last year?

None			Half			All
1	2	3	4	5	6	7

11. How often have you **resold** non-fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

12. How much of your non-fast fashion clothing have you **resold** in the last year?

None			Half			All
1	2	3	4	5	6	7

13. How often have you **donated or recycled** non-fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

14. How much of your non-fast fashion clothing have you **donated or recycled** in the last year?

None			Half			All
1	2	3	4	5	6	7

15. How often have you **reused** non-fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

16. How much of your non-fast fashion clothing have you **reused** in the last year?

None			Half			All
1	2	3	4	5	6	7

17. How often have you **discarded** non-fast fashion clothing in the last year?

Never	Annually	Bi-Annually (every 6 months	Seasonally (every 3-4 months)	Monthly	Weekly	Daily
1	2	3	4	5	6	7

18. How much of your non-fast fashion clothing have you **discarded** in the last year?

None			Half			All
1	2	3	4	5	6	7

19. What are the reasons you use each of the following methods to dispose of fast fashion clothing? (Mark all that apply. <u>Do not mark the shaded areas</u>.)

	Resell	Donate/ Recycle	Reuse	Discard
Originally valuable or expensive				▓
Did not fit				
Out of style				
Bored or tired of garment				
Sold to recoup some of the original cost		▓	▓	▓
Helps needy people	▓		▓	▓
Damaged or worn out				
Convenience of disposal				
Garment was not wasted				▓

20. What are the reasons you use each of the following methods to dispose of non-fast fashion clothing? (Mark all that apply. <u>Do not mark the shaded areas</u>.)

	Resell	Donate/ Recycle	Reuse	Discard
Originally valuable or expensive				▓
Did not fit				
Out of style				
Bored or tired of garment				
Sold to recoup some of the original cost		▓	▓	▓
Helps needy people	▓		▓	▓
Damaged or worn out				
Convenience of disposal				
Garment was not wasted				▓

SECTION 7. Please provide your demographic information.

Fill in the blank or choose the option that best describes you:

1. Gender
   a. Male
   b. Female

2. Birth Year _____(Fill-in-the-Blank)

3. Ethnicity
   a. Caucasian
   b. African American
   c. Hispanic/Latino
   d. Asian
   e. Native American
   f. Multiracial
   g. Other _____(Fill-in-the-Blank)

4. College/Area of Study
   a. College of Agricultural Sciences and Natural Resources
   b. College of Arts and Sciences
   c. College of Education
   d. College of Engineering, Architecture, and Technology
   e. College of Human Sciences
   f. Spears School of Business
   g. Other _____(Fill-in-the-Blank)

5. School Classification
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior

Appendix D

IRB Approval Letter

Oklahoma State University Institutional Review Board

Date:	Thursday, October 17, 2013
IRB Application No	HE1363
Proposal Title:	Ready to Tear? A Study on Fashion and Consumer Disposal Behavior

Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved **Protocol Expires: 10/16/2016**

Principal
Investigator(s):

Cynthia V. Goudeau
431 HS
Stillwater, OK 74078

Hyun-Joo Lee
439 HS
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.

☒ 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.

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. Protocol modifications requiring approval may include changes to the title, PI, advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
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 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Shelia M. Kennison

Shelia Kennison, Chair
Institutional Review Board

Appendix E

Mean, Standard Deviation, Skewness, and Kurtosis of Apparel Disposal Scale Items

Item	Mean	SD	Skewness	Kurtosis
EAK1	4.87	1.29	-.45	.56
EAK2	4.95	1.31	-.61	.72
EAK3	5.11	1.28	-.55	.56
EAK4	5.05	1.27	-.57	.57
EAK5	5.04	1.33	-.45	.35
ADMRS1	3.77	1.98	.05	-1.38
ADMRS2	3.72	1.87	.03	-1.24
ADMRS3	3.61	1.82	.17	-1.21
ADMRS4	3.93	1.74	-.03	-1.04
ADMRS5	3.09	1.57	.53	-.48
ADMRS6	4.38	1.85	-.40	-1.06
ADMDO1	5.43	1.29	-.70	.10
ADMDO2	5.13	1.40	-.65	.04
ADMDO3	4.53	1.70	-.30	-.85
ADMRU1	4.70	1.71	-.59	-.61
ADMRU2	3.98	1.88	-.09	-1.22
ADMRU3	4.32	1.61	-.36	-.59
ADMRU4	3.89	1.79	-.05	-1.05
ADMDS1	2.39	1.40	1.04	.55
ADMDS2	2.79	1.52	.67	-.44
ADMDS3	2.71	1.59	.75	-.52
ADMDS4	3.43	1.80	.14	-1.19
ADMDS5	2.34	1.57	1.29	.97
ADMDS6	2.59	1.69	.89	-.35
ADA1	6.31	.911	-1.41	1.74
ADA2	5.33	1.33	-.78	.50
ADA3	5.76	1.12	-.54	-.09
ADA4	5.55	1.41	-.94	.35
ADA5	6.14	.98	-1.18	1.02
ADSN1	4.82	1.51	-.47	-.03
ADSN2	5.22	1.25	-.32	-.20
ADSN3	4.99	1.41	-.61	.34
ADSN4	3.38	2.83	.08	-1.03
ADSN5	5.57	1.25	-.66	-.174
ADSN6	4.34	1.67	-.43	-.67
ADIRS1	5.13	1.69	-.99	.16
ADIRS2	4.02	1.76	-.24	-1.05
ADIRS3	4.26	1.74	-.38	-.77
ADIDO1	6.02	1.03	-.99	.41
ADIDO2	5.68	1.23	-.90	.37
ADIDO3	5.88	1.08	-.79	.26
ADIRU1	5.21	1.49	-1.03	.66
ADIRU2	4.71	1.58	-.61	-.39
ADIRU3	4.90	1.51	-.77	.18

ADIDS1	3.67	1.87	-.00	-1.28
ADIDS2	2.33	1.39	1.07	.50
ADIDS3	2.43	1.51	.92	-.01
FFRS1	1.68	.88	1.08	.16
FFRS2	1.88	1.23	1.38	1.19
NFRS1	1.60	.82	1.35	1.17
NFRS2	1.76	1.09	1.51	1.59
FFDO1	2.46	1.16	.60	-.25
FFDO2	2.93	1.58	.74	.02
NFDO1	2.30	.97	.88	.57
NFDO2	2.75	1.40	.97	.62
FFRU1	2.75	1.69	.72	-.49
FFRU2	2.94	1.94	.64	-.87
NFRU1	2.64	1.60	1.01	.20
NFRU2	2.73	1.80	1.03	.01
FFDS1	1.52	.798	1.62	2.09
FFDS2	1.62	.99	1.70	2.20
NFDS1	1.56	.78	1.34	1.27
NFDS2	1.63	.95	1.78	3.00

Note. EAK: Environmental Apparel Knowledge; ADMRS: Apparel Disposal Motivation to Resell; ADMDO: Apparel Disposal Motivation to Donate; ADMRU: Apparel Disposal Motivation to Reuse; ADMDS: Apparel Disposal Motivation to Discard; ADA: Apparel Disposal Attitude; ADSN: Apparel Disposal Subjective Norm; ADIRS: Apparel Disposal Intention to Resell; ADIDO: Apparel Disposal Intention to Donate; ADIRU: Apparel Disposal Intention to Reuse; ADIDS: Apparel Disposal Intention to Discard; FFRS: Fast Fashion Resell Behavior; NFRS: Non-Fast Fashion Resell Behavior; FFDO: Fast Fashion Donate Behavior; NFDO: Non-Fast Fashion Donate Behavior; FFRU: Fast Fashion Reuse Behavior; NFRU: Non-Fast Fashion Reuse Behavior; FFDS: Fast Fashion Discard Behavior; NFDS: Non-Fast Fashion Discard Behavior.

VITA

Cynthia V. Goudeau

Candidate for the Degree of

Doctor of Philosophy

Thesis: READY TO TEAR? A STUDY ON FASHION AND CONSUMER DISPOSAL BEHAVIOR

Major Field: Human Sciences

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Human Sciences at Oklahoma State University, Stillwater, Oklahoma in July, 2014.

Completed the requirements for the Master of Science in Merchandising at the University of North Texas, Denton, TX in 2007.

Completed the requirements for the Bachelor of Arts in Journalism at Langston University, Langston, OK in 2005.

Experience: I have been teaching merchandising and apparel-related classes for the last seven years. In the classroom, I combine my five years of retailing and merchandising work experience with knowledge obtained through research and studies to provide students with an in-depth look at the world of fashion and consumers. My primary research interests include consumer behavior and sustainability in relation to apparel and fashion.

Professional Memberships: American Collegiate Retailing Association; International Textile and Apparel Association