The Recycled Self: Consumers' Disposal Decisions of Identity-Linked Products

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It has been known for some time that consumers' identities influence purchasing decisions and people form strong identity connections, or "links," with products and brands. However, research has yet to determine whether identity-linked products are differentially treated at disposal in comparison to products that are not identity linked. Across seven studies, the current research shows that when an everyday product (e.g., paper, cups, aluminum cans) is linked to a consumer's identity, it is less likely to be trashed and more likely to be recycled. Further, the tendency to recycle an identity-linked product increases with the strength and positivity of the connection between the consumer and product (or brand). Finally, the disposal behavior can be explained by consumers' motivation to avoid trashing a product that is linked to the self because it is viewed as an identity threat. In sum, consumers will be more likely to recycle (rather than trash) a product if the product is linked to a consumer's identity. This occurs because placing an identity-linked product in the trash is symbolically similar to trashing a part of the self, a situation consumers are motivated to avoid.

Keywords: recycling, sustainability, identity, disposal, decision making

There is great public concern about our environment (Gallup 2015; Hoornweg and Bhada-Tat 2012) and, in particular, how consumption affects large-scale environmental issues such as greenhouse gas emissions and its subsequent impact on climate change (Bostrom et al. 1994; Reynolds et al. 2010). Fortunately, research has shown that individual consumers can positively drive large-scale environmental changes by engaging in socially responsible behaviors such as recycling (Environmental Protection Agency [EPA] 2012). Success of any recycling program largely depends on consumer participation, and therefore understanding what drives consumers' disposal decisions is of critical importance. Prior research has found that consumers' decisions to recycle versus trash an object is subject to many influences including cost (Jenkins et al. 2003), market incentives (Reschovsky and Stone 1994), convenience (Halvorsen 2008; Schultz and Oskamp 1996), infrastructure (Ebreo and Vining 2001), environmental awareness (Vining and Ebreo 1992), attitudes (Taylor and Todd 1995), individual and cultural differences (McCarty and Shrum 2001), social norms (Ewing 2001; Goldstein, Cialdini, and Griskevicius 2008), and marketing promotions (Kidwell, Farmer, and Hardesty 2013; White, MacDonnell, and Dahl 2011). More recently, Trudel and Argo (2013; also Trudel, Argo, and Meng 2015) found that a product's tangible characteristics (i.e., size and form) also have implications for consumers' disposal behaviors. In the present research we seek to build on Trudel and Argo (2013) by exploring how another product-related

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characteristic, whether the product is linked to the focal consumer's identity, predicts disposal decisions to recycle or trash the product.

It is clear from the literature investigating identity and consumption that consumers have a preference for purchasing products that fit or reflect their desired self (Belk 1988; Chan, Berger, and Van Boven 2012; Escalas and Bettman 2005; Ferraro, Escalas, and Bettman 2011; Forehand and Deshpandé 2001; Kettle and Häubl 2011). Through ownership and use of these products, consumers signal their identity to themselves and others. But what happens when these products are no longer needed or wanted? Do consumers dispose of identity-linked products differently than products not linked to their identities? These unanswered questions are the impetus behind this research project. One possibility is that consumers dispose of products in the same way regardless of whether or not there is an identity link. Indeed, even prior to disposal, consumers have decided that the product is no longer useful because they no longer want or need it for functional or identity purposes. Another possibility, and the one we demonstrate in the current research, is that the presence (vs. absence) of an identity link between the self and a product will influence consumers' disposal decisions even when they have decided that they no longer want the product.

Across seven studies we provide robust evidence for the effect of identity on consumers' disposal decisions using a variety of everyday products (i.e., paper, plastic cups, paper cups, and aluminum cans) and identities (i.e., self-identity at the individual and brand level, as well as social identity at the university and national level). In doing so we make notable contributions to theory and practice. Foremost, we contribute to a growing consumer disposal literature by demonstrating that a novel product-related characteristic (i.e., the presence, strength, and valence of an identity link) can predictably influence disposal behavior. In particular, this research extends the work of Trudel and Argo (2013) that examines the tangible properties of a product, by demonstrating that intangible product characteristics can also differentially influence consumers' decisions to trash versus recycle products. In this research, we provide evidence that everyday products, such as paper and plastic cups, can be (and often are) intangibly linked to consumers' identities and how people dispose of these types of products can have a profound impact on our environment. The US EPA (2012) has identified that nearly 40% (paper and paperboard account for approximately 27%; plastics account for approximately 13%) of what ends up in the landfill are everyday products that could have been recycled. Understanding why individuals treat functionally similar items differently when disposing of them can allow us to increase overall recycle yield and decrease waste through design changes and marketing promotions.

Our research also contributes to the identity literature by investigating how consumers dispose of products that while still linked to their identity are no longer wanted or needed. We show that consumers' identity links with products persist even when the products are no longer useful to themselves or others, and that this connection to products profoundly influences disposal decisions. In addition, we provide evidence that a consumer's decision to recycle an identity-linked product arises because the act of throwing such a product into the trash poses an identity threat. Since consumers are motivated to avoid or minimize identity threats (Ethier and Deaux 1994; Steele 1988), we demonstrate that when a relevant (and positively valenced) identity is linked to a product, they dispose of the product in the least threatening way (i.e., recycle). In the next section, we review relevant disposal and identity literature to provide theoretical support for our predictions.

THEORETICAL BACKGROUND

Consumer Recycling Behavior

While the majority of consumer research has focused on the acquisition phase of consumption, there is also an emerging body of research investigating consumer disposal behaviors and, in particular, consumers' decision to trash or recycle (Catlin and Wang 2012; Kidwell et al. 2013; Trudel and Argo 2013; Trudel et al. 2015). Prior research has found that decisions to recycle (as compared to trash) a product are subject to a variety of different influences. For instance, Schultz and Oskamp (1996) found that consumers' concerns for the environment predicted how much effort they would be willing to exert to recycle. The authors also found that offering monetary incentives increases recycling intentions for those consumers with a low concern for the environment but has little impact on recycling intentions for those with a high concern for the environment. As another example, Kidwell et al. (2013) found that promotion-related strategies that match persuasive appeals to political ideologies positively influence recycling behaviors. Specifically, conservatives' recycling increases when exposed to persuasive messages that are consistent with their "binding moral" foundations, whereas liberals' recycling increases in response to persuasive messages consistent with their "fairness and caring" foundations (Kidwell et al. 2013). As a final example, Fullerton and Kinnaman (1996) found that municipalities are able to reduce the number of trash bags collected and increase recycling rates when they charge consumers for each bag of trash collected. In sum, prior research shows that consumers are susceptible to external influences when making decisions between recycling and trashing, however little research has investigated the impact of factors related to the product itself.

One product-related factor that has been shown to play an influential role in consumers' recycling decisions is whether or not the product has been distorted (Trudel and Argo 2013; Trudel et al. 2015). In particular, when a product departs from its prototypical form (e.g., a full size sheet of paper is cut into smaller pieces or an aluminum can is dented), there is an increased tendency for the product to be trashed versus recycled. This change in disposal behavior arises due to the belief that as products deviate from their prototypical form they become less useful, and the lay belief that useless items belong in the trash. In the current work we explore the impact of a different type of product-related characteristic on a consumer's disposal behavior: whether the product possesses an identity link.

Identity-Linked Products

Over the past two decades an influx of research has focused on the relationship between identity and attitudes and behaviors (Forehand and Deshpandé, 2001; Mannetti, Pierro, and Livi 2004; Pelham, Mirenberg, and Jones 2002; Reed 2004; Winterich, Mittal, and Ross 2009). One conclusion that has been consistently demonstrated is that situational demands can make salient a specific aspect of identity that will in turn influence an individual to respond in an identity-congruent way (Brewer 1991; Deaux 1991; Deshpandé and Stayman 1994; Kettle and Häubl 2011). Further, the more salient an identity is, the more influence that identity has on identity-congruent behavior (Laverie and Arnett 2000). Indeed, linking consumer identities to brands and products has been shown to be effective in appealing to consumers (Bolton and Reed 2004), and that a consumer's desire to signal a specific identity can influence brand choice (Argo, Dahl, and Manchanda 2005; Chan et al. 2012). Although the literature clearly shows that identity can influence brand and product choice and that consumers can form strong identity links with products, research has yet to provide insight into how consumers dispose of identity-linked products.

Some insight into the role that identity links may play in disposal decisions can be garnered from research that focuses on how consumers sell or give away meaningful (i.e., special) possessions to others. Meaningful possessions, such as a childhood teddy bear or a grandfather's watch, often receive special treatment when it comes time to their divestiture because of their strong link to one's identity (Belk 1988; Belk, Sherry, and Wallendorf 1988; Belk, Wallendorf, and Sherry 1989; Burris and Rempel 2004; Ferraro et al. 2011). For instance, sellers of such products often seek owners with whom they share an identity so that the meaning of the possession can continue to transfer with the product (Price, Arnould, and Curasi 2000). Sellers also prefer to sell special possessions to recipients who know and appreciate the product's meaning and may even decide not to sell the product in situations where they deem a buyer's usage intentions as inappropriate for the possession (Brough and Isaac 2012). In sum, special possessions are generally disposed of in purposeful ways so as to preserve their meaningfulness and the identity with which they are imbued (Belk 1988).

Extending this notion into the current work, we suggest that linking everyday products to consumers' identities may similarly enhance the product's meaningfulness and subsequently impact consumers' disposal behaviors. However, unlike the meaningful possessions studied in previous research, everyday products such as paper or plastic cups are rarely kept, sold, or given away to others after consumption; thus disposal options for such products typically involve a decision between either throwing the product in the trash or in the recycling bin. Given that past research has found that products are trashed when they are deemed worthless (i.e., useless; Trudel and Argo 2013; Trudel et al. 2015), we argue that a decision to throw an identity-linked product in the trash symbolically represents an identity threat, as in essence you would be throwing a piece of your "self" in the trash and by extension signaling to yourself that you must be worthless. As such, when an identity link is made salient and because consumers are motivated to maintain a positive self-concept (Steele 1988), and by extension their identity is tied to the product, we expect that they will opt for the least threatening means to dispose of an identity-linked product (i.e., recycle as compared to trash). However, not all product identity links are of equal strength and valance, and as such we expect these two identity elements will moderate our effects.

Strength of Connection

The decision of how to dispose of identity-linked products is expected to be moderated by the strength of connection between a consumer's identity and a product. Consistent with prior work (White and Argo 2009), we expect that the strength of the connection between a consumer's identity and a product (i.e., strength of identity link) will lead to different representations of identity threat when disposing of products. This is consistent with identity strength research demonstrating that consumers are more likely to choose a brand when the brand name starts with letters from their names when they need to self-enhance (Brendl et al. 2005). Additional research in the consumption domain has found that consumers' strength of connection to brands can substantially influence brand attitudes (Aaker, Fournier, and Brasel 2004; Escalas and Bettman 2005; Fournier 1998), purchase intentions (Paharia et al. 2011; Park et al. 2010), and brand loyalty (Sprott, Czellar, and Spangenberg 2009). For example, Paharia et al. (2011) found that consumers are more likely to purchase underdog brands when they strongly (vs. weakly) identify with them. As a final example, White and Argo (2009) used collective self-esteem to demonstrate that consumers who strongly

identify with a group make product choices that strengthen their connection to that social identity, even under identity threat. In sum, utilizing this prior research investigating identity to extend predictions in the context of consumers' disposal decisions, we expect that consumers who have a strong product identity link, that is, the product is linked to a strongly held identity, will be less likely to trash (more likely to recycle) the product than consumers who have a weak product identity link or no connection with the product.

Valence

Our focus in this article is primarily on positive product identity links, where a product is linked to a positive component of a consumer's identity for which there are positive associations. In these situations, we argue that a decision to throw the identity-linked product in the trash will represent a threat to one's identity, and as such we expect that consumers will opt to recycle (vs. trash) because recycling products that are linked to positive components of a consumer's identity allows them to maintain a more positive self-view than if they trash the product. In contrast, when consumers possess a product that is linked to a negative identity, we predict that they will be more likely to trash the identity-linked product because they will want to separate the self from this undesirable identity. This prediction is supported by research that finds that people avoid situations that reinforce negative associations of themselves or of the groups to which they belong (Steele and Aronson 1995). For instance, White and Argo (2009) found that when women were given a gender threat (told that women generally had lower grade point averages, were more likely to drop out of university, etc.), they were more likely to evaluate gender films more negatively. Similarly, work on stereotype threat shows that people prefer to avoid identity-consistent behaviors that confirm negative stereotype associations about one's group (Lee, Kim, and Vohs 2011; Spencer, Steele, and Quinn 1999; Steele and Aronson 1995). In these situations the research suggests that consumers prefer to disassociate from negative identities (Steele and Aronson 1995, White and Argo 2009). Accordingly, we expect that trashing a product with a negative identity link may serve as a symbolic act of dissociation from that identity, and therefore we expect that consumers will be more likely to dispose of a negative identity-linked product in the trash (vs. the recycling).

To summarize, prior research has consistently demonstrated the effects of identity on the consumption of products. Drawing on this research we hypothesize that when deciding how to dispose of an everyday product that is no longer wanted or needed, consumers will be more likely to recycle (rather than trash) it if the product is linked to a consumer's identity. This will occur because placing an identity-linked product in the trash would be symbolically similar to trashing a part of the self, a situation consumers will be motivated to avoid. We also hypothesize that the tendency to recycle identity-linked products will be greatest among consumers for which the product is linked to a strongly (vs. weakly) held identity. Lastly, we predict that our effects are contingent on the valence of the identity link such that consumers will be more likely to trash negative identity-linked products than positive identity-linked or neutral products. Next, we test our predictions across seven studies. We conclude with a general discussion of our findings and implications for theory and practice.

STUDY 1

The goal of this study is to establish initial support for our prediction that products are more likely to be recycled as compared to trashed if they are identity linked. We do so using actual behavior for an everyday product (paper) containing a self-identity-link: their name. Prior research has demonstrated that individuals strongly associate their names with their self-identities (Jones et al. 2002). In line with our theorizing, we expect that consumers will be more likely to recycle a piece of paper with their name on it, as compared to a piece of paper with someone else's name on it, because one's name forms a self-identity and product link (Kettle and Häubl 2011).

Method

Participants and Design. A total of 206 (105 females, $M_{age} = 19.77$) at a large northeastern US university participated in a single factorial between-subjects design, resulting in two conditions (self-identity: linked vs. not linked).

Procedure. Participants were seated at a computer station in which a quarter sheet of paper (dimensions: 4.25 × 5.50 inches) and a pen were provided. To provide stringent tests of our effects, in all of our studies we elected to use products that past research has shown are most likely to be trashed (e.g., small pieces of paper, small cups, dented cups; Trudel and Argo 2013). In other words, given that the disposal default for a small piece of paper is to be trashed, any increases in recycling when the product is identity linked provides strong support for our prediction.

Under the guise of testing a brand of pen, participants were asked to evaluate the pen's "writing ability and smoothness." Participants were randomly assigned to either a self-identity–linked condition or self-identity–not linked condition. Those in the identity-linked condition wrote their first name only (rather than their full name, to increase anonymity) five times on the piece of paper provided while those in the identity–not linked condition wrote the name "Avery" five times. The name Avery was chosen because it is gender neutral, and no participants who had registered for the sessions had that name. Once

participants finished writing on the paper, to be consistent with our cover story they evaluated the pen via an online questionnaire (not used in the analysis). Participants then completed various demographic questions. We assessed the effects of age and gender in all of the studies, but the results did not produce any significant effects. They are therefore not discussed further.

After completing the study (which was the last in a series of unrelated studies), participants were asked to "dispose of your paper on the way out." The wording of this instruction was chosen to avoid saying "trash" or "recycle," which could influence participants' behavior. A trash can and recycle bin were placed outside the closed door of the laboratory. Both bins were identical with white flip-top lids to prevent participants from seeing what was inside. The only difference between the two bins is that one was labeled "Recycle" and had the universal recycling symbol and the other was labeled "Trash." Participants exited the laboratory one at a time, to control for any social influence on their disposal decision. The dependent variable was whether participants placed the paper in the trash can or recycle bin.

Results and Discussion

A logistic regression tested whether there were different recycling rates across the self-identity–link conditions. The dependent variable was coded as Recycle = 1 and Trash = 0 and the independent variable was coded as Identity not linked = −1 and Identity linked = 1. The analysis revealed a significant main effect of self-identity-link, where those who wrote their own first name were significantly more likely to recycle the paper (36%) compared to those who wrote the name "Avery" (23%, $\beta = 0.320$, $\chi^2(1) = 4.248$, $p < .05$, odds ratio [OR] = 1.90). Study 1 provides initial support for our prediction that identity-linked products are more likely to be recycled than products that are not linked to consumers' identities. In the next study, we test the effect of identity on disposal behavior with a more practically relevant manipulation that allows us to demonstrate the ecological validity of our results.

STUDY 2

Study 2 was motivated by a recent trip to a coffee shop where the barista misspelled the first author's name on his cup. Linking patron names with orders by writing names on coffee cups has become standard procedure at many coffee shops across the United States and provides a good opportunity to investigate the practical implications of doing so on disposal behavior. While prior research has shown that people strongly identify with their names (Strümpfer 1978), study 2 tests the role of identity more directly by showing that people are only more likely to recycle a product that is "correctly" linked to their identity. When a product–identity link is similar but not exact, consumers should dispose of the product in the same way that they would dispose of a neutral (nonlinked) product. In contrast, writing a consumer's name correctly on a cup links the product to the consumer's identity and should make it more likely to be recycled.

Method

Participants and Design. A total of 164 undergraduates (91 females, $M_{age} = 19.65$) at a large northeastern US university participated in the laboratory study. The experiment used a single factorial between-subjects design, resulting in three conditions (self-identity: linked vs. not linked vs. control).

Procedure. Upon arrival, participants were asked their names so they could be ostensibly checked in for their session. Next, the research assistant provided them with a small paper cup (3 fl. oz.) under the guise of participating in a sampling study. Participants were told that in the sampling study we were interested in whether consumers could differentiate between tap water and bottled spring water. Depending on the condition to which they were assigned, participants were either given a blank cup (control condition), a cup with their name on it written by the research assistant and spelled correctly (identity linked), or a cup with their name on it written by the research assistant and purposely spelled *incorrectly* (identity not linked). In the latter condition, the research assistant was instructed to change the name enough so that it could still be interpreted but was obviously incorrect (e.g., Ashley might become Ashli). After being seated at individual computer stations and having the first water sample poured into their cups from an unmarked bottle, participants were told to taste the water sample and complete some online questions related to the water. The research assistant then poured the second water sample into their cup from a second identical unmarked bottle and participants repeated the same process. After tasting both of the water samples, answering the online evaluation questions comparing the two different water samples, and completing three other unrelated studies, participants were instructed to "dispose of your cup on the way out." The same trash can and recycle bin used in our previous study were placed outside the closed door of the laboratory. Participants exited one at a time. The dependent variable was whether the cup was disposed of in the trash or the recycle bin.

Results and Discussion

Five participants left with their cup in hand, leaving us with 159 data points. We assume that these participants either did not see the bins or opted to keep the cups. A logistic regression analysis tested whether there were different recycling rates across the cup conditions. Two dummy

codes were created for the identity-linked condition (Correctly spelled = 2, Incorrectly spelled = −1, Control = −1) and the identity-not linked condition (Correctly spelled = −1, Incorrectly spelled = 2, Control = −1) to allow comparison with the control condition. The dependent variable was coded as Trash = 0 and Recycle = 1. The analysis revealed a significant main effect of identity link, where those who were given a cup with their name spelled correctly on it were significantly more likely to recycle the cup (48%) compared to the control condition (26% ; $\beta = .33$, $\chi^2 = 5.34$, $p < .05$, OR = 1.39). Participants given a cup with their name spelled incorrectly, that is, those in the identity-not linked condition, were just as likely to recycle their cup (24%) as those in the control condition (26%; $\beta = -.05$, $\chi^2 = .09$, $p > .75$).

By including an incorrectly linked comparison group, the results from study 2 extend those of our previous study to show that when a product–identity link is similar but not exact, consumers dispose of the product in the same way that they would dispose of a nonlinked product. However, linking a product by correctly writing a consumer's name on a cup increases recycling behavior significantly.

It is possible to argue that in addition to linking the product to a participant's self-identity, writing names on the products in study 1 and 2 may decrease anonymity and increase demand effects. In anticipation of anonymity concerns we only used first names on the paper and cups because when participants sign up and register for the study, unique identifiers are generated using their student IDs. Participant anonymity was ensured. Nonetheless, in subsequent studies we move away from the focus on names to more broad levels of identity to further alleviate anonymity concerns. In terms of demand effects, we attempted to minimize the issue in several ways. First, in all of our behavioral studies, participants are thanked for their participation, dismissed, and told to dispose of their study materials on the way out. The wording was carefully crafted to avoid any demand effects (we do not mention "trash" or "recycle") and to avoid revealing the true motives of our studies. Second, each of our studies had a cover story that had nothing to do with disposal. Third, participants left the study one at a time, and the bins were placed outside the lab so that no one could observe their disposal behavior. Finally, in subsequent studies we included interactions that should further alleviate concerns related to demand effects.

STUDY 3

In our third study we test for the moderating role of strength of identity connection and do so by testing our self-identity effects in another domain with broad practical implications: self-brand connection. It is well accepted that consumers form strong connections with their brands, and brands can become an important component of their identities (Belk 1988; Escalas and Bettman 2005; Fournier 1998; Thomson, MacInnis, and Park 2005). The decision of how to dispose of identity-linked products is expected to be moderated by the strength of connection between a consumer's identity and a product, in this case the strength of self-brand connection. We expect that the strength of the connection between a consumer's identity and a brand will lead to different representations of identity threat when disposing of products. In particular, focusing on cola brands we predict that consumers with a high self-brand connection to Coke (i.e., strong self-identity-link) will be more likely to recycle a can of Coke than a can of Pepsi. We have no predictions for those who are low in self-brand connection.

Method

Participants and Design. A total of 200 participants were recruited from Amazon's Mechanical Turk (MTurk). Four participants did not complete the entire instrument, and therefore 196 respondents (65 females; $M_{age} = 30.56$) participated in a 2 (brand: Coke vs. Pepsi) by self-brand connection to Coke between-subjects design.

Procedure. After reading an introductory page, participants read the following: "People are generally Coke or Pepsi drinkers. It is pretty rare that people do not have a preference. Which do you prefer?" Participants then completed a five-item self-brand connection scale (1 = Strongly disagree; 7 = Strongly agree) adapted from Escalas and Bettman (2005) as a measure of the extent to which they associate Coke with their identity. The five items were (1) The Coke brand reflects who I am, (2) I can identify with the Coke brand, (3) I feel a personal connection to Coke, (4) The Coke brand suits me well, and (5) I consider Coke to be "me." The five items were combined to form a reliable measure of self-brand connection ($\alpha = .96$). Participants were then randomly assigned to one of two brand conditions. Those in the Coke (Pepsi) condition were shown an image of a dented Coke (Pepsi) can and read, "Imagine that this empty, dented can has been left behind in the lunchroom at your work." Participants were then asked to respond to two randomly presented disposal intentions items assessed on 7 point scales (1 = Very unlikely; 7 = Very likely): "How likely are you to throw this empty COKE (PEPSI) can in the garbage?" and "How likely are you to throw this empty COKE (PEPSI) can in the recycle bin?" The likelihood to trash item was reverse coded, and the two items were combined to form a reliable recycle index that served as our dependent variable ($\alpha = .71$).

Results and Discussion

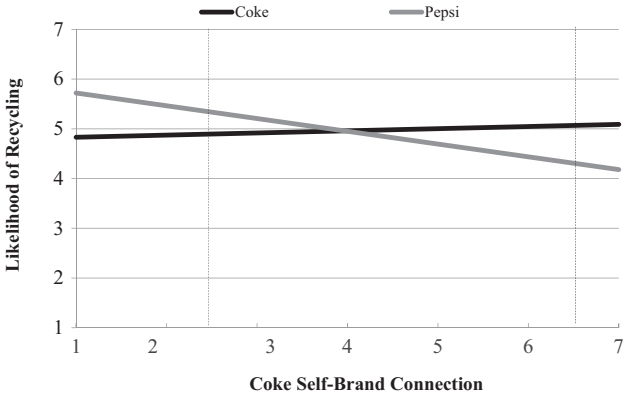
A regression with brand condition, mean centered self-brand connection to Coke, and their interaction term as

predictors and the recycle index as the dependent variable revealed a marginally significant effect for self-brand connection ($\beta = -.11$, $t = -1.87$, $p = .06$). The interaction between brand condition and self-brand connection was also significant ($\beta = .15$, $t = 2.60$, $p < .01$; figure 1). This interaction was analyzed using the Johnson-Neyman technique to show the ranges of self-brand connection where the effect of brand condition (i.e., the difference between recycle intentions for Coke vs. Pepsi) is significant and where it is not (Hayes and Matthes 2009; Johnson and Neyman 1936). The mean self-brand connection value was 3.52 (standard deviation [SD] = 1.69). The Johnson-Neyman point where the probability of recycling Coke versus Pepsi is different occurs at self-brand connection values of 2.46 ($t = -1.98$, $p = .05$) and at self-brand connection values of 6.71 ($t = 1.98$, $p = .05$). Stated differently, participants' intentions to recycle the Pepsi can were significantly less than intentions to recycle the Coke can when self-brand connection to Coke was greater than 6.71, or 1.89 SDs above the mean. However, participants' intentions to recycle the Pepsi can was significantly greater than intentions to recycle the Coke can when their self-brand connection to Coke was less than 2.46, or .63 SDs below the mean. In sum, participants' self-connection with the brand Coke significantly and differentially impacted their intentions to recycle an empty Coke versus an empty Pepsi can.

The results of study 3 show that consumers with a high self-brand connection to Coke are more likely to recycle a can of Coke than a can of Pepsi. Interestingly, the pattern flipped for those with a low self-brand connection to Coke; participants were more likely to recycle a can of Pepsi than a can of Coke. Intuitively, those cola drinkers with a low self-brand connection to Coke may have had high connections with other brands including Pepsi, or they could even be considered "anti-Coke." Importantly, this study provides initial support for our process by demonstrating the effect of strength of connection on disposal. In the next study, we set out to obtain more direct process evidence and explore identity at the social level.

FIGURE 1

THE INTERACTIVE IMPACT OF IDENTITY AND SELF-BRAND CONNECTION ON INTENTIONS TO RECYCLE



NOTE.—Johnson-Neyman region of significance is less than 2.46 and greater than 6.71.

As we have done in the first three studies, research on identity and products are often conceptualized and investigated at the level of the individual (Ahuvia 2005, Belk 1988, Kettle and Häubl 2011). However, identity is often derived by the groups to which people belong or aspire to belong. The importance of group membership to one's identity is captured conceptually by one's social identity (Tajfel 1981, 1982; Tajfel and Turner 1979; Turner 1987). Social identity is defined as "the part of an individual's self-concept which derives from his knowledge of his membership in a social group together with the value and emotional significance attached to that membership" (Tajfel 1981, 255). In the studies that follow, we focus on social or collective identity (social identities are also commonly referred to as collective identities; Luhtanen and Crocker 1992) to demonstrate that our effects are generalizable beyond individual-level identities. This is important given that many consumer product decisions are driven by social identities and how they view the social groups to which they belong (Berger and Heath 2007; Chan et al. 2012; White and Argo 2009; White and Dahl 2007).

STUDY 4

The goal of this study is to extend the initial findings and show that, when no longer needed, everyday products are also more likely to be recycled as compared to trashed if they are linked to a consumer's *social* identity. Specifically, we examine the influence of national identity, which is often a central part of one's self (Druckman 1994). Our main prediction is that American respondents will be more likely to recycle a product that contains an image of the US flag as compared to the image of a flag from another country that does not represent their national identity. However, we also believe that this main effect will be moderated by the strength of connection between a consumer's identity and the product.

We investigate social identity and measure participants' strength of US identification to replicate the strength of connection results from study 3 and to provide additional support for our process explanation. We expect those who identify most strongly with being American (i.e., being American is an important part of their identity) to form stronger connections to American branded/imprinted products. To confirm this we ran a pretest with 60 participants (22 women, $M_{age} = 34.05$) recruited from Amazon's MTurk. Participants first responded to demographic questions related to age, gender, and education, and then responded to eight US identification statements that were

averaged to create the strength of US identification measure (adapted from White and Dahl 2007). Next, all participants were asked to indicate how connected they felt (1 = Not at all; 7 = Extremely) to nine different products (three T-shirts, three cups, and three figurines). Each product was either identity linked (US branded; e.g., a T-shirt with an American flag on it), identity not linked (UK branded; e.g., a T-shirt with the Union Jack on it), or control (no national identity-related aspects). The reported connections for the three US-branded products were averaged to create the US product identity-link index. A regression analysis revealed a significant effect of US identity strength on US product–identity link ($\beta = .88$, $t = 9.55$, $p < .001$). That is, the stronger an individual's US identity, the stronger their connections with US-branded products. The same procedure was performed for the UK-branded products ($\beta = .14$, $t = 1.49$, $p > .14$) and the control products ($\beta = .14$, $t = 1.39$, $p > .17$); however, no significant effects were found. These results support our contention that the strength of connection with a product is highest when it reflects an important part of a consumer's identity.

In addition to testing our predictions, we also had two other objectives for the study. First, it is possible that consumers are more inclined to recycle products that they like (i.e., about which they have positive evaluations). To test this alternative explanation, we include product evaluation items in this study. Second, in the first three studies participants were always presented with a forced choice for disposal between recycling and trashing. This was intentional given that our focal question is how people dispose of everyday products that are linked versus not linked to their identities, and trashing and recycling products are the two most common methods of disposal. Thus in our context we believe that this is realistic. However, in study 4 we remove the forced-choice measure for two reasons: (1) presenting a forced choice does not provide participants with the option to dispose of identity-linked products in an alternative manner and perhaps identity-linked products are disposed of in a unique fashion that we had not considered, and (2) removing a forced choice allows us to further rule out another alternative account related to social norms (i.e., that disposing of an American flag goes against social norms). In particular, a social norm account would predict that the majority of participants would choose to neither trash nor recycle a piece of paper depicting an American flag.

Method

Participants and Design. A total of 240 American consumers were recruited from Amazon's MTurk website to participate in this experiment (92 females, $M_{age} = 32.18$). The design was a single factorial with three between-subjects conditions (national identity: linked vs. not linked vs. control) and a measured individual difference to capture the strength of their US identity.

Procedure. After giving consent to participate, participants responded to eight US identification statements adapted from White and Dahl (2007) to capture how central "being American" was to each individual's identity. These are the same items used in the pretest (all items are included in online appendix A). For instance, one item asked, "How important is being American to how you view yourself?" (1 = Not at all important; 7 = Extremely important). Another item asked, "How strong are the ties you feel to your American identity?" (1 = Not at all strong; 7 = Extremely strong). The eight items were averaged to create our strength of US identification measure ($\alpha = .98$).

Participants were then randomly assigned to one of the experimental conditions and read the following scenario: "Imagine that you had been given some plastic cups. On a hot summer day, you decided to pour yourself a cold drink in a plastic cup. After finishing the drink you decide its time to go and leave." Participants in the national identity-linked condition were shown a picture of a plastic cup with the US flag printed on it, those in the national identity not linked condition were shown a picture of a plastic cup with the Union Jack (flag of the United Kingdom) printed on it, and participants in the control condition were shown a picture of a plain white plastic cup. Participants were then asked to choose between the following three options: (1) I would throw this cup in the garbage on the way out, (2) I would throw this cup in the recycling on the way out, and (3) I would do neither. Those who answered that they would do neither were asked to "please write what you would do with the cup" and were provided with a text entry space. Finally, participants responded to three product evaluation items. (1) How much do you like the look of this cup? (1 = Not at all; 5 = Very much) (2) How much do you like the cup itself? (1 = Not at all; 5 = Very much) (3) How would you rate the quality of this cup (1 = Not at all good; 5 = Very good).

Results and Discussion

Disposal Decision. Disposal results are summarized in table 1 including the qualitative results. The results show that participants are significantly more likely to dispose of the cup in either the recycling or trash as opposed to doing neither (Recycle vs Neither; $\chi^2(1) = 134.33$, $p < .001$ and Trash vs Neither; $\chi^2(1) = 43.13$, $p < .001$). The likelihood of doing neither was not significantly different across identity conditions (all comparisons $\chi^2 < 1$; not significant [NS]). As a result, we focus our analyses on the probability of recycling versus trashing.

We expected that participants in the national identity-linked condition would be significantly more likely to recycle the plastic cup than those in the national identity not

TABLE 1

RESULTS AND WRITTEN RESPONSES FROM STUDY 4

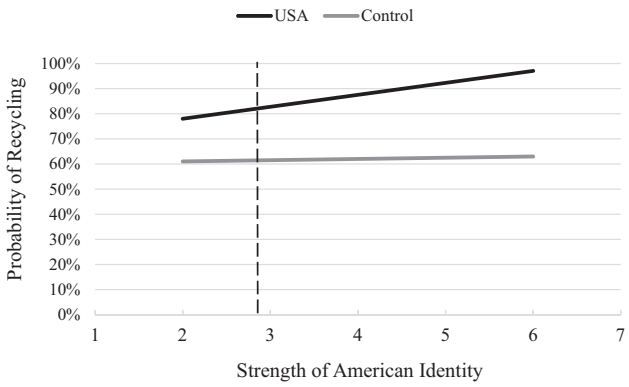
Condition	Trash	Recycle	Neither	Comment if answered neither
Identity linked [US cup]	15% (12/80)	80% (64/80)	5% (4/80)	If salvageable, I would try to reuse it I would like to keep it I would just leave it Nothing Keep it and reuse it until it's not functional anymore
Identity not linked [UK cup]	30% (24/80)	62.5% (50/80)	7.5% (6/80)	I wouldn't buy it and I would probably just put it in a closet or something I would rinse out the cup and put it away in order to use it again I would drink out of it I would keep it I would keep it just in case I need to use it again I would keep the cup
Control [white cup]	40% (32/80)	60% (48/80)	0%	

linked condition and control conditions. We ran a logistic regression to test our prediction, with the dependent variable being disposal (Recycle =1; Trash = 0). Two dummy variables were created to capture our three conditions and were used as independent variables; US dummy (Coded US = 2, UK = −1, Control = −1) and UK dummy (coded US = −1, UK = 2, control = −1). The US dummy proved to be a significant predictor of recycling behavior ($\beta = .42$, $\chi^2 = 10.65$, $p < .001$, OR = 1.53) while the UK dummy was not significant ($\beta = .11$, $\chi^2 = .95$, $p > .30$). Planned comparisons revealed that participants were more likely to recycle the national identity-linked cup (US cup = 80%) than the national identity not linked (UK cup = 62.5%; $\beta = .41$, $\chi^2 = 5.0$, $p < .05$, OR = 1.51) and the control cup (plain white cup = 60%; $\beta = .60$, $\chi^2 = 10.53$, $p < .001$, OR = 1.83; figure 2). Comparisons in disposal behavior between the identity not linked (UK cup) and control conditions proved not to be statistically different ($\beta = .2$, $\chi^2 = 1.21$, $p > .25$).

Strength of Connection. Next, we wanted to probe the possible interaction between the national identity conditions (linked, not linked, and control) and strength of US identity. We ran a second logistic regression with the same dependent variable and dummy variables. This time US identity strength was included as an independent variable and also as an interaction with each dummy variable. The results revealed significant main effect of strength of US identity ($\beta = .23$, $\chi^2 = 5.20$, $p < .05$, OR = 1.25) and a significant US dummy by strength of US identity interaction ($\beta = .20$, $\chi^2 = 5.57$, $p < .05$, OR = 1.22). All other effects failed to reach significance. The interaction is graphed in figure 2 using the Johnson-Neyman technique to explore the ranges of where the strength of US identity on disposal is significant and where it is not. The UK dummy and its interaction with strength of US identity were included as covariates in Hayes and Matthes (2009)

FIGURE 2

INTERACTIVE INFLUENCE OF IDENTITY-LINKED PRODUCTS AND STRENGTH OF IDENTITY ON DISPOSAL CHOICE



NOTE.—Johnson-Neyman region of significance when strength of identity is greater than 2.88.

MODPROBE procedure for probing interactions. The Johnson-Neyman point where the probability of recycling is significantly different between the identity-linked condition and the control condition is when the strength of US identity value is 2.87 ($Z = 1.96$, $p = .05$) or .90 SDs below the mean of 4.43.This indicates that the probability of recycling the identity-linked plastic cup is significantly greater than the probability of recycling the blank plastic cup when participants' strength of US identity is greater than 2.87.

Evaluations. The three evaluation items were averaged to form a reliable index ($\alpha = .86$). Analysis of variance revealed significant differences across conditions ($F(2, 237) = 28.75$, $p < 001$). Follow-up tests showed that participants evaluated the plain white control cup ($M = 2.28$, SD = .81) less favorably than the US cup ($M = 3.11$,

SD = .94, $p < .001$) and less favorably than the UK cup ($M = 3.24$, SD = .84, $p < .001$). The US cup and the UK cup were evaluated similarly ($p = .36$). Including the evaluation index in the previous logistic regression analyses as a covariate does not affect the results. A logistic regression on disposal (Recycle = 1; Trash = 0) with the evaluation index as the lone independent variable was also not significant ($\beta = .1$, $\chi^2 = .41$, $p > .50$). An additional logistic regression on disposal with the evaluation index, strength of US identity, and the evaluation by strength of US identity interaction as independent variables did not reveal any significant effects (all $\chi^2 < .5$). As a result, we can confidently claim that product liking or evaluations cannot account for our disposal results.

The results of study 4 replicate the findings related to identity strength from study 3 whereby participants who strongly identify as being "American" are more likely to recycle US-branded products, compared to those who do not consider being American as an important part of their identity. Further, even when participants' disposal choices were not limited to trashing or recycling, participants were still significantly more likely to recycle the cup containing the US flag compared to the cups that were not linked to their identity. Regardless of how they identify with being American, the norm regarding how paper or a cup with an American flag printed on it should be disposed of is the same for all participants. Finally, participants' evaluations of a product does not influence whether it will be recycled. In sum, the differential behaviors demonstrated here cannot be explained by social norms or product evaluations.

STUDY 5

In the previous two studies we provided process support by demonstrating that strength of connection moderates the effect of product–identity links on disposal. We have shown that as an individual's strength of connection with a product increases, they will be less likely to trash the identity-linked (vs. non–identity-linked) product. Our key proposition is that as the strength of connection between an individual and a product increases, so too does the potential identity threat that would result from trashing that product. Moreover, when the strength of connection decreases, the identity threat will similarly decrease and, as we observed in study 4, there are no differences in disposal behavior as a function of the presence/absence of an identity link. Study 5 investigates the role of negative emotions that are evoked during identity threat situations to provide additional process support for our effects. According to prior research, identity threats can often result in an increase in negative emotions (Cheryan and Monin, 2005; Guendelman, Cheryan, and Monin 2011; Packard and Wooten 2013). Based on this literature, we expect that consumers with a stronger connection to a particular product will experience greater negative emotions as a result of a potential identity threat from trashing that product, which will ultimately impact their disposal decisions. Stated differently, negative emotions should mediate the effect of strength of connection on disposal behavior only when there exists a product identity link. To test this possibility, study 5 examines how anticipated identity threat from trashing an identity-linked products leads to negative emotions that influence consumers' disposal decisions.

Method

Participants and Design. Two hundred American consumers were recruited from Amazon's MTurk website to participate in this experiment (88 females, $M_{age} = 33.85$). The design was a single factorial with two between-subjects conditions (national identity: linked vs. control) and an individual difference measure to capture the strength of connection to their US identity (adapted from White and Dahl 2007).

Procedure. After giving consent to participate, participants responded to the same eight strength of US identification statements used previously (adapted from White and Dahl 2007) to capture how central "being American" was to each individual's identity. Participants were then randomly assigned to one of the experimental conditions and read the following scenario: "Imagine that you had been given some plastic cups. On a hot summer day, you decided to pour yourself a cold drink in a plastic cup." Participants in the national identity–linked condition were shown a picture of a plastic cup with a US flag printed on it, and participants in the control condition were shown a picture of a plain white plastic cup. All participants then read, "After finishing the drink you dispose of the cup in the GARBAGE." Therefore all participants imagined disposing of the cup in the trash. If our theorizing is correct, disposing of the product in the garbage should present an identity threat for those participants in the identity-linked conditions.

Next participants were asked how much they agreed with three statements (1 = Strongly disagree; 7 = Strongly agree): (1) I feel ashamed for throwing the cup in the garbage. (2) I feel guilty for throwing this cup in the garbage. (3) I regret throwing this cup in the garbage. The objective of these items was to capture negative emotions related to "trashing" the recyclable cup and in particular to see if a potential identity threat evoked negative emotions that led to decisions to recycle. The items were combined and averaged to form a reliable negative emotions index ($\alpha = .98$). Participants were then asked if they would like to change their disposal decision. They were specifically asked, "How likely are you to reach into the garbage can, pick up the USA (white) cup that you had previously disposed of in the garbage, and dispose of it in the recycling bin nearby?"

(1 = Very unlikely; 7 = Very likely) that was used as the dependent variable. The experiment concluded with participants answering demographic questions.

Results and Discussion

Disposal Decision. A regression analysis with identity condition (Identity-linked = 1 and Control = −1), mean centered strength of US identification, and their interaction term on disposal behavior revealed significant main effects of identity condition ($\beta = .43$, $t = 3.00$, $p < .01$) and US identification ($\beta = .28$, $t = 2.97$, $p < .01$) and a significant two-way interaction ($\beta = .23$, $t = 2.43$, $p < .05$). The interaction was further analyzed using the Johnson-Neyman technique (Hayes and Matthes 2009; Johnson and Neyman 1936) to explore the ranges where the influence of strength of US identification on disposal is and is not significant. The Johnson-Neyman point where the probability of recycling is significantly different between the identity-linked condition and the control condition is when the strength of US identification value is 4.26 ($t = 1.97$, $p = .05$) or .37 SDs below the mean of 4.82. Stated differently, the likelihood of reaching into the trash can to retrieve a previously trashed identity-linked plastic cup to redispose of it in the recycling, in comparison to a previously trashed white plastic cup, is significantly greater when participants' strength of US identification is greater than 4.26.

Mediating Role of Negative Emotions. We predicted that negative emotions should mediate the effect of strength of connection on disposal behavior only when there exists a product identity link. We conducted a moderated mediation analysis using the PROCESS macro for SPSS (Model 7, Hayes 2013) with mean-centered strength of US identification as the independent variable, identity condition (Identity linked = 1 and Control = −1) as the moderator and negative emotions as the mediator. The results indicated that negative emotions were predicted by strength of US identification ($\beta = -.17$, $t = -2.16$, $p < .05$) and by the identity link by US identification interaction ($\beta = -.21$, $t = -2.57$, $p = .01$) in the mediator model. The main effect of identity condition was not significant ($t = 1.00$, $p > .30$). Using bias-corrected bootstrapping (n = 1000, Hayes 2013) to generate 95% confidence intervals (CIs) , the conditional indirect effect of US identification on disposal behavior through emotions was positive and significant in the identity-linked condition (indirect effect = .17; 95% CI excluding zero = .07–.31) but not in the control condition (95% CI, −.13 to .08). The direct effect of US identification is also positive (.22) and significant (p <.05; 95% CI, .04–.40) and therefore it is complementary mediation (Zhao, Lynch, and Chen 2010).

The results from study 5 provide further support that consumers are more likely to recycle identity-linked products. Participants were more likely to reach into the trash to retrieve an identity-linked product as compared to a nonlinked product and put it in the recycling. Furthermore, those who most strongly identified with being American (as compared to those who weakly identified with being American) were even more likely to recycle a cup with a US flag imprinted on it. Finally, we were able to gain additional process support by demonstrating that negative emotions mediate the effect of strength of connection on disposal behavior only when there exists a product identity link. When consumers with strong connections to products anticipate an identity threat from trashing, they feel increased negative emotions that then lead to their decision to recycle.

STUDY 6

The goal of study 6 is to build on these previous studies by providing more direct evidence that trashing an item linked to one's identity indeed threatens that identity. Identity threat is defined as occurring when favorable views of oneself are put into question such that it negatively influences one's self-conception (Baumeister, Smart, and Boden 1996; Campbell and Sedikides 1999; Steele 1988). We have theorized that throwing an identity-linked product in the trash presents an identity threat because it is symbolically similar to throwing a piece of yourself in the trash. Therefore, if throwing an identity-linked product in the trash is indeed an identity threat, then we should expect that doing so will lower a consumer's sense of self-concept (i.e., esteem) as compared to throwing an identity-linked product in the recycling (Campbell and Sedikides 1999; Park and Maner 2009; Steele 1988). As in the previous study, study 6 again tests consumers' national identity. Given that nationality, the focal identity we test in this study, is an aspect of one's social identity, consistent with prior work, we explore esteem at the collective level as the focal dependent variable (Escalas and Bettman 2005; Luhtanen and Crocker 1992; White and Argo 2009).

Method

Participants and Design. Four hundred Americans were recruited from Amazon's MTurk website to participate in this experiment. Three participants did not complete the experiment, and six others were removed because they were not American citizens, leaving 391 participants (152 females; $M_{age} = 31.76$). Participants were randomly assigned to one of four conditions in a 2(national identity: linked vs. control) × 2(disposal: trash vs. recycle) between-subjects design. The focal dependent variable was a state measure of collective self-esteem.

Procedure. Participants were introduced to the experiment where they read a vignette that asked them to imagine that "On a hot summer day, you decided to pour yourself a

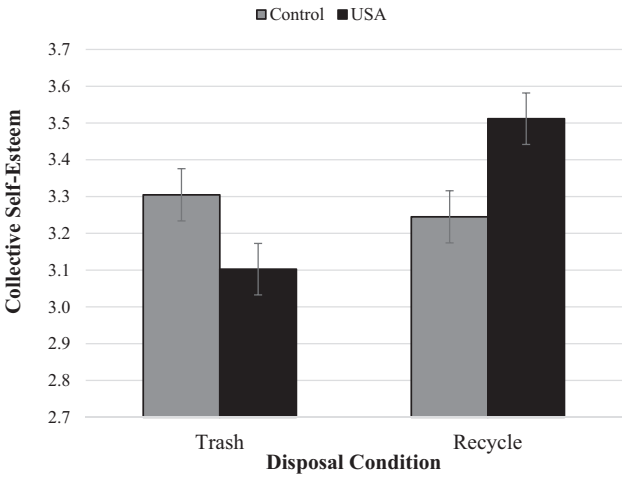
cold drink in a plastic cup." In the national identity–linked conditions, the plastic cup had a US flag design on it; in the control group the plastic cup was plain white. To manipulate disposal, participants were randomly assigned to read one of the two disposal conditions (trash vs. recycling). That is, they read, "After finishing the drink you crumple/dent the plastic cup before disposing of it in the trash (recycling)." The cup was described as being crumpled/dented to provide a stringent test of our prediction because past research has found that distorting the form of a product decreases the usefulness and increases consumers' likelihood of trashing the product (Trudel and Argo 2013). Participants then completed the shortened, adapted state collective self-esteem scale that served as our dependent variable (Luhtanen and Crocker 1992). The original state collective self-esteem scale consists of 16 items that load onto four different factors (i.e., membership, private, public, and identity). Since the membership and identity factors accurately capture the elements of group identity that we are interested in, we included only those eight items in our experiment. The collective state self-esteem scale was introduced in the following manner: "We are all members of different social groups. Please respond to the following statements based on how you CURRENTLY feel when you think about your NATIONALITY and your membership in this social group as an AMERICAN." For example, statements included "Right now this social group is an important reflection of who I am" and "Right now, my group membership has very little to do with how I feel about myself" (Strongly disagree = 1; Strongly agree = 5). To finish the study, participants indicated their nationality.

Results and Discussion

A 2(national identity) × 2(disposal) analysis of variance with the collective state self-esteem index ($\alpha = .86$) as the dependent variable revealed a significant main effect of disposal ($F(1, 387) = 6.22$, $p < .05$, partial $\eta^2 = .016$) and the predicted group identity by disposal interaction ($F(1, 387) = 11.21$, $p < .001$, partial $\eta^2 = .028$). Consistent with our hypothesis, collective state self-esteem was significantly lower when the identity-linked plastic cup (US) was trashed ($M = 3.10$, SD = .79) as compared to recycled ($M = 3.51$, SD = .66, $F(1,387) = 17.79$, $p < .001$, partial $\eta^2 = .043$; figure 3). Collective self-esteem did not differ in the control condition (i.e., plain white plastic cup) as a function of the form of disposal (recycled: $M = 3.24$, SD = .67, trashed: $M = 3.30$, SD = .64, $F(1,387) = .36$, $p > .50$). Planned comparisons also showed that collective state self-esteem was higher when participants recycled an identity-linked plastic cup ($M = 3.51$, SD = .66) as compared to the plain white plastic cup ($M = 3.24$, SD = .67; $F(1,387) = 7.24$, $p < .01$, partial $\eta^2 = .018$). Finally, collective state self-esteem was lower when participants trashed an identity-linked plastic cup ($M = 3.10$, SD = .79) as compared to the plain white plastic cup ($M = 3.30$, SD = .64; $F(1,387) = 4.18$, $p < .05$, partial $\eta^2 = .011$).

FIGURE 3

THE EFFECT OF DISPOSAL ON COLLECTIVE STATE SELF-ESTEEM



NOTE.—Error bars represent ± 1 SD.

The results of study 6 provide direct process support for our theoretical account. Collective state self-esteem is damaged when social identity–linked products are disposed of in the trash. In particular, participants had significantly lower collective state self-esteem after they imagined disposing of a national identity–linked cup in the trash, which was akin to trashing an important part of themselves, in comparison to participants who imagined disposing of the same cup in the recycling. The identity threat was also greater in the identity-linked trash condition than the two control conditions. Participants who trashed versus recycled a plain white cup did not experience an identity threat and had equivalent levels of collective state self-esteem. Since consumers are motivated to maintain a positive self-view and will act to protect the self (Steele 1988), the results of study 6 provide process evidence for our proposition that throwing an identity-linked product in the trash is an identity threat as there was a decrease in collective state self-esteem.

STUDY 7

Our focus in this research up until now has been on positively valenced product identity links, that is, a product is linked to a positive component of a consumer's identity for which there are positive associations. As we have observed in these situations, the decision to throw the identity-linked product in the trash threatens that identity and consumers

are more likely to recycle (vs. trash) because it is the least threatening means to dispose of a positive identity-linked product. But not all products form positive-identity links. Products can also form links to a component of one's identity for which there are negative associations. In this study we examine the impact of negatively valenced product–identity links on disposal decisions to gain further process evidence. More specifically, in this study we make the opposite prediction for negatively valenced product–identity links as we do for positively valenced product–identity links. When a product is linked to a component of a consumer's identity for which there are negative associations, trashing the product does not create a self-threat. We expect that trashing a product with a negative identity-link may serve as a symbolic act of dissociation from that identity, and therefore, we predict that consumers will be more likely to dispose of a negative identity-linked product in the trash (vs. the recycling).

In this experiment we manipulate the valance of the identity link by having students read positive versus negative news stories about their university because university affiliation is a significant component of undergraduates' identities (e.g., Ferraro, Bettman, and Chartrand 2009; White, Argo, and Sengupta 2012). We predict that those who read shameful (prideful) information about their university will subsequently experience a more negative (positive) identity link that will increase the likelihood that the product is trashed (recycled). Further, in all of our prior behavioral experiments, we told participants to dispose of the products on their way out of the laboratory. Participants were therefore left with a decision that was either "recycle" or "trash." As a more stringent test of our effect, similar to study 4, we give participants the additional option to keep the product. Based on the results of study 4 we expect that participants would be equally likely to keep the product across conditions.

Method

Participants and Design. A total of 118 undergraduates (63 females; $M_{age} = 19.63$) at a large northeastern US university participated in a laboratory-based experiment. The experiment used a 2(product: linked vs. not linked) × 2(social identity valence: positive vs. negative) between-subjects design.

Procedure. Before beginning the session, each participant was given a piece of paper measuring 1.5 × 5 inches. The paper for those in the product-linked condition contained the logo of the participants' current university, whereas those in the identity not linked condition were provided with a piece of blank white paper. Each piece of paper contained a 3 to 4 digit code, and participants were instructed to enter this number into their computer when prompted in order to begin their session. This number was used to track their disposal behavior and match it with our conditions.

Under the cover story of assessing online articles, participants were randomly assigned to read either a positive article describing a recent successful graduate of their university (positively valenced social identity condition) or a negative article describing recent graduates from their university who were under criminal investigation (negatively valenced social identity condition). Consistent with the cover story, participants were asked questions related to online articles (e.g., "How often do you read news articles online?"). After reading the article, participants were asked to indicate how they felt about being a member of the university community (1 = Ashamed; 7 = Proud). Responses to this item were included as a manipulation check for social identity valence.

At the conclusion of the session, participants were instructed to take the paper with them out of the lab without mention of disposal. This eliminated the forced choice between recycling and trashing. Similar to previous studies, a trash can and recycle bin were placed outside the closed door of the laboratory. The dependent variable was whether participants placed the paper in the trash can, recycle bin, or kept it.

Results and Discussion

Manipulation Check. Participants in the positive social identity valence condition reported significantly more pride in being a member of the community ($M = 5.86$, $SD = 1.47$) compared to those in the negative social identity valence condition ($M = 4.64$, $SD = 1.91$, $t = 3.89$, $p < .001$). Thus we were successful in manipulating the social identity valence.

Disposal Decision. We did not predict any differences in disposal behavior in our control conditions (the two product not linked conditions where participants were given a blank piece of paper). As expected, there were no differences in rates of trashing, recycling, or keeping the not-linked paper across social identity valence conditions (all comparisons $X^2 < 1.5$, NS). As a result we combined the two product not linked conditions to make a single hanging control condition, leaving us with three conditions that we will refer to as the control condition, the positively valenced social identity condition, and the negatively valenced social identity condition.

We used a multinomial logistic regression to explore the impact of social identity valence on the disposal of a linked product compared to the control condition. To do so we created two contrast-coded dummy variables. The first dummy variable (positively valenced social identity dummy) was coded as follows: Positive = 2, Negative = −1, Control = −1. The second dummy variable (control dummy) was coded as follows: Positive = −1,

Negative = −1, Control = 2. This coding ensured that the negatively valenced social identity condition was the comparison group. A significant main effect of the positive social identity valence dummy emerged ($X^2(2) = 12.57$, $p < .01$) while the control dummy was not significant ($X^2(2) = 2.76$, $p > .25$). The decomposed results are presented in figure 4.

Planned comparisons between positive and negative social identity valence conditions revealed that participants in the positive condition (46%) were significantly more likely to recycle compared to those in the negative condition (15%; $X^2(1) = 7.39$, $p < .01$, OR = 2.38). Participants in the positively valenced social identity condition were also significantly less likely to trash the university logo imprinted paper than participants in the negatively valenced social identity condition (28% vs. 73%; $X^2(1) = 10.73$, $p < .001$, OR = .38). There was no difference in the number of participants who chose to keep the paper across positive and negative social identity valence conditions (25% vs. 13%; $X^2(1) = 1.31$, $p = .25$).

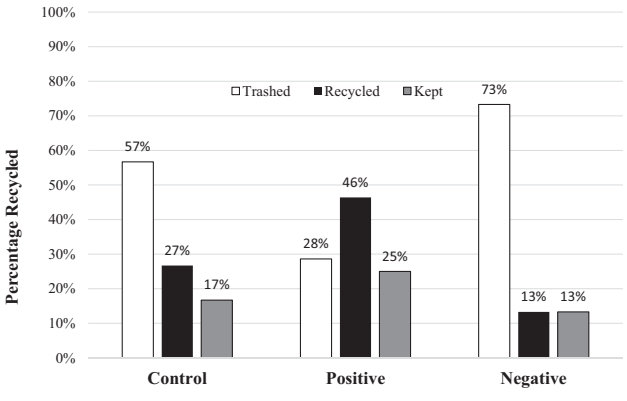
In comparison to the participants in the control condition, participants in the positively valenced social identity condition were less likely to trash (28% vs. 57%; $X^2(1) = 3.73$, $p = .05$, OR = .64) and directionally more likely to recycle (46% vs. 28%; $X^2(1) = 2.18$, $p = .14$) the paper. There were no differences between the control condition and the negatively valenced social identity condition (all comparison $X^2 < 1$, p's $> .30$).

Finally, participants were equally likely to keep the paper across all of the conditions (positive: 25%; negative: 13%; control: 17%; all comparison $X^2 < 1.31$, p's $> .25$), which was in line with our prediction.

The results of study 7 reveal that if a consumer is provided with negative information regarding an aspect of their social identity, in this case university affiliation, this can lead to a negative social identity link that directly results in an increase in trashing rates. This study extends our previous results and provide a more complete demonstration of how identity-linked products are treated differently at disposal. Study 7 clearly demonstrates that this phenomenon does not just depend on the presence or strength of an identity link but also on the valence of the component of the identity to which the product is linked.

FIGURE 4

THE EFFECT OF POSITIVE AND NEGATIVE SOCIAL IDENTITY VALENCE ON DISPOSAL BEHAVIOR



GENERAL DISCUSSION

We have known for some time that consumers' identities influence purchasing decisions and that meaningful possessions are treated differently during the divestment process, but until now, research had not examined whether consumers' identities can directly influence their decision to trash or recycle an everyday product. We hypothesized that when an everyday product (e.g., paper, cups) is linked to a consumer's identity, it is more likely to be recycled. Across seven studies (plus three additional studies that we report in online appendix B), we showed that the presence, strength, and valence of an identity causes consumers to treat functionally similar everyday products differently during disposal. Further, we find that consumers are more likely to recycle a product linked to the self because trashing such a product creates an identity threat.

In study 1 we found initial support for our prediction, where participants recycled paper with their names written on it more so than paper with a different name written on it. Study 2 replicated this finding while also demonstrating that even when an unknown third party writes a consumer's name on an item, as is often experienced in coffee shops, this is enough to activate the identity link, provided their name is spelled correctly. In study 3, we extended our effects to self-brand connections and found that participants who highly identified with Coca-Cola were more likely to recycle a Coke can compared to a Pepsi can. In contrast, those with a low self-brand connection to Coke were more likely to recycle the Pepsi can.

In study 4, we sought to extend the scope of our research to include a different type of identity: social identity. We also introduced an alternative to trashing or recycling where participants could indicate how they would dispose of a product. Even with this freedom of choice, US-born participants were still more likely to recycle a plastic cup depicting the US flag compared to a plastic cup depicting the UK flag or a blank plastic cup. This study also ruled out familiarity, evaluations, and social norms as alternative explanations. In study 5, US-born participants were more likely to recycle plastic cups with a US flag on it compared to a blank cup. This study revealed that the stronger the identity-link, the stronger the negative emotions experienced when trashing an identity-linked product. In study 6

we provided support for the idea that trashing an identity-linked product creates an identity threat. The results showed that US-born participants reported lower state collective self-esteem when they imagined trashing a plastic cup with the US flag on it, compared to when they imagined recycling it. Finally, in study 7, we revealed that the valence of the identity-link has a differential effect on disposal decisions, even with a no forced disposal choice. That is, students who read a negative article about their university were more likely to trash and less likely to recycle paper depicting their university's logo, compared to those who read a positive article about their university.

Overall, we believe this research makes important contributions from both a theoretical and practical perspective. From a theoretical perspective, this research explores the impact of intangible characteristics related to the product itself—the extent to which it has an identity that is important to consumers and thus links the product to the individual. We have shown that identity links are not exclusive to meaningful (i.e., special) possessions (Belk 1988) but can also be formed with everyday products, even when they are no longer needed or wanted. Like meaningful possessions that are generally disposed of in purposeful ways so as to preserve their meaningfulness and the identity with which they are imbued (Belk 1988; Belk, Sherry, and Wallendorf 1988; Belk, Wallendorf, and Sherry 1989; Burris and Rempel 2004; Ferraro et al. 2011), everyday products are often intrinsically linked to consumers' identity and also get treated differentially at disposal. Unlike the meaningful possessions studied by Belk and colleagues, the disposal options for everyday products typically involve a decision between either throwing the product in the trash or in the recycling bin. Nonetheless, the self- and social-identity imbued in products substantively influences consumers' disposal decisions.

Research on disposal decision making has been largely limited to investigating the impact of factors related to the promotional message (Lord 1994; Smith and Petty 1996; White et al. 2011), the consumer's personality (McCarty and Shrum 2001), and tangible product characteristics (Trudel and Argo 2013) on recycling behaviors. Importantly our results suggest that placing these identity-linked products in the trash threatens that identity, a situation consumers are motivated to avoid. When examining the relationship between identity and behavior, previous research has focused on consumers' memberships within groups and how they tend to behave in a manner consistent with others. For example, individuals may purchase organic vegetables when they identify themselves as a "green consumer" or purchase locally manufactured goods due to their meaningful association with the local community (Lantz and Loeb 1998; Sparks and Shepard 1992). Generally, the link between identity and recycling behavior has often looked at group-level conformity and individual attitudes, rather than product-level influencers. For example, Terry, Hogg, and White (1999) recognized that when an individual strongly identifies with a particular reference group, such as friends, family, or neighbors (Hanson 1980), they are more motivated to recycle if recycling is viewed as an important aspect of that reference group.

From a practical perspective, we believe it is important to enhance our understanding of the ways through which we may encourage sustainable consumer behaviors if we are to ensure a healthy Earth, not only for the present generation but for those who will follow. Our research adds to the growing discourse on environmental issues by presenting a different perspective on what influences consumers' recycling decisions. Specifically, our findings reveal that by creating an identity link or making an existing identity link salient that consumers may be less likely to trash products that should go into the recycling bin. There are many examples of firms that already link products to our identities but may not be aware of the disposal consequences. For instance, Coca-Cola's "Share a Coke" campaign (http://www.coca-colacompany.com/coca-cola-unbottled/is-your-name-on-a-coke-bottle-find-out-here/#TCCC), where consumers find their names on bottles of Coke, is likely to increase recycle rates for those who drink from a bottle with their name on it, however, drinking from a bottle with a different name may lead to increased trashing if consumers have a negative association with that name. As another example, Starbucks and other coffee shops may be able to increase recycling rates of their cups by instructing their baristas to ensure that they spell their customers names correctly.

Firms often appeal to consumers' identities to encourage acquisition of their products;, therefore if the manufacturer includes an aspect of this identity on the packaging or the product itself, this could potentially increase the likelihood that the product will subsequently be recycled. For example, Budweiser is marketed as "The Great American Lager," often using US-centric imagery in advertisements to appeal to American consumers. Periodically, Budweiser releases limited edition bottles and packaging containing the American flag or the Statue of Liberty, for example, with both providing very strong links with consumers' national identity. Our research would suggest that these limited edition bottles and packaging would be more likely placed in the recycle bin due to the stronger product–identity link. Finally, our research also points to an additional benefit of a strong brand. In this work we demonstrate how consumers' connections to brands increases the likelihood that the products will be recycled rather than trashed.

Limitations and Future Research

The effects of social norms, social influence, and demand are always a concern when conducting behavioral research in areas that might have a socially desirable way to

respond. Through the careful design of our experiments we feel that we have mitigated these issues, but nonetheless we discuss some of the potential limitations and issues of our work and in studying disposal behavior more generally. While it certainly would violate social norms to throw an actual American flag in the trash, it is not clear that there are such established social norms about how to dispose of pieces of paper or plastic cups imprinted with American flags or paper adorned with a university logo. Nonetheless, we believe that studies 4, 5, and 7 help to rule out this explanation. In particular, we found that those individuals low in American identification (being American is not an important part of their identity) are less likely to recycle the identity-linked product than those high in American identification (being American is an important part of their identity). Regardless of how consumers identify with being American, the norm regarding how a cup (or paper, etc.) with an American flag printed on it should be disposed of is the same for all Americans. Thus we believe that the interactions found rule out the social norms explanation. Similarly, we manipulated university pride in study 7 to show differential disposal behavior, but manipulating university pride should also not affect social norms regarding the disposal of paper imprinted with a university logo. It could be argued that the social norm is to recycle all recyclable materials; however, we know that a large proportion of what is recyclable ends up in landfills. In all our studies we show differential behaviors that cannot be explained by social norms alone.

We also believe that our results cannot be explained by social influence or lack of perceived anonymity for several reasons. First, in all our studies, the trash and recycle bins had flip lids to conceal what had been previously deposited into the bins. Second, participants left one at a time and the recycle and trash bins were in the hallway outside the lab as participants left the room. This meant participants' disposal behavior was done outside of any direct observation. Third, only first names were ever used on paper and cups that were disposed of, which allowed us to maximize anonymity because disposed of products could not be linked back to our participants. Last, the MTurk studies were completely anonymous.

Finally, we also believe our results cannot be explained by demand. In the present research, participants were always taking part in an "unrelated study" and asked to clean up their computer terminals and "dispose" of any study materials on the way out. We feel that if participants had shown any demand effects, the actual recycling rates would have been much higher. While we did not specifically include suspicion probes in this work, we did include suspicion probes in prior work that we have done in this domain using the exact same experimental paradigm and no participants identified disposal behavior as the purpose of the experiments (Trudel and Argo 2013). Finally, to further guard against demand, all of our experiments were between subjects, and we found interaction effects in study 4, 5, 6, and 7 (which further rule out any demand effects).

Given that our research is only a first step in understanding the impact of intangible product properties on disposal behaviors, there are many avenues for future research. For example, in the present research the focal social identities were made salient using images. Future research could examine whether consumer's product–identity links can be activated through the use of text such as "Made in the USA" or even through the use of certain color combinations such as red, white, and blue (i.e., the American national colors). As a second example, across all of our studies we used relatively subtle links between identity and disposal such that consumers had to draw conclusions as to the implications of their disposal decision. Future research could study whether the use of explicit links might further enhance our effects. In other words, if Coke drinkers read either an advertising appeal or saw a message on the can that makes the link between Coke identity and recycling more salient (e.g., "You bought Coca-Cola because you are a Coca-Cola drinker. Now be a Coca-Cola recycler") might this further increase the recycling rates of these products? Relatedly, consumers have been shown to differ in environmental concern and recycling attitudes and this impacts behaviors (Schultz and Oskamp 1996). While we did not include measures for these individual differences, future research could explore the interplay between environmental attitudes and identity-product links to predict recycling behaviors. Stated differently, are identity links more, equally, or less influential than attitudes in predicting how an everyday product will be disposed? While we focus on the impact of membership identities (i.e., identities we currently belong to) on disposal decisions, future research could examine the impact of both aspirational groups (i.e., group identities we would like to have) and dissociative groups (i.e., group identities we do not want to have) on recycling behaviors.

Finally, although we differentiate between everyday products and the previously researched "meaningful" (i.e., special; Belk 1988) possessions, if a product is linked to a consumer's identity, then by definition this product would be imbued with more meaning. However, this meaning may change over time as personal growth and major role transitions shift peoples' self-concepts (Schouten 1991), which may also influence the relationship consumers have with their products. A child's teddy bear may represent comfort and security and a tight link to a child's identity, but as that child ages they may see it as immature when they are adolescents but nostalgic as adults, even though there is still arguably an identity link continually present. Therefore in a more general sense, future research could examine the influence of this shifting self and how different meanings given to possessions over time can influence how they are disposed. This would ascertain whether the

influence of identity links is embedded within the larger construct of meaningfulness.

In sum, we have taken an initial step toward understanding how the presence of an identity link with an everyday product can increase the frequency with which the product is recycled. These findings can subsequently be used to inform future product and packaging design as well as marketing communication development with the aim to increase recycling rates by linking the product to the consumer's identity.

DATA COLLECTION INFORMATION

The third author collected the data for study 1 in the autumn of 2014 at Boston University's Behavioral Research Lab. Data for study 2 (spring 2015), and study 7 (autumn 2015) were also collected by the third author at Boston University's Behavioral Lab. All data collection for studies1, 2, and 7 additionally employed research assistants supervised by the third author. The first and third author jointly analyzed the data for these studies. The first author collected and analyzed the data for study 3 in the autumn of 2014, study 4 in the autumn of 2015, study 5 in the autumn of 2015, and study 6 in summer 2014. Data for Study 3, 4, 5, and 6 were collected through Amazon's Mechanical Turk website. The manuscript was jointly authored.

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