



## Exploring the antecedents of apparel disposal behaviors: A study of young U.S. consumers

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### ABSTRACT

To obtain a comprehensive view of the apparel disposal behaviors of young U.S. consumers, this study evaluated antecedents of apparel disposal behaviors using a framework based on the theory of reasoned action (TRA), categorization theory, and prior literature. Data were obtained from a convenience sample of undergraduate students at a large U.S. Midwestern university through a self-administered online survey. A final sample of 358 usable surveys was analyzed through the use of structural equation modeling (SEM) with Amos. The results supported the proposed relationships between environmental apparel knowledge and attitude toward sustainable methods of apparel disposal. In addition, the proposed relationships between attitude and apparel disposal intention (intention to discard, donate, reuse, or resell) were all supported except for intention to resell. While the results showed a significant and positive relationship between subjective norms and intention to reuse or discard apparel, no significant relationship was shown between subjective norms and intention to donate apparel. In addition, subjective norms were a positive and significant antecedent of attitude. Lastly, respondents' intention to engage in a particular apparel disposal behavior corresponded with the actual apparel disposal behavior.

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## Introduction

The clothing lifecycle has accelerated over the last few decades due to decreasing apparel prices and increasingly flexible supply chain systems (Bhardwaj & Fairhurst, 2010; Joung & Park-Poaps, 2013). In the U.S., the amount of clothing purchased by consumers has doubled over the last 20 years (Koch, 2013). Consumers have become increasingly conscious of fashion trends, prompting apparel businesses to produce and offer cheaper, trendier garments often referred to as fast fashion (Bhardwaj & Fairhurst, 2010; Joung & Park-Poaps, 2013; Žurga, Hladnik, & Tavčer, 2015). The desire to be fashionable has created a continuous demand for the latest stylish products, escalating the rate at which consumers consider apparel products to be obsolete (Birtwistle & Moore, 2007; Bruce & Daly, 2006; Cao & Shao, 2021). Moreover, the rising popularity of fast fashion garments has contributed to the increasing rate at which consumers dispose of apparel (Bianchi & Birtwistle, 2012; Joung & Park-Poaps, 2013; Morgan & Birtwistle, 2009; La Rosa & Jorgensen, 2021; Žurga, Hladnik, & Tavčer, 2015).

Apparel disposal has become a concern in recent years because textile waste rates have continued to rise (Claudio, 2007; La Rosa & Jorgensen, 2021). According to the Environmental Protection Agency ("What happens when fashion becomes fast, disposable and cheap?", 2016), approximately 13 million tons of post-consumption textile waste is produced each year. This textile waste takes up

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roughly 5% of all landfill space. Although nearly 100% of the textile waste can be used in some other way (Hawley, 2006b), less than 25% of it is reclaimed or recovered in any way (Wang et al., 2003). As consumers dispose of older garments in favor of newer ones, they are often left with limited knowledge of options for disposal (Morgan & Birtwistle 2009; Norum, 2017). The negative environmental effects associated with apparel disposal have contributed to an emerging focus on sustainable apparel consumption (Cao & Shao, 2021; La Rosa & Jorgensen, 2021; Žurga, Hladnik, & Tavčer, 2015).

In academia, many researchers have studied the acquisition and use components of sustainable consumption (Mohr et al., 2001), but disposal is a relatively new subject of interest (Birtwistle & Moore, 2007; de Coverly et al., 2008; Žurga, Hladnik, & Tavčer, 2015). To gain a complete understanding of the entire apparel disposal process, it is necessary to measure actual behaviors and study the cognitive processes of consumers as they make post-consumption decisions related to apparel (Laitala, 2014; Norum, 2017). Therefore, the current study focuses on the apparel disposal behaviors of young consumers. Young consumers are ideal for this research as they tend to be more concerned with trends and are more devoted to following fashion than any other age group (Martin & Bush, 2000; Morgan & Birtwistle, 2009). In addition, they prefer low-quality clothing that is affordable, but stylish (e.g., fast fashion) and do not expect to keep apparel items for long periods of time (Bhardwaj & Fairhurst, 2010).

The purpose of this research is two-fold. First, guided by the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), we evaluate the antecedents to apparel disposal behaviors of young U.S. consumers. Most studies that have addressed fashion in relation to apparel disposal behaviors have concentrated on female consumers (Bubna & Norum, 2017). However, consumers of both genders are necessary for the study of apparel disposal, so both genders are included in this study. Second, grounded in categorization theory, we explore whether causal relationships exist between attitude toward sustainable methods of apparel disposal and apparel disposal intention. We also investigate potential relationships between subjective norms of sustainable methods of apparel disposal and apparel disposal intention.

This paper first explains the theoretical background and methodology for the study, then describes the empirical data and analysis procedures, and finally discusses the research results and conclusions.

## **Literature Review**

### **Theoretical Background and Conceptual Framework**

In consumer research, the term “disposal” typically refers to one’s voluntary attempt to get rid of an item that is no longer deemed purposeful (Laitala, 2014). The Disposition Decision Taxonomy by Jacoby et al. (1977) is a popular conceptual model that is often used to explore disposal in apparel studies (Albinsson & Perera, 2009; Shim, 1995). The original taxonomy, which is not limited to apparel products, explains that consumers permanently dispose of a product by selling it, trading or giving it away, or throwing it away. In apparel research, the taxonomy has been expanded to include reusing, as reuse is a common behavior (Shim, 1995; Stephens, 1985). Therefore, the four apparel disposal methods examined in this study are reselling, donating, reusing, and discarding. Reselling is defined as the act of selling apparel directly or indirectly to other consumers (Shim, 1995). Direct resell takes place when one consumer sells his or her apparel items directly to another consumer without the involvement of a broker. Indirect resell takes place when a broker agency, such as a consignment shop, online auction website, or secondhand shop, is involved in exchanging apparel items for currency. Donating refers to giving away or trading goods without exchanging currency (Ha-Brookshire & Hodges, 2009; Shim, 1995).

The terms “donating” and “recycling” are used interchangeably in many apparel studies. Donating can be carried out by giving apparel to friends or family members or by giving items to thrift stores, charities, curbside recycling programs, etc. Reusing is defined as repurposing apparel for use beyond that for which it was originally acquired (Domina & Koch, 1999; Stephens, 1985). Discarding refers to the act of throwing away, destroying, or otherwise abandoning an apparel item (Stephens, 1985). 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). Thus, reselling, donating, and reusing are generally regarded as more environmentally friendly and socially responsible disposal methods than discarding (Claudio, 2007; Hawley, 2006a). The former methods support charitable agencies, generate job opportunities, and reduce textile waste. They also reduce the need for landfill space and additional textile production, in turn conserving energy and water while preserving original textile fibers and materials (Hawley, 2006a).

The theory of reasoned action (TRA) explains the relationship between attitudes and behaviors (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). According to this model, two major considerations determine human behavioral intent: attitude and subjective norm. Attitude refers to the beliefs one has about the consequences of performing a particular action or behavior (Ajzen, 1989). Subjective norm is the social pressure to comply with the perceived expectations of others regarding a given behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Intention is the cognitive representation or indication of a person’s readiness to perform a behavior, and is a direct antecedent of behavior. Behavior is a person’s observable response to an object, person, institution, or event in a given situation (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

Researchers use studies of how people categorize new instances to help guide marketing decisions, branding, consumer goals, and contextual influences (Loken et al., 2008). According to the theories of categorization, consumers classify new products, services, or

brands using *category representations*. Category representations consist of information that is memorized in the cognitive system. A *consumer category* is a set of products, services, or brands that consumers view as being connected to them in some way. Consumers use these representations in managing information, understanding and drawing inferences about meanings, setting goals, or selecting a behavior. This whole process is referred to as *categorization* (Loken et al., 2008; Wyer & Srull, 1981).

There are three prominent views of how categories are represented in memory: classical, prototype, and exemplar. The classical view assumes that people construct categorical representations based on necessary and significant critical features that determine category membership. In the classical view, all category members are equally representative of a category (Cohen & Basu, 1987). The prototype view assumes that categories are represented by a prototype, which is a set of features generally associated with members of a category. The prototype view emphasizes how well each feature fits with a category (Cohen & Basu, 1987; Loken et al., 2008). The exemplar view assumes that categorical representations are made based on a specific category instance that is retrieved by a new stimulus. This view focuses on whether a particular category exemplar is accessible during the categorization process (Cohen & Basu, 1987; Loken et al., 2008). Based on the categorization perspective, consumers presumably construct their categorical representations for apparel disposal methods and then develop associations between their attitude toward sustainable apparel disposal and intention to dispose of apparel. A link also exists between subjective norms of sustainable apparel disposal and apparel disposal intention.

This study proposes a comprehensive model (Figure 1) for understanding consumer apparel disposal behavior based upon TRA and categorization perspective. This model is used to test the relationships between environmental apparel knowledge, attitude toward sustainable methods of apparel disposal, subjective norms of sustainable methods of apparel disposal, apparel disposal intention, and apparel disposal behavior.

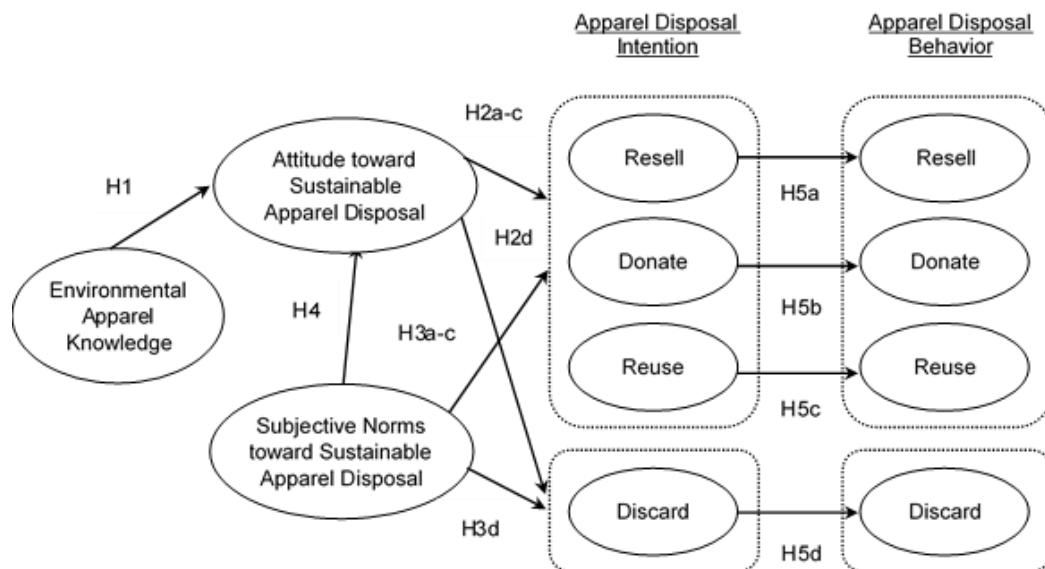


Figure 1: Conceptual Model; Source: Authors

## Empirical Review and Hypotheses Development

### Environmental Apparel Knowledge and Attitude toward Sustainable Apparel Disposal

Environmental apparel knowledge is defined as one's "awareness of the impact of apparel products on the natural environment" (Kim, 1995, p. 16). While studies on environmental knowledge in general have noted a link between environmental knowledge and 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 has little to no effect on consumption practices (Hiller-Connell & Kozar, 2012; Kim & Damhorst, 1998). On the other hand, other researchers have found that environmental apparel knowledge affects consumption behavior (Brosdahl & Carpenter, 2010; Wong & Taylor, 2001). According to Marcketti and Shelley (2009), knowledge is part of the belief component of the TRA. Beliefs, which include factors such as knowledge, are precursors to attitudes (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

Few researchers have explored potential links between environmental apparel knowledge and apparel disposal attitude (Chang & Watchravesringkan, 2018). However, previous studies on environmental knowledge and environmental attitude have established a positive relationship between the two concepts. In other words, increasing knowledge about the environment could result in more positive environmental attitudes (Arcury, 1990; Synodinos, 1990). Based on these findings, it is reasonable to believe that environmental apparel knowledge is positively related to attitudes toward the more environmentally-friendly or sustainable apparel disposal behaviors. The following hypothesis is based on the previously discussed literature.

H1. Consumer knowledge of the environmental effects of apparel production positively influences attitude toward sustainable methods of apparel disposal.

#### **Attitude toward Sustainable Apparel Disposal and Apparel Disposal Intention**

Attitude consists of a person's negative or positive beliefs about the consequences associated with a given behavior. The more favorable a person's attitude is toward a specific behavior, the more likely he or she is to intend to perform the behavior (Fishbein & Ajzen, 1975). Many apparel disposal studies that evaluate attitude have specifically focused on environmental attitudes. Shim (1995) found that environmental attitude positively affects donate and reuse behaviors, but negatively affects discard behaviors. More recently, Joung and Park-Poaps (2013) found that while environmental attitude influences donation behavior, it does not significantly affect resale behavior. Although several studies have focused on environmental attitudes, others have connected apparel disposal with recycling and/or reusing attitudes. For example, Bianchi and Birtwistle (2010) found that Scottish consumers with positive attitudes toward recycling were more likely to donate, give away, or sell clothing than to discard it. Based on the categorization perspective, if consumers designate reselling, donating, and reusing as sustainable methods of apparel disposal, their intention to dispose of apparel would be positively or negatively influenced by their attitude toward sustainable methods of apparel disposal. In other words, the more positive a person's attitude is toward sustainable methods of apparel disposal, the more likely he or she is to intend to resell, donate, or reuse garments, and the less likely he or she is to discard garments. Therefore, we propose the following hypothesis:

H2. Attitude toward sustainable methods of apparel disposal positively influences apparel disposal intention to a) resell, b) donate, and c) reuse apparel, but negatively influences intention to d) discard apparel.

#### **Subjective Norms toward Sustainable Apparel Disposal and Apparel Disposal Intention**

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) argued that a consumer's subjective norms are based on his or her beliefs about a reference group. 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 shape a consumer's attitudes about the redistribution or disposal of unwanted items (Paden & Stell, 2005). TRA states that the more positive a person's subjective norms regarding a behavior, the more likely he or she is to develop intentions to perform the behavior. However, in the realm of apparel, little research has explored the role of subjective norms in disposal intention. While Ha-Brookshire and Hodges (2009) found that social pressure does not strongly influence intentions to donate apparel, Joung and Park-Poaps (2013) observed that family subjective norms influence resale and donation of apparel.

Based on the theories of categorization, consumers may classify reselling, donating, and reusing as members of the same category (i.e., sustainable methods of apparel disposal). If so, subjective norms of sustainable methods of apparel disposal would positively or negatively influence intentions to use each method of apparel disposal. That is, the more positively consumers are influenced by their subjective norms of sustainable apparel disposal behaviors, the more likely they are to have a positive attitude toward sustainable apparel disposal behaviors, and the less likely they are to have a positive attitude toward discarding apparel. Therefore, we propose the following hypothesis.

H3. Subjective norms of sustainable methods of apparel disposal positively influence apparel disposal intention to a) resell, b) donate, and c) reuse apparel, but negatively influence intention to d) discard apparel.

#### **Subjective Norms toward Sustainable Apparel Disposal Attitude toward Sustainable Apparel Disposal**

Fishbein and Ajzen (1981) indicated that attitude is correlated with subjective norms in the TRA. The theory of planned behavior (TPB), an extension of TRA, assumes that a reciprocal relationship exists between attitudes and subjective norms (Ajzen, 1991). Park and Ha (2014), who studied consumer recycling behavior, found that subjective norms significantly influence attitude toward recycling, which then leads to recycling intention. Thus, we hypothesize the following:

H4. Subjective norms of sustainable methods of apparel disposal positively influence attitude toward sustainable methods of apparel disposal.

#### **Apparel Disposal Intention and Apparel Disposal Behavior**

According to 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 norms (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). In apparel disposal research, Ha-Brookshire and Hodges (2009) found a relationship between apparel donation intention and apparel donation behavior. In this study, apparel disposal intention is defined as the amount of effort a person is willing to exert in order to perform a designated apparel disposal behavior. Based on TRA and previously discussed literature, the following hypothesis is proposed.

H5. 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.

## Research and Methodology

### Sample

Generation Y or Z (Gen Y or Z), which consists of consumers who were born between the early 1980s and early 2000s, is the ideal age group for this study. Whereas these young consumers are more likely to patronize fast fashion stores than shoppers from any other generation (Byun & Sternquist, 2008), this generation is much “greener” than its predecessors (McKayn, 2010). Because the majority of undergraduate students are members of Gen Y or Z, data were obtained from a convenience sample of undergraduate students at a large U.S. Midwestern university through a self-administered online survey. Out of 451 responses, 358 were usable for data analysis.

### Measurements

The online questionnaire was made up of five sections that assessed the following: environmental apparel knowledge, attitude toward sustainable apparel disposal, subjective norms of sustainable apparel disposal, apparel disposal intention, apparel disposal behavior, and demographics. The questionnaire began with a brief explanation of all four disposal methods. Scale items corresponding with each apparel disposal behavior (i.e. resell, donate, reuse, discard) were included for apparel disposal intention and apparel disposal behavior. Respondents’ environmental apparel knowledge was evaluated using a five-item scale developed by Kim and Damhorst (1998) which measures participants’ knowledge of the environmental impacts of apparel production. Attitude toward sustainable methods of apparel disposal was assessed using questions developed by Stephens (1985). The original scale focused solely on clothing recycling, so the word “recycle” or “recycling” was replaced by “resell,” “donate,” “reuse” or “reselling,” “donating,” “reusing.” Scale items for subjective norms of sustainable methods of apparel disposal were adapted from George’s (2004) study on Internet purchasing.

The original scale was modified for the present study by changing references to Internet purchasing in each question to references to reselling, donating, or reusing. For example, the original item “People who influence my behavior would think that I should buy things over the Internet” was modified to “People who influence my behavior think that I should resell, donate, or reuse clothing.” Based on Ajzen’s (2002) instructional guide, scale items were developed to measure intention to perform each apparel disposal behavior. A 7-point Likert-type scale was utilized to assess environmental apparel knowledge, attitude, subjective norms, and apparel disposal intention (1 = strongly disagree to 7 = strongly agree).

Apparel disposal behavior was assessed by asking respondents to check how often and how much they have resold, donated, reused, or discarded apparel items in the last year. Items asking how often participants had performed an action were rated on a 7-point Likert-type scale (1 = never, 2 = annually, 3 = bi-annually, 4 = seasonally, 5 = monthly, 6 = weekly, or 7 = daily), whereas the items asking “how much” were rated on a 7-point Likert-type scale that ranged from “none” to “all.” All scale items are presented in Table 1.

**Table 1:** Results of the Measurement Model

Items		Factor Loading	t-Value
<b>Environmental Apparel Knowledge (<math>\alpha = .949</math>; CR = .944; AVE = .770)</b>			
eak1	Chemical pollutants are produced during manufacturing of synthetic or manufactured fibers such as polyester.	.848	19.539***
eak2	Air pollution can occur during some common dye processes of textiles.	.879	20.816***
eak3	Dyeing and finishing processes use a lot of water.	.923	22.599***
eak4	Special finishes on fabrics may create problems for recycling.	.864	20.234***
eak5	Phosphate-containing detergents can be a source of water pollution.	.873	20.599***
<b>Attitude toward Sustainable Apparel Disposal (<math>\alpha = .776</math>; CR = .800; AVE = .577)</b>			
ada1	Reselling, donating, and reusing clothing are good ideas.	.800	17.025***
ada2	I would be willing to spend time and/or money to resell, donate, and reuse my old clothing. <sup>a</sup>	–	–
ada3	More information about ways to resell, donate, and reuse clothing should be made available.	.585	11.374***
ada4	Reselling, donating, and reusing clothing are more trouble than they are worth. <sup>a</sup>	–	–
ada5	People should be encouraged to resell, donate, and reuse clothing.	.866	18.962***
<b>Subjective Norms toward Sustainable Apparel Disposal (<math>\alpha = .846</math>; CR = .850; AVE = .588)</b>			
adsn1	People who influence my behavior think that I should resell, donate, or reuse clothing.	.709	14.620***
adsn2	People who are important to me would think that I should resell, donate, or reuse clothing.	.827	18.115***
adsn 3	My friends would think that I should resell, donate, or reuse clothing.	.710	14.634***
adsn 4	Generally speaking, I want to do what my friends think I should do. <sup>a</sup>	–	–
adsn 5	My family would think that I should resell, donate, or reuse clothing.	.813	17.681***
adsn 6	Generally speaking, I want to do what my family thinks I should do. <sup>a</sup>	–	–

Table Cont'd

<b>Resell Disposal Intention (<math>\alpha = .845</math>; CR = .846; AVE = .648)</b>			
<b>adirs1</b>	I have considered reselling my used clothing.	.733	15.169***
<b>adirs2</b>	I intend to resell my used clothing to others directly or through a retailer.	.834	18.026***
<b>adirs3</b>	I want to resell my used clothing to others directly or through a retailer.	.843	18.292***
<b>Donate Disposal Intention (<math>\alpha = .894</math>; CR = .897; AVE = .745)</b>			
<b>adido1</b>	I have considered donating my used clothing to charity.	.801	17.759***
<b>adido2</b>	I intend to donate my used clothing to a charitable organization or cause.	.893	20.964***
<b>adido3</b>	I want to donate my used clothing to a charitable organization or cause.	.892	20.914***
<b>Reuse Disposal Intention (<math>\alpha = .884</math>; CR = .884; AVE = .718)</b>			
<b>adiru1</b>	I have considered reusing my used clothing for other purposes.	.866	19.493***
<b>adiru2</b>	I intend to reuse my used clothing for other purposes.	.859	19.252***
<b>adiru3</b>	I want to reuse my used clothing for other purposes.	.816	17.916***
<b>Discard Disposal Intention (<math>\alpha = .828</math>; CR = .848; AVE = .654)</b>			
<b>adids1</b>	I have considered throwing my used clothing in the trash.	.670	13.631***
<b>adids2</b>	I intend to throw my used clothing in the trash.	.882	19.779***
<b>adids3</b>	I want to throw my used clothing in the trash.	.857	18.960***
<b>Resell Disposal Behavior (<math>\alpha = .823</math>; CR = .849; AVE = .737)</b>			
<b>adbrs1</b>	How often have you resold clothing in the last year	.872	19.038***
<b>adbrs2</b>	How much of your clothing have you resold in the last year?	.845	18.277***
<b>Donate Disposal Behavior (<math>\alpha = .743</math>; CR = .766; AVE = .620)</b>			
<b>adbdo1</b>	How often have you donated clothing in the last year?	.783	14.858***
<b>adbdo2</b>	How much of your clothing have you donated in the last year?	.792	15.048***
<b>Reuse Disposal Behavior (<math>\alpha = .813</math>; CR = .822; AVE = .699)</b>			
<b>adbdu1</b>	How often have you reused clothing in the last year?	.890	15.096***
<b>adbdu2</b>	How much of your clothing have you reused in the last year?	.778	13.506***
<b>Discard Disposal Behavior (<math>\alpha = .783</math>; CR = .795; AVE = .661)</b>			
<b>adbds1</b>	How often have you discarded clothing in the last year?	.773	15.496***
<b>adbds2</b>	How much of your clothing have you discarded in the last year?	.851	17.305***

<sup>a</sup>The item is removed due to its factor loading of less than .50.

CR = composite reliability; AVE = average variance extracted.

\*\*\*  $p < .001$

## Empirical Data and Analysis

### Sample Descriptive

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 also included 5% Native American, 4.5% African American, 3.4% Asian, 2.5% Multiracial, 2% Hispanic, and 1.4% Other. Undergraduate classifications included freshman (26.8%), sophomore (22.1%), junior (20.7%), and senior (30.4%).

### Model Assessment

Data were analyzed through the use of structural equation modeling (SEM) with Amos graphics. Measurements were evaluated through confirmatory factor analysis (CFA) using maximum-likelihood estimation. During the process, four items with factor loadings of less than .50 were removed. The overall fit statistics of the re-estimated model were acceptable:  $\chi^2(407) = 712.163$ ,  $p < .001$ ;  $\chi^2/df = 1.750$ ; CFI = .956; TLI = .947; RMSEA = .046. Once fit was achieved, composite reliability, convergent validity, and discriminant validity were analyzed. All standardized path weights were significant, ranging from .59 to .92 ( $p < .001$ ). Also, the composite reliability and Cronbach alpha for every construct were above .70.

The average variance extracted (AVE) of every construct was above a threshold value of .50, indicating satisfactory convergent validity (Table 1). Once composite reliability and convergent validity were achieved in the measurement model, discriminant validity was investigated by comparing the square root of the AVE values with the correlations between constructs (Fornell & Larcker, 1981). The square root of every construct's AVE had a greater value than its highest correlation with any other construct, so discriminant validity was established (Table 2).

**Table 2:** Discriminant Validity

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) EAK	<b>.878</b>										
(2) ASAD	.364	<b>.760</b>									
(3) SNSAD	.293	.648	<b>.767</b>								
(4) RSDI	.093	.102	.219	<b>.805</b>							
(5) DODI	.323	.659	.600	.047	<b>.863</b>						
(6) RUDI	.216	.291	.208	.116	.195	<b>.847</b>					
(7) DSDI	-.212	-.393	-.323	-.080	-.406	-.088	<b>.809</b>				
(8) RSDB	-.062	-.187	-.021	.550	-.143	-.088	-.041	<b>.859</b>			
(9) DODB	.150	.110	.298	.147	.317	.050	-.192	.475	<b>.788</b>		
(10) RUDB	.036	.105	.086	.130	.117	.270	-.142	.205	.376	<b>.836</b>	
(11) DSDB	-.091	-.294	-.156	.016	-.247	-.114	.520	.441	.295	.231	<b>.813</b>

Diagonal elements are AVE by each construct. Lower diagonal elements are squared correlation coefficient.

EAK = Environmental Apparel Knowledge; ASAD = Attitude toward Sustainable Apparel Disposal; SNSAD = Subjective Norms toward Sustainable Apparel Disposal; RSDI = Resell Disposal Intention; DODI = Donate Disposal Intention; RUDI = Reuse Disposal Intention; DSDI = Discard Disposal Intention; RSDB = Resell Disposal Behavior; DODB = Donate Disposal Behavior; RUDB = Reuse Disposal Behavior; DSDB = Discard Disposal Behavior

### Testing of Hypotheses

The structural model was built based on CFA outcomes. The structural model produced acceptable fit values:  $\chi^2$  (442) = 812.432,  $p < .001$ ;  $\chi^2/df$  = 1.838; CFI = .947; TLI = .940; RMSEA = .048. The significance of the hypothesized paths was examined to investigate H1 through H5. As summarized in Table 3, environmental apparel knowledge was found to be a significant, positive influencer of attitude toward sustainable apparel disposal ( $\gamma$  = .242,  $p < .001$ ). Attitude toward sustainable apparel disposal proved to be a significant, positive influencer of donate disposal intention ( $\beta$  = .488,  $p < .001$ ) and reuse disposal intention ( $\beta$  = .276,  $p < .001$ ), but a negative influencer of discard disposal intention ( $\beta$  = -.339,  $p < .001$ ). However, no significant relationship was found between attitude toward sustainable apparel disposal and resell disposal intention ( $\beta$  = -.068,  $p$  = .409). Thus, H2b-d) were supported but H2a) was not. For H3, the results showed positive, significant relationships between subjective norms of sustainable apparel disposal and resell disposal intention ( $\beta$  = .237,  $p < .01$ ) and donate disposal intention ( $\beta$  = .282,  $p < .001$ ). However, subjective norms of sustainable apparel disposal were not significantly related to reuse disposal intention ( $\beta$  = .021,  $p$  = .788) or discard disposal intention ( $\beta$  = -.098,  $p$  = .206). Thus, while H3a-b) were supported, H3c-d) were not. For H4, subjective norms of sustainable apparel disposal were positively and significantly related to attitude toward sustainable apparel disposal ( $\gamma$  = .604,  $p < .001$ ). Thus, H4 was supported. For H5, apparel disposal intention to resell, donate, reuse, or discard was positively and significantly related to resell disposal behavior ( $\beta$  = .503,  $p < .001$ ), donate disposal behavior ( $\beta$  = .367,  $p < .001$ ), reuse disposal behavior ( $\beta$  = .289,  $p < .001$ ), and discard disposal behavior ( $\beta$  = .538,  $p < .001$ ). Thus, H5 was fully supported.

**Table 3:** Hypothesis Test

Hypothesized Paths	Standardized Estimates	t-Values	Results
H1: Environmental Apparel Knowledge → Attitude	.242	4.711***	Supported
H2a: Attitude → Resell Disposal Intention	-.068	-.825	Not Supported
H2b: Attitude → Donate Disposal Intention	.488	6.891***	Supported
H2c: Attitude → Reuse Disposal Intention	.276	3.378***	Supported
H2d: Attitude → Discard Disposal Intention	-.339	-4.135***	Supported
H3a: Subjective Norms → Resell Disposal Intention	.237	2.817**	Supported
H3b: Subjective Norms → Donate Disposal Intention	.282	4.218***	Supported
H3c: Subjective Norms → Reuse Disposal Intention	.021	.269	Not Supported
H3d: Subjective Norms → Discard Disposal Intention	-.098	-1.264	Not Supported
H4: Subjective Norms → Attitude	.604	9.052***	Supported
H5a: Resell Disposal Intention → Resell Disposal Behavior	.503	9.038***	Supported
H5b: Donate Disposal Intention → Donate Disposal Behavior	.367	6.573***	Supported
H5c: Reuse Disposal Intention → Reuse Disposal Behavior	.289	5.047***	Supported
H5d: Discard Disposal Intention → Discard Disposal Behavior	.538	8.446***	Supported

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

## **Results and Discussion**

This study focused on the apparel disposal behaviors of young U.S. consumers and evaluated antecedents to apparel disposal behaviors using a framework based on TRA, categorization theory, and prior literature. By applying existing theories and addressing inconsistencies and gaps in previous literature on apparel disposal antecedents, this study contributes to the literature on apparel disposal behaviour.

The results supported the proposed relationships between environmental apparel knowledge and attitude toward sustainable methods of apparel disposal. This finding indicates that the more consumers know about the environmental effects of apparel production, the more likely they are to have positive attitudes toward sustainable apparel disposal, such as reselling, donating, or 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, this study is distinct because, using TRA guidelines, it measures an attitude that is specific to the behavior being evaluated.

The study results indicated that the proposed relationships between attitude and apparel disposal intention (intention to discard, donate, reuse, or resell) were all supported except for intention to resell. Respondents who had a positive attitude toward using sustainable apparel disposal methods were more likely to have intentions to dispose of apparel through donating and reusing. On the other hand, participants who showed a positive attitude toward using sustainable disposal methods were less likely to have intentions to discard their apparel. These findings are consistent with our expectations based on the categorization perspective. However, no significant connection was found between attitude toward using sustainable disposal methods and intention to resell. It may be that respondents did not cognitively classify resale as a sustainable disposal behavior, so economic gain had a greater influence than sustainability on their intention to resell.

While the results showed a significant and positive relationship between subjective norms of sustainable methods of apparel disposal and intention to resell or donate, no significant relationship was shown between subjective norms of sustainable disposal methods and apparel disposal intention to reuse or discard. If respondents believed that their family or friends thought they should use sustainable methods of apparel disposal, they were more likely to intend to resell or donate garments. However, the perceived expectations of family and friends did not influence whether or not participants intended to reuse or discard apparel. This finding may be related to the fact that reusing and discarding are more private apparel disposal behaviors that take place inside a person's home. These two behaviors typically go unseen by household outsiders, while reselling and donating are usually carried out in public. Perhaps respondents only consider the perceived opinions of others when the behavior may be witnessed by those outside the household.

In accordance with the third hypothesis, the more consumers were influenced by their perceptions of what their family and friends thought about sustainable apparel disposal behaviors, the more likely they were to show a positive attitude toward sustainable apparel disposal behaviors. This relationship was not included in the original TRA, but the addition of this relationship increased the predictive power of the model. For the fourth hypothesis, respondents' intention to engage in a particular apparel disposal behavior corresponded with the actual apparel disposal behavior. In other words, consumers who intended to utilize a particular disposal method were likely to actually perform that specific disposal behavior.

## **Conclusions**

The results from this study filled a gap in the literature on antecedents of apparel disposal. Few previous studies of apparel disposal have included intention and subjective norms, which are well established as antecedents to consumer behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Also, the study provided insight into how young consumers construct categorical representations of apparel disposal methods and offered managerial implications to retailers, apparel disposal businesses, and environment-related organizations.

This study offers managerial implications that may be useful to retailers, apparel disposal businesses, and environmental or textile-related organizations. Marketers and organizations can use the findings about the antecedents of apparel disposal methods to plan and execute campaigns to encourage or discourage specific disposal behaviors. To encourage consumers to use more sustainable disposal methods, environmental and textile entities should use educational programs to inform consumers of the environmental impacts of apparel production and sustainable methods of apparel disposal. Such organizations can provide information on environmental apparel production and sustainable apparel disposal via organizational websites, blogs, and videos, or distribute information face-to-face using flyers, brochures, posters, and other methods. For reselling, subjective norms of friends and family 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. For donating, both attitude toward sustainable apparel disposal and subjective norms of sustainable apparel disposal influenced intention to donate apparel. Therefore, donation businesses should take a multilayered approach to consumer marketing. Consumers' positive attitudes toward donation was specifically related to sustainable apparel disposal methods. Thus, donation companies should remind consumers of the charitable and environmentally-friendly aspects of donating. Because subjective norms also influence donation behavior intention, donation businesses should consider promotions and events emphasizing the social aspects of donation processes. Reusing



and discarding are disposal behaviors that are not typically linked to a specific type of retail or apparel-disposal business. Still, these research findings can be used by entities interested in preserving the environment and reducing textile waste. Organizational messages should promote apparel reuse and discourage apparel discard. Such marketing efforts should focus on environmental benefits and sustainability to promote reuse because attitude toward sustainable apparel disposal positively influenced reuse behavioral intention. Attitude toward sustainable apparel disposal negatively influenced apparel discard intentions. Thus, efforts to discourage discarding apparel should emphasize environmental repercussions and highlight alternative disposal methods (i.e. resell, donate, or reuse). Environmental and textile entities should work together to make reselling, donating, and reusing more convenient and to inform consumers of where and how to utilize these alternatives.

This study has several limitations. First, the study's sample was comprised of undergraduate students at one university, so the results may not be generalizable to the greater population. Second, the questionnaire was administered online, so it may have been subject to self-reported bias based on social desirability. Third, we assumed that people consider reselling, donating, and reusing as more sustainable apparel disposal methods than discarding. However, because the results suggested that consumers do not perceive reselling or reusing as a sustainable disposal method, further investigation is needed to find how consumers categorize apparel disposal methods. A final limitation is that the study requested information about disposal over the last year, so respondents' long-term memories may or may not be accurate.

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