

When Beauty Backfires: Negative Effects of Product and Payment Aesthetics

by

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## ABSTRACT

This dissertation uncovers the negative aspects of aesthetics by examining when and how enhanced product and payment aesthetics can backfire and lead to unfavorable consumer outcomes. The first essay examines the downstream effects of nondurable product aesthetics on usage behavior and consumption enjoyment. Across a series of field and lab experiments, I document an inhibiting effect of aesthetics on consumption. I find that highly aesthetic products elicit greater inferences of effort in their creation, and that people have an intrinsic appreciation for such effort. Because the consumption process indirectly destroys the effort originally invested to make the product beautiful, people reduce consumption of such products because usage would involve destroying something they naturally appreciate. Further, I show that in cases where individuals do consume a beautiful product, they exhibit lower consumption enjoyment. These negative post-consumption outcomes are driven in parallel by concerns over having actually destroyed the effort that made the product beautiful as well as the decrements in beauty that become visible when aesthetic products are made less attractive through consumption. The second essay investigates how the aesthetics and design of a payment (e.g., beautiful gift card packaging) can influence the purchase experience. Three field and lab experiments reveal the negative impact of beautified payments on spending and purchase satisfaction, particularly in situations where usage involves compromising its aesthetic appeal. Specifically, when consumers must damage a payment's appearance before using it (e.g., ripping gift card packaging), they are less likely to use that payment, and experience lower purchase satisfaction when they do, an effect driven by the pain of payment. In doing so, I identify aesthetics as a novel source of pain of payment that carries important

consequences for spending behavior, purchase satisfaction, and the overall customer experience. Implications for theory and practice are discussed.

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## INTRODUCTION

Marketers devote a lot of resources toward aesthetics and design, and this trend continues to manifest itself across an ever-increasing variety of goods. In recent years, we have witnessed the growing popularity of exquisitely designed cakes, sweets, and pastries (Price 2011), and the increased commercial success of beautiful artisan soaps (Sherman 2012). Companies from Dixie to Post-it have transformed the images of traditionally utilitarian products such as disposable tableware to stationery by incorporating aesthetics into their design. Even the very payments used to acquire goods and services have undergone beautification; Starbucks regularly releases highly attractive gift card designs (Hunter 2018), and consumers give cash gifts folded into beautiful origami designs (LaFosse and Alexander 2011). These endeavors are not unsubstantiated—the aesthetics of products and services are often considered crucial determinants of commercial success (Bloch 1995; Schmitt and Simonson 1997), used by companies to differentiate their offerings in an increasingly competitive marketplace (Jordan, Thomas, and McClelland 1996; Postrel 2003).

Despite the ubiquity of aesthetically appealing products and payments, what impact might this strategy have at various stages of the customer journey? Based on prior work, enhanced aesthetics should have a uniformly positive effect on consumers (e.g., Hagtvedt and Patrick 2008; Landwehr, Labroo, and Hermann 2011; Landwehr, Wentzel, and Hermann 2013; Raghuram and Greenleaf 2006; Reimann et al. 2010; Townsend and Sood 2012; Veryzer and Hutchinson 1998; Yamamoto and Lambert 1994). For instance, Townsend and Shu (2010) showed that the appearance of a financial document can positively influence stock valuations and behavior, despite claims from

financial decision makers that aesthetics did not inform their investment decisions. Likewise, Reimann and colleagues (2010) found that exposure to beautiful package designs can increase activation in areas of the brain that process pleasure and reward, further attesting to the allure of aesthetics.

However, the extant literature documenting consumer preferences for aesthetics has been limited to assessments prior to consumption, such as attention, pre-usage evaluations, or choice. Surprisingly, the downstream effects of aesthetics on post-purchase consequences are relatively unknown. This gap in the literature is significant, given a growing body of research demonstrating that consumers are prone to systematic errors when predicting future consumption utility (e.g., Buechel and Townsend 2018; Etkin 2016; Lee and Tsai 2014; Thompson, Hamilton, and Rust 2005). Thus, the two essays of my dissertation aim to address this gap by exploring, in the context of consumable goods and payments, the impact of aesthetics and design on usage behavior, post-usage satisfaction, and the overall customer experience.

My first essay, entitled “It’s Too Pretty to Use! When and How Enhanced Product Aesthetics Discourage Usage and Lower Consumption Enjoyment,” investigates the downstream effects of product aesthetics on usage behavior and post-consumption affect. In the context of nondurable products (e.g., toilet paper, paper napkins, cupcakes), where consumption involves ruining product design, I document an inhibiting effect of aesthetics on usage behavior. This occurs because highly aesthetic products elicit greater inferences of effort in their creation, and people have an intrinsic appreciation for such effort. Given the consumption process indirectly destroys the effort originally invested to make the product beautiful, consumers reduce their consumption as doing so would entail

destroying something they naturally appreciate. After consumption, I find that the usage of highly aesthetic products can decrease enjoyment by not only facilitating the realization that one has actually destroyed effort, but also by physically compromising the beauty of such products.

My second essay, entitled “Beauty is Pain: Understanding How Payment Aesthetics Shape Spending and Purchase Satisfaction,” examines how the aesthetics and design of a payment (e.g., beautiful gift card packaging) can affect the purchase experience. I propose that enhanced payment aesthetics can reduce spending and lower purchase satisfaction, particularly in situations where usage involves compromising its aesthetic appeal. Specifically, when consumers must tarnish a payment’s aesthetics before using it (e.g., ripping gift card packaging), they are less likely to use that payment, and experience lower purchase satisfaction when they do, an effect driven by the pain of payment. Across three studies, I seek to identify aesthetics as a novel source of pain of payment that carries important consequences for spending behavior, purchase satisfaction, and the overall customer experience.

In addition to advancing theory, my dissertation carries important practical implications. For instance, given the insight that higher product aesthetics can reduce usage and consumption enjoyment, my first essay challenges the commonly held assumption that marketers should always strive to maximize the aesthetic appeal of their products, particularly for manufacturers of consumable goods, such as Kimberly Clark and Proctor & Gamble, who would presumably want their customers to consume what they buy and engage in repeat purchase. This research is also of relevance to dieting companies such as Weight Watchers and Atkins, as my work suggests making dieting

foods more aesthetically appealing can potentially enable individuals to better regulate their consumption. Finally, given estimates that nearly \$1 billion in gift cards go unredeemed ever year (Paul 2017), the goal of my second essay is to better understand the various factors that drive gift card usage, which carry important implications for both managers and consumer welfare. Specifically, I hope to provide insights about how different gift card designs and aesthetics increase initial gift card sales but subsequently decrease redemption rates and purchase satisfaction.

## CHAPTER 1

# IT'S TOO PRETTY TO USE! WHEN AND HOW ENHANCED PRODUCT AESTHETICS DISCOURAGE USAGE AND LOWER CONSUMPTION

### 1.1 Introduction

From intricately decorated pastries to beautiful stationery to attractive disposable tableware, marketers invest a lot of resources in product aesthetics and design. These efforts are not unfounded—the design and aesthetics of products and services are often considered important predictors of marketing and sales success (Bloch 1995) and are relied upon to evaluate the myriad of product offerings in the marketplace. Echoing this sentiment, a recent review of hedonic consumption suggests companies can further enhance customer enjoyment by endorsing their products' aesthetic qualities (Alba and Williams 2013).

However, once purchased, can a product ever be *too* aesthetically appealing to use? Or, if one must use a beautiful product, can aesthetics hurt the consumption experience? Despite the excitement initially elicited by the purchase of highly aesthetic products, I argue that after purchase, consumers exhibit both decreased consumption of such products and reduced enjoyment if consumption does occur, precisely *because* of their beauty. I propose that higher aesthetics can carry negative consequences, and identify conditions under which a greater focus on aesthetics reduces usage and decreases enjoyment after consumption. In elucidating these effects, I introduce a framework that examines how the aesthetic qualities of a product shape both 1) the likelihood of consuming that product (e.g., eating an intricately decorated cupcake, using a beautiful

napkin), and 2) the emotional consequences of such consumption, or how one feels once consumption has taken place.

Importantly, I demonstrate there are two distinct mechanisms underlying these effects. First, I find that people link higher aesthetics to higher effort, so that prior to consumption, they are less likely to consume aesthetic products due to concerns over the destruction of such effort. After consumption, however, once a beautiful product has been inherently damaged through use, consumers experience more negative affect due to the decrements in beauty that become visible when an aesthetic product is made less attractive through consumption, in addition to their concerns over having actually destroyed effort.

In identifying the inhibiting effect of product aesthetics on consumption and the emotional consequences of aesthetic product usage, I contribute to the literature in several ways. First, while prior work shows that consumers respond positively to both highly aesthetic and effort-laden products, to my knowledge, I am the first to empirically test and link consumers' associations between these two constructs. Second, although existing work suggests that product aesthetics should have a uniformly positive influence on pre-usage evaluations and choice (e.g., Reimann et al. 2010), across a variety of perishable and disposable (i.e., nondurable) consumption contexts, I demonstrate that the appreciation for effort that people attribute to highly aesthetic products can have the unintended consequence of discouraging consumption. Third, while research in implicit self-theories reveals that incremental and entity theorists carry different beliefs about the value of their own effort (e.g., Dweck 2000), in my exploration of effort as my

underlying mechanism, I also show that these beliefs extend to consumers' appreciation of others' effort in the creation of highly aesthetic products.

Moreover, contrary to the notion that product aesthetics should always enhance consumer enjoyment, I demonstrate that the consumption of highly aesthetic products can actually increase negative affect associated with the consumption experience by not only eliciting concerns that one has destroyed effort, but also by physically compromising the beauty of such products. While prior work has shown that aesthetic products are intrinsically rewarding and provide greater pleasure (Reber, Schwarz, and Winkielman 2004), mine is the first to show that the consumption of such products can result in greater losses of aesthetic appeal, and that such beauty decrements in turn drive the relationship between aesthetic product usage and negative emotional outcomes. Finally, and more broadly, I add to the growing body of research that explores when and why the drivers of predicted and experienced utility diverge (e.g., Thompson, Hamilton, and Rust 2005; Lee and Tsai 2014).

Notably, as opposed to prior research that describes how enhanced aesthetics motivate choice and purchase (Raghubir and Greenleaf 2006; Reimann et al. 2010), I investigate the impact of aesthetics after purchase. As such, my goal is not to compare pre- and post-purchase evaluations, but rather to better understand the various nuances that shape the effect of aesthetics on consumption likelihood and the emotional consequences of such consumption. Furthermore, while my research centers on the notion that highly aesthetic products elicit greater perceptions of effort, I acknowledge that higher aesthetics do not in every case lead to higher effort inferences. For instance, some products may be aesthetically pleasing precisely because of their simplistic designs,



such as Scandinavian furniture. Thus, I am not suggesting that higher aesthetics always imply higher effort, but rather that when they do, they will lead to lower usage and more negative consumption and post-consumption experiences.

## **1.2 Conceptual Background**

### **1.2.1. Product Aesthetics**

The pervasive role that aesthetics play in shaping consumer preferences is well-documented (Bloch 1995; Bloch, Brunel, and Arnold 2003; Hagtvedt and Patrick 2008; Veryzer and Hutchinson 1998). Whether knowingly or not, consumers often rely on product aesthetics to inform their purchase decisions, even in situations where design is expected to have minimal influence (e.g., Raghurir and Greenleaf 2006; Yang and Raghurir 2005), such as in financial (Townsend and Shu 2010) or industrial (Yamamoto and Lambert 1994) product domains. Further, visually appealing products elicit positive consumer responses at an affective, cognitive, or even neural level (Hagtvedt and Patrick 2008; Page and Herr 2002; Reimann et al. 2010). Put simply, consumers' bias towards beautiful products can override more rational and normative judgment and decision-making processes (for an exception, see Hoegg, Alba, and Dahl 2010).

Given the powerful influence of aesthetics, marketers have also changed their strategies to capitalize on their allure. Supermarket chains from around the world (e.g., Marks & Spencer, Monoprix, Whole Foods) have started to display their consumable products, from eggs to tea, in beautifully designed packages (Heller 2015). Even brands selling traditionally utilitarian products, such as Dixie, have begun to promote special

celebrity collections of disposable paper plates, napkins, bowls, and plastic cups featuring highly attractive and stylish designs (2015).

In sum, extant research shows that consumers gravitate toward beautiful products at the choice and pre-consumption stages of the decision process (e.g., Raghurir and Greenleaf 2006; Reimann et al. 2010). However, despite the positive role that enhanced aesthetics play in motivating choice, I predict that there are also negative consequences of acquiring such products that can emerge during and after consumption. Next, I discuss the pivotal role that effort inferences play in my conceptualization.

### **1.2.2. The Role of Effort in Inhibiting Usage**

Equally ubiquitous as consumers' admiration for aesthetics is their appreciation for effort. Research in social psychology and consumer behavior has shown that the degree of effort expended – whether in time, physical labor, pain, or money – is directly associated with how positively people evaluate the outcome of that effort (Belk 1988; Bem 1972; Festinger 1957; Moreau et al. 2011; Norton et al. 2012). Notably, this appreciation for effort is not limited to effort exerted by oneself. The 'effort heuristic' (Kruger et al. 2004) describes how increases in the perceived production time and effort of a given item enhance ratings of quality and liking. Furthermore, consumers reward firms that expend extra effort in creating or displaying their products, even when the quality of the products is not improved by the effort (Morales 2005).

While aesthetics and effort have traditionally been studied in isolation, I examine these two constructs in tandem by testing the prediction that aesthetic products can elicit greater perceptions of effort. In line with attribution theory, which posits that people seek

out causes of particular events (Kelley 1967), I propose that the aesthetic appeal of a product naturally leads consumers to engage in attributional search to identify what made the product so beautiful. This search then leads to the inference that more effort was invested in the product's creation, whether the effort was expended during product design, physical production, or during both processes. Importantly, the association between aesthetics and effort is likely one that consumers intuit at an implicit level. Specifically, I believe these inferences occur fairly automatically, similar to the spontaneously generated consumer inferences documented in prior work (Broniarczyk and Alba 1994). For instance, Kirmani, Lee, and Yoon (2004) showed that consumers spontaneously infer that higher advertising expenditures imply higher product quality, and similarly, Raghunathan, Naylor, and Hoyer (2006) found that the "unhealthy = tasty" intuition operates at an implicit level. In the same vein, I posit that consumers are not actively deliberating about the positive associations between aesthetics and effort, but instead intuit this relationship in a relatively spontaneous manner upon exposure to an aesthetic product.

Though the association between aesthetics and effort has not been systematically explored in the consumer behavior literature, support for this relationship does exist in related areas of research, such as organizational behavior. "Aesthetic labor" refers to the notion that the process of making oneself look attractive for frontline work often requires effort and hard labor (Witz, Warhurst, and Nickson 2003), suggesting a positive association between aesthetic appeal and perceived effort. Still, to provide further support for this assertion, I conducted a pretest to examine the relationship between these two constructs across a variety of products. These products included the higher aesthetic

stimuli utilized in my focal studies, such as toilet paper, cupcakes, and paper napkins (see Appendix A for images), as well as higher aesthetic items used in prior research, such as calculators and coffee makers (Townsend and Sood 2012). Participants ( $n = 138$ ) were shown a series of seven products and asked to indicate, for each one, the degree of effort they thought it took to (1) create the design of the product, and (2) produce the product (1 = hardly any effort, 7 = a lot of effort). Next, they rated the degree to which the product was beautiful, artistic, pretty, and aesthetically appealing, which formed my aesthetic appeal index (1 = not at all, 7 = very much; for each of the seven products,  $\alpha \geq .83$ ). Correlations between aesthetic appeal and the two types of effort revealed that the more aesthetically appealing a product was rated, the higher the perceived degree of design ( $r \geq .35$ ;  $p < .001$ ) and production effort ( $r \geq .24$ ;  $p < .005$ ) ascribed to the product's creation, a pattern that held for each of the seven products, including machine-manufactured napkins and toilet paper (see table 1).

TABLE 1 -- RELATIONSHIP BETWEEN AESTHETICS AND PERCEIVED EFFORT

	Correlation between aesthetic appeal and design effort	Correlation between aesthetic appeal and production effort
Toilet Paper	$r = .46, p < .001$	$r = .54, p < .001$
Cupcake	$r = .38, p < .001$	$r = .44, p < .001$
Napkin (Floral)	$r = .58, p < .001$	$r = .48, p < .001$
Napkin (Solid Color)	$r = .38, p < .001$	$r = .31, p < .001$
Napkin (Decorative)	$r = .52, p < .001$	$r = .48, p < .001$
Calculator	$r = .35, p < .001$	$r = .24, p < .005$
Coffee Maker	$r = .36, p < .001$	$r = .33, p < .001$

These findings suggest consumers associate aesthetics with effort, regardless of whether the effort was attributed to product design or physical production. Of note, to ensure comparability, the stimuli in all my studies consist of higher and lower aesthetic products within a given product category (e.g., a higher versus lower aesthetic cupcake) rather than across product categories (e.g., a cupcake, which tends to be more aesthetic, versus a bagel, which tends to be less aesthetic).

In the current research, I argue that particularly for nondurable aesthetic products, the effort inferences ascribed to their creation ironically curb actual usage. Specifically, because people intuit that higher aesthetics signify higher effort, as I established above, and recognize that effort is a controllable and volitional behavior (Morales 2005; Weiner 2000), they appreciate and reward the extra effort expended to make the product so beautiful. Indeed, consumers often rely on perceived effort to ascertain the value and quality of an ad, product, or service (Kirmani 1990; Kruger et al., 2004; Morales 2005). In the case of nondurable goods, the consumption of an aesthetically appealing product involves damaging its product design, and by extension, destroying the effort originally invested in making the product beautiful. Based on this perspective, I posit that people refrain from using products imbued with effort, as this indirectly entails destroying something they reward and appreciate. Thus, to the extent that enhanced aesthetics evoke higher perceptions of design and/or production effort, I predict that people should be less likely to consume a product that has higher (vs. lower) aesthetic appeal. More formally,

**H1:** Consumers will be less likely to use/consume a nondurable product that has higher (vs. lower) aesthetic appeal.

**H2:** The drop in consumption likelihood for nondurable products with higher (vs. lower) aesthetic appeal will be mediated in serial by design and/or

production effort inferences and concerns about the destruction of such effort.

Importantly, based on my conceptualization, I would not expect the same reduced consumption for beautiful products that do not elicit high effort inferences, or for individuals who do not recognize and appreciate effort. For instance, while consumers may be less likely to eat an intricately decorated cupcake because they do not want to destroy the effort that presumably went into making it so beautiful, this decrease in consumption should be attenuated if they are made to believe the cupcake required little effort to make in the first place, or if they do not readily appreciate effort. In study 4, I manipulate effort inferences directly to show how this reduced consumption is mitigated when beautiful products are not associated with such inferences, and in study 5, I discuss an individual difference that makes some consumers even more (vs. less) likely to appreciate effort.

### **1.2.3. Understanding Post-Consumption Affect**

Beyond examining the factors that drive lower usage likelihood of beautiful products, I also investigate how consumers feel once consumption has occurred. While I contend that people will be less likely to use highly aesthetic products due to concerns over the destruction of effort, in cases where they do, I believe such concerns will continue to shape the emotional consequences of consumption, given their actions have resulted in the actual destruction of effort. Put another way, if the mere thought of having to participate in the ruining of effort is sufficient to restrain consumption, engaging in the actual destruction of effort through the consumption of a highly aesthetic, nondurable

product should similarly have a negative impact on subsequent enjoyment of the experience. Critically, in addition to evoking concerns about effort destruction, because consumption inherently compromises the beauty of a highly aesthetic product by transforming it into something less attractive, I propose that witnessing such negative perceptual changes should also play a role in impacting enjoyment and affect.

According to the work of philosopher George Santayana ([1896] 1955), aesthetics are inextricably linked with pleasure and enjoyment, a notion that has received widespread empirical support in work on hedonic consumption (Alba and Williams 2013). Put simply, people gravitate towards aesthetically appealing objects because of the immediate experiential pleasure that beauty in itself provides, a process that is automatic and does not require intervening cognitive reasoning (Dutton 2009; Maritain 1966; Reber et al. 2004). This notion is further supported by neuroimaging studies showing that the reward system in the brain plays an important role in the processing of aesthetic stimuli (Aharon et al. 2001; Kampe et al. 2001). For instance, Reimann and colleagues (2010) demonstrated that exposure to aesthetic package designs resulted in increased activation in the nucleus accumbens and the ventromedial prefrontal cortex, key areas of the brain that are known to process pleasure and reward.

In the context of nondurable goods, where consumption inherently entails damaging the product's appearance, I argue consumption of highly aesthetic products will lead to larger losses of beauty relative to the consumption of less aesthetic products, where the shifts in aesthetic appeal through usage will be less dramatic, given lower initial levels of attractiveness. Thus, if beautiful products indeed afford greater pleasure and reward while they are in pristine condition, it follows that the larger decrements in

beauty stemming from their consumption would result in a less pleasurable experience. Since consumers are more sensitive to changes from a reference point rather than absolute levels (Kahneman and Tversky 1979), I predict that the steeper drops in beauty, experienced in response to the consumption of a higher aesthetic product, will lead to more negative responses than smaller changes in aesthetic appeal from a lower starting point with the consumption of a less aesthetic product. More specifically, I contend that because consuming a highly aesthetic product inherently turns something beautiful, which is pleasurable, into something unattractive, which is unpleasant, the accompanying reductions in beauty will lead to reduced consumption enjoyment and greater negative affect.

In sum, I argue that while the effort inferences made before consumption will continue to mediate emotional outcomes, given consumption involves the actual destruction of effort, I predict that a second process will also emerge, one based on the decrements in beauty that highly aesthetic products undergo when their aesthetic qualities are compromised through consumption. I propose that these two processes will operate in tandem to shape the affective responses associated with the consumption of aesthetic products. Formally,

- H3:** Consumption of a higher (vs. lower) aesthetic nondurable product will negatively affect emotional outcomes (enjoyment and affect).
- H4a:** The effect of consuming a higher (vs. lower) aesthetic nondurable product on emotional outcomes will be mediated in serial by design and/or production effort inferences and concerns over having destroyed such effort as a result of consumption.
- H4b:** The effect of consuming a higher (vs. lower) aesthetic nondurable product on emotional outcomes will be mediated by changes in beauty occurring as a result of consumption.



### **1.3. Summary and Overview of Studies**

In sum, my conceptual model posits that different processes underlie consumer responses to highly aesthetic products depending on whether or not consumption has taken place. Before consumption, I expect higher effort inferences attributed to the creation of aesthetic products to elicit stronger concerns that such effort would be destroyed by consumption, lowering consumption likelihood. After consumption, in addition to these effort destruction concerns, consumers will also be confronted with the reality that the aesthetic appeal of the product has been visibly compromised through usage. Because beautiful products are inherently pleasurable and rewarding, the greater losses of beauty associated with aesthetic product usage will drive negative affect and reduce consumption enjoyment. Importantly, given that nondurable products are designed for immediate consumption, I do not expect anticipated shifts in aesthetic appeal alone, or concerns over what the product will look like post-consumption, to play a significant role in stopping consumers from using them in the first place. These decrements in beauty are not evident before consumption, when the highly aesthetic product is still in pristine, beautiful condition, but instead are only salient post-consumption.

I test my predictions in field and laboratory studies across multiple consumption contexts. Study 1, a field experiment, provides an initial demonstration of the inhibiting effect of product aesthetics on usage behavior for real consumers. Study 2 conceptually replicates this effect in the lab using a different product and measure of consumption, and provides preliminary evidence that consumption of an aesthetic product can negatively impact product enjoyment. Studies 3, 4, and 5 provide convergent support for effort inferences as a key driver of reduced aesthetic product usage through mediation (study 3),

moderation by an effort intervention (study 4), and the theoretically relevant individual difference of implicit self-theories (study 5). Of note, effort inferences, broadly speaking, encompass both the inferences about the amount of effort required to make a product beautiful as well as the inferences about the destruction of such effort. In my final two studies, I hold usage constant to focus on the downstream consequences of aesthetic product usage and shed light on the processes underlying post-consumption affect. Study 6A establishes that the consumption of a higher (vs. lower aesthetic) product results in larger losses of beauty, and that such beauty decrements negatively impact post-consumption emotions, while study 6B tests the full conceptual model by integrating changes in beauty and effort inferences into emotional reactions linked to the consumption experience. Table 2 summarizes the results of a pretest showing that all the higher (vs. lower) aesthetic stimuli utilized in my studies have greater aesthetic appeal. As such, aesthetics manipulation checks are not discussed in specific studies.

TABLE 2 – AESTHETIC APPEAL PRETEST\* FOR ALL STIMULI USED IN STUDIES

	Higher Aesthetic	Lower Aesthetic	Comparison	$\alpha$
Toilet Paper (Study 1)	3.77 (1.46)	2.53 (1.55)	$t(128) = -4.69; p < .001$	$\alpha = .94$
Cupcake (Study 2)	5.56 (1.06)	3.05 (1.46)	$t(128) = -11.20; p < .001$	$\alpha = .96$
Napkin (Studies 3 and 6)	4.65 (1.53)	2.30 (1.44)	$t(128) = -9.03; p < .001$	$\alpha = .97$
Napkin (Study 4)	3.32 (1.45)	2.62 (1.54)	$t(128) = -2.66; p < .01$	$\alpha = .92$
Napkin (Study 5)	4.58 (1.59)	2.34 (1.51)	$t(128) = -8.23; p < .001$	$\alpha = .97$

NOTE. – Standard deviations are in parentheses.

\*In a between-subjects pretest, participants were asked rate each product along the following dimensions: beautiful, pretty, artistic, and aesthetically pleasing (1 = not at all, 7 = very much), which formed my aesthetic appeal index.

## 1.4. Study 1

The goal of study 1 is to provide initial evidence that enhanced product aesthetics can have an inhibiting effect on usage behavior in a real-world context. I worked with a fitness studio to conduct a field experiment that involved monitoring client toilet paper use over two weeks. I anticipated that clients would use less toilet paper when it was more (vs. less) aesthetically appealing. Importantly, I used the exact same brand and type of toilet paper in both conditions, which allowed me to vary its aesthetics while holding constant all other unrelated factors, such as quality, texture, and absorbency.

### 1.4.1. Method

*Participants and procedure.* I manipulated whether the individual bathroom at a fitness studio located in the Southwestern United States was stocked with plain white toilet paper (lower aesthetic condition) or white toilet paper featuring festive holiday motifs (higher aesthetic condition; see Appendix A, row 1 for images), which was appropriate at the time of data collection, given the study took place two weeks before Christmas. Of note, in addition to the pretest assessing different levels of aesthetic appeal between the two different types of toilet paper, another between-subjects pretest ( $n = 100$ ) revealed that people liked the higher (vs. lower) aesthetic toilet paper and its design more ( $M_{\text{higher aesthetic}} = 4.57$  vs.  $M_{\text{lower aesthetic}} = 4.00$ ;  $t(98) = -1.95$ ,  $p = .05$ ;  $r = .88$ ).

The studio owner provided me with the number of people who attended classes each week, and employees, who remained blind to my research hypotheses, replenished the toilet paper as needed. A total of 772 clients visited the studio over the course of the

study—387 in the lower aesthetic condition (week 1), and 385 in the higher aesthetic condition (week 2). Clients were unaware that a study was being conducted.

#### **1.4.2. Results and Discussion**

As predicted, clients used less of the more aesthetically appealing toilet paper: 2578 total sheets of the lower aesthetic toilet paper were used, while only 1425 sheets of the higher aesthetic toilet paper were used. Because I were provided with the number of class attendees, I were also able to calculate average usage per client; each client in the lower aesthetic condition used an average of 6.66 sheets, while each client in the higher aesthetic condition used an average of 3.70 sheets ( $\chi^2 (1) = 326.16 (n = 772), p < .001$ ).

*Discussion.* I find preliminary evidence that enhanced product aesthetics can reduce usage behaviors, while controlling for differences in paper quality and the total number of clients. Having provided a demonstration of this phenomenon in an ecologically valid setting, the remaining studies replicate and generalize this finding and identify its underlying mechanism in a more controlled environment.

#### **1.5. Study 2**

The purpose of study 2 was to conceptually replicate study 1 in a product category in which aesthetics play a major role – food. A growing body of research has documented the profound influence that food presentation has on how I evaluate what I eat (e.g., Hurling et al. 2003; Wada et al. 2010). I chose cupcakes as my focal stimuli because they are a highly familiar dessert that can be made more aesthetically appealing (i.e., higher aesthetics, with frosting in the shape of a rose) or more plain (i.e., lower aesthetics, with

smooth frosting) while holding constant aesthetically-unrelated factors, such as flavor and taste (see Appendix A, row 2 for images). Consistent with the extant aesthetics literature, a pretest of the cupcakes used in study 2 revealed that people were more likely to choose to purchase the higher (vs. lower) aesthetic cupcake for consumption in the future, providing an even stronger test of my predictions about higher aesthetics lowering consumption.

Importantly, given the inherent nature of food, I am cognizant of baseline individual differences that could affect the amount consumed (Lisjak et al. 2015). I ran this study throughout the day (from 10 a.m. – 5 p.m.) across multiple days, so I take individual differences in hunger into consideration, and measured state hunger at the start of the study. I expect that the inhibiting effect of aesthetics on consumption would be greatest among hungry participants, as the need to exhibit restraint should only be observed among those motivated to engage in consumption in the first place. I do not expect differences in consumption among satiated participants, as they should have a low desire to eat regardless of aesthetics.

Notably, an alternative explanation is that people feel inhibited from consuming highly aesthetic products because they tend to cost more and not because of concerns over destroying effort. Thus, I also aim to replicate study 1's findings while controlling for perceived expense.

Finally, I seek to provide initial evidence that the consumption of a highly aesthetic product will negatively affect how much participants enjoy the consumption experience, a notion I explore in depth in study 6. In line with my predictions for consumption amount, I expect the negative influence of food aesthetics on post-

consumption affect to be greatest among hungry individuals, as hunger leads people to not only eat more but to also enjoy their food more (Berridge 2009; Cabanac 1971, 1979, 1985). Thus, changes in the ability to derive enjoyment should only be observed among those motivated to engage in consumption in the first place.

### **1.5.1. Method**

*Participants and procedure.* 183 undergraduate students from a Southwestern University participated in a 2 (aesthetics: higher vs. lower) x continuous (hunger) between-subjects study in exchange for partial course credit. 5 participants were excluded from the analysis – 4 had missing data on the dependent measures and one had missing data on hunger. This left a sample of 178 participants (52% female, one did not report gender, median age = 21, aged 18 – 48).

Participants first indicated their current level of hunger (1 = not at all hungry, 7 = very hungry). They were then told that the goal of the study was to explore which foods go best with different videos, and that they would be eating vanilla cupcakes. Participants were randomly assigned to either the higher or lower aesthetic condition. To ensure they did not discount the overall consumption experience because they lacked freedom of choice (Brehm 1966), within each aesthetic condition, they chose either a pink or cream-colored cupcake to eat. Experimenters pre-weighed each cupcake before the start of each session.

Next, participants were told to watch a 90-second video featuring scenes from around the world while they ate their cupcake, and that they were free to eat as much or as little of the cupcake as they liked. After finishing the video, the remains of the cupcake

were collected and weighed in a separate room. Participants then rated how much they enjoyed the cupcake (1 = not at all, 7 = very much so) and completed filler measures of how interesting the video was and how much they liked cupcakes in general. Finally, they rated how expensive they thought the cupcake was (1 = not at all expensive, 7 = very expensive).

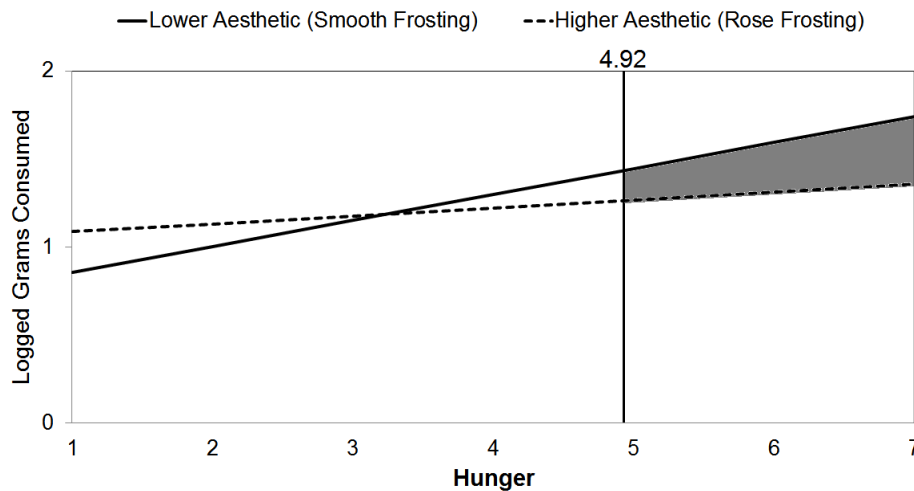
### **1.5.2. Results and Discussion**

I predicted that for consumers who were motivated to consume (i.e., hungry individuals), higher aesthetics would curb consumption quantity and reduce consumption enjoyment, effects that were expected to hold even when controlling for perceived expense.

*Consumption amount.* I first log transformed the dependent variable to normalize the distribution (Cleveland 1984). Next, I performed a 2 (aesthetics condition) x continuous (hunger) multiple regression analysis on the logged consumption amount. Regressing this logged amount on the aesthetics manipulation, mean-centered levels of hunger, and their interaction revealed a directional simple effect of aesthetics at the mean level of hunger ( $b = -.10$ ,  $t(174) = -1.26$ ,  $p = .21$ ), such that participants in the higher aesthetic condition consumed less of the cupcake. Most importantly, the interaction was also significant ( $b = -.10$ ,  $t(174) = -2.13$ ,  $p = .03$ ). Decomposing the interaction, in the lower aesthetic (smooth frosting) condition, I found a significant effect of hunger ( $b = .15$ ,  $t(174) = 4.46$ ,  $p < .001$ ), such that hungry (vs. satiated) individuals consumed more of the cupcake. However, attesting to the inhibitory nature of beautiful products, in the higher aesthetic (rose frosting) condition, the effect of hunger was not significant ( $b =$

.05,  $t(174) = 1.29$ ,  $p = .20$ ). Because self-reported hunger was measured on a 1 to 7 scale ( $M = 4.25$ ,  $SD = 1.68$ , Median = 4), I ran a floodlight analysis using the Johnson-Neyman (1936) technique to identify the range of hunger for which the simple effect of aesthetics was significant (figure 1; see also Spiller, Fitzsimons, Lynch, and McClelland 2013). This analysis revealed a significant reduction in consumption of the higher (vs. lower) aesthetic cupcake for any value of hunger above 4.92 (at  $p < .05$ ). Thus, despite a higher baseline desire to eat, hungry individuals actively refrained from consumption when the cupcake was more aesthetically appealing. Consistent with my predictions, such effects were not observed among satiated individuals, who displayed low motivation to eat regardless of the cupcake's appearance.

FIGURE 1 – STUDY 2 RESULTS: CONSUMPTION AMOUNT

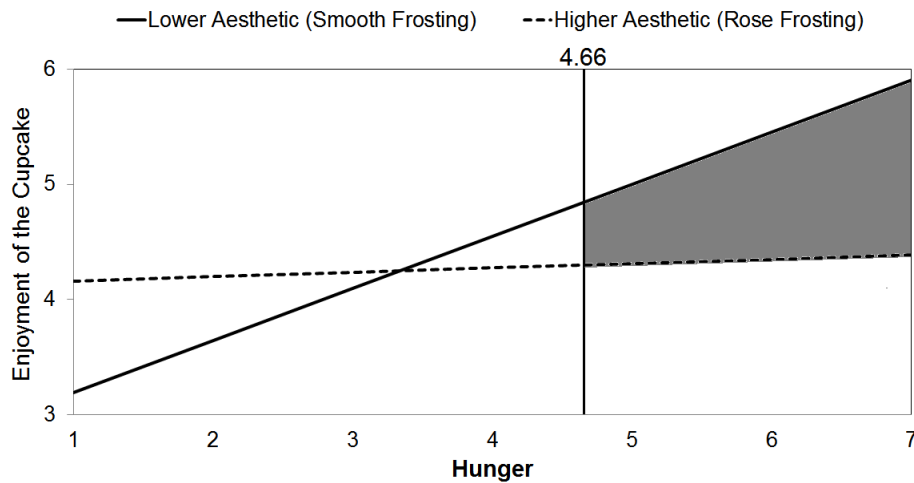


*Enjoyment of the cupcake.* A 2 x continuous regression on cupcake enjoyment revealed only a significant interaction ( $b = -.41$ ,  $t(174) = -2.56$ ,  $p = .01$ ; see figure 2). In the lower aesthetic condition ( $b = .45$ ,  $t(174) = 4.05$ ,  $p < .001$ ), hungry (vs. satiated)



individuals enjoyed the cupcake more. There was no effect of hunger in the higher aesthetic condition ( $b = .04, t(174) < 1, ns$ ). Floodlight analysis revealed that for all values of hunger above 4.66, participants in the higher aesthetic condition enjoyed the cupcake significantly less ( $p < .05$ ).

FIGURE 2 – STUDY 2 RESULTS: CUPCAKE ENJOYMENT



*Perceived expense.* A 2 x continuous regression on perceived expense of the cupcake revealed only a significant simple effect of aesthetics at the mean level of hunger ( $p < .001$ ), such that the higher aesthetic cupcake was seen as more expensive. Most importantly, when controlling for expense, the 2 x continuous interactions and focal effects continue to hold for consumption amount ( $p < .04$ ) and cupcake enjoyment ( $p < .01$ ). Finally, a moderated mediation analysis (Model 8, Hayes 2013) revealed that perceived expense did not mediate either amount consumed ( $b = -.01; 95\% \text{ CI: } [-.08, .05]$ ) or degree of enjoyment ( $b = .12; 95\% \text{ CI: } [-.05, .35]$ ) among hungry individuals, revealing that inferred monetary value was not driving my effects.

*Discussion.* Though my pretest showed that consumers were more likely to choose the higher aesthetic cupcake, a very different pattern of results emerged with consumption amount and consumption enjoyment. Hungry participants actively inhibited their consumption and ate less in the higher aesthetic, rose frosting condition. In addition to eating less, these individuals experienced lower consumption enjoyment when the cupcake was highly aesthetic. By conceptually replicating the previous study's results with a new product, I increase the generalizability of my findings to food, a domain for which visual presentation plays a fundamental role. I also provide initial evidence that consumption of highly aesthetic products can carry negative implications for the consumption experience, a notion I explore in greater depth in studies 6A and 6B. These effects continued to hold even when controlling for perceived expense, thus rendering such an alternative account less likely.

Having reliably demonstrated the inhibiting effect of aesthetics on consumption across two product categories, I next elucidate the underlying process through three different approaches. First, I provide evidence for my proposed mechanism via mediation (study 3). Second, I directly manipulate effort inferences to show process by moderation (study 4), and third, I identify a theoretically-grounded individual difference moderator (study 5).

### **1.6. Study 3**

The goal of study 3 is to replicate my focal effect in a new product domain, paper napkins, and to shed light on the mechanism underlying consumption likelihood by testing the driving role of effort inferences and effort destruction. Consistent with my

theorizing, I predict that the higher inferences of effort elicited by highly aesthetic products will lead to stronger concerns that such effort would be destroyed in the consumption process, resulting in lower usage likelihood. Notably, this is a conservative context in which to assess effort inferences, given that paper napkins are machine-manufactured, and so differences in perceived effort are quite subtle. Further, by shifting outside of the food domain to even subtler stimuli, I can more confidently ensure that my findings are not merely artifacts of the stimuli I have chosen (although handmade highly aesthetic foods, such as the cupcakes used in study 2, are ubiquitous in the marketplace).

### **1.6.1. Method**

*Participants and procedure.* 260 participants were recruited from Amazon Mechanical Turk to participate in a 2 cell (aesthetics: higher vs. lower) between-subjects study in exchange for payment. Two individuals participated in this study twice and six had missing data on the dependent measures and were excluded from the analysis, yielding a final sample of 252 participants (44% female, five did not report gender, median age = 31, aged 19 – 69).

Participants were presented with a guided visualization scenario in which they imagined they were at a local bakery getting breakfast and doing work. As they were working, they accidentally spilled coffee all over their documents, prompting them to look towards the counter to see how they could clean up the spill. I presented a situation in which the destruction of the product, paper napkins, was imminent, to assess how such an outcome shapes preferences to consume aesthetically appealing products. Participants were randomly assigned to either the higher or lower aesthetic condition. Those in the

higher aesthetic condition saw a stack of floral napkins at the counter to clean up the spill, while those in the lower aesthetic condition saw a stack of plain white napkins (see Appendix A, row 3 for images). Subsequently, participants indicated to what extent they would use the (floral or white) napkins to clean up the spill (1 = definitely no, 7 = definitely yes), how likely they would be to use the napkins to clean up the spill (1 = very unlikely, 7 = very likely), and how many napkins they would use to clean up the spill (1 = none at all, 7 = very many), which formed my usage likelihood index ( $\alpha = .81$ ). Next, to examine effort inferences, participants indicated how much effort they thought went into making the napkins (1 = none at all, 7 = quite a bit). To examine concerns about effort destruction, participants rated their agreement with the statement: I felt like I was destroying someone's effort by using the napkins (1 = strongly disagree, 7 = strongly agree). Finally, to again show that inferred monetary value is not driving my effects, participants indicated how much they would be willing to pay for a pack of the napkins in the scenario (i.e., dollar value).

### **1.6.2. Results and Discussion**

I predicted that participants would be less likely to use the higher aesthetic napkins and that this effect would be mediated in serial by effort inferences and concerns over destroying such effort.

*Usage likelihood.* A one-way ANOVA on the usage likelihood index indicated that participants were less likely to use the higher aesthetic floral napkins to clean up the spill ( $M_{\text{higher aesthetic}} = 5.81$  vs.  $M_{\text{lower aesthetic}} = 6.28$ ;  $F(1, 250) = 15.92, p < .001$ ), an effect

that continues to hold even when controlling for willingness to pay for the napkins ( $p < .001$ ).

*Effort inferences.* A one-way ANOVA on effort inferences indicated that participants ascribed greater effort to the higher aesthetic napkins ( $M_{\text{higher}} = 3.80$  vs.  $M_{\text{lower}} = 3.19$ ;  $F(1, 250) = 7.53$ ,  $p < .01$ ), even when controlling for willingness to pay ( $p < .02$ ).

*Effort destruction.* A one-way ANOVA on concerns about effort destruction indicated that participants had stronger concerns effort would be destroyed in the higher aesthetic condition ( $M_{\text{higher}} = 2.54$  vs.  $M_{\text{lower}} = 1.95$ ;  $F(1, 250) = 8.37$ ,  $p < .01$ ). Again, this effect holds even when controlling for willingness to pay ( $p < .02$ ).

*Mediation.* I conducted a serial multiple mediator model (Model 6, Hayes 2013) testing my proposed mediation path, where effort inferences and concerns about effort destruction served as serial mediators: product aesthetics  $\rightarrow$  effort inferences  $\rightarrow$  concerns about the destruction of effort  $\rightarrow$  usage likelihood. Consistent with my predictions, the indirect effect of aesthetics on usage likelihood through effort inferences and concerns about effort destruction was significant ( $b = -.03$ ; 95% CI: [-.09, -.01]). In addition, the indirect effect of aesthetics on usage likelihood through effort destruction alone was significant ( $b = -.04$ ; 95% CI: [-.14, -.003]), suggesting this mediator works serially but also individually. Consistent with study 2, willingness to pay did not mediate usage likelihood ( $b = .01$ ; 95% CI: [-.03, .06]), providing further evidence that inferred monetary value was not driving my effects. In sum, product aesthetics affected usage likelihood through effort inferences and concerns that one would be destroying this effort.

*Discussion.* In study 3, using a new, subtler context, I show that the greater perceptions of effort ascribed to the creation of higher aesthetic napkins led to stronger concerns that such effort would inevitably be destroyed in the consumption process, which ultimately discouraged usage. Further, I once again demonstrate that inferred monetary value does not account for my results. Next, I manipulate effort inferences directly to show that shifting the perceived effort required to make an aesthetic product will mitigate my focal effect.

### **1.7. Study 4**

Given the underlying role of effort in inhibiting the consumption of highly aesthetic products, it follows that this reduced consumption should be attenuated if the beautiful product does not trigger such effort inferences in the first place. Thus, in study 4, I manipulated information about the products to directly influence effort inferences, complementing study 3 by providing process evidence through moderation (Spencer, Zanna, and Fong 2005). Notably, unlike other studies in the current paper, study 4 utilizes a comparative design in which participants are presented with both higher and lower aesthetic products at once and are asked to make a choice between them. This design allows me to extend the generalizability of my findings to contexts where consumers are faced with products of differing levels of aesthetic appeal and have to choose one to immediately consume. Moreover, study 4 replaces floral napkins with turquoise blue napkins in the higher aesthetic condition, thereby using especially subtle aesthetic stimuli to reveal that even in the absence of product design, changes in aesthetic appeal through other means (e.g., color) can shape consumption decisions in the same manner.

Finally, study 4 helps me test the alternative explanation that concerns over how the product will look after usage, or anticipated decrements in the product's beauty alone, are driving lower consumption likelihood, independent of effort inferences. If this is the case, the likelihood of using aesthetically appealing products should not differ as a function of expended effort, since consumers should always be less likely to use a beautiful product, irrespective of the effort involved in its creation. However, if consumption likelihood is indeed affected by inferred effort, then changes in inferred effort should systematically impact consumption likelihood, a relationship I examine directly in study 4.

### **1.7.1. Method**

*Participants and procedure.* 246 participants were recruited from Amazon Mechanical Turk to participate in a 2 cell (intervention condition: no information control vs. higher aesthetics = lower effort) between-subjects study in exchange for payment. Seven people participated in this study twice and were excluded, yielding a final sample of 239 participants (48% female, six did not report gender, median age = 31, aged 18 – 69).

Study 4 used the same guided visualization scenario as study 3, where participants imagined visiting their local bakery and accidentally spilling coffee while they were working. However, this time, they saw two separate stacks of napkins they could use to clean up the spill. The napkins were turquoise blue (higher aesthetic option) or plain white (lower aesthetic option; see Appendix A, row 4 for images), and both napkin images were presented at once.

At this point, participants in the control condition proceeded directly to a choice task in which they indicated which type of napkin they would use to clean up the spill. On the other hand, participants in the ‘higher aesthetics = lower effort’ condition were first told that as they looked at the napkins, they recalled that a friend who used to work for this bakery had told them that it actually takes less effort and time for companies to manufacture the blue napkins than it does to make and bleach the white ones. Importantly, a separate pretest confirmed the validity of this effort manipulation. Next, participants in this lower effort condition completed the choice task. After their choice, all participants indicated how much they thought the napkins cost (1 = very little, 7 = quite a lot).

### **1.7.2. Results and Discussion**

Conceptually replicating prior studies, in the control condition where no effort inferences were made salient, participants were less likely to choose the higher aesthetic blue napkins to clean up the spill (19.83%<sub>blue</sub> vs. 80.17%<sub>white</sub>). However, this lower usage likelihood was reversed when the higher aesthetic blue napkins elicited lower perceptions of effort (63.56%<sub>blue</sub> vs. 36.44%<sub>white</sub>;  $\chi^2(1) = 47.07$  ( $n = 239$ ),  $p < .001$ ). Importantly, the choice effects continue to hold when controlling for perceived cost ( $p < .001$ ).

*Discussion.* Study 4 offers convergent support for the proposed underlying process by showing that the reduced consumption of highly aesthetic products is reversed when these products elicit lower effort inferences. As revealed by the pretest (see footnote 2), in the control condition, where no effort information was made salient, participants ascribed greater effort to the higher aesthetic blue napkin and were less likely



to use it, but when this blue napkin was thought to require less effort to produce, participants became more likely to use it. Notably, unlike my prior studies, study 4 employed a comparative design in which participants saw higher and lower aesthetic options at the same time, mirroring real-life, where consumers encounter multiple product offerings with differing aesthetic appeal and have to choose one to use.

These results also suggest that anticipated decrements in beauty alone, or concerns over what the aesthetic product will look like after consumption, are unlikely to inhibit consumption. Such projected losses of beauty are not evident before consumption has occurred, when the highly aesthetic product is still in pristine, beautiful condition. If expected drops in the aesthetic appeal of the product alone had been responsible for driving reduced consumption, individuals would have been equally inhibited from using the higher aesthetic napkin, irrespective of effort inferences. Such an alternative is inconsistent with the reversal in usage likelihood I observed in the higher aesthetics = lower effort condition, since the aesthetic appeal of the napkins remained constant; only the perceived effort had changed. Thus, I provide further evidence for the premise that consumers strongly link aesthetics and effort, and show that for consumption to be reduced, the highly aesthetic product must signal higher effort in addition to its aesthetic qualities.

Notably, while my results support the notion that anticipated drops in beauty alone are insufficient to lead to a reduction in consumption likelihood, it is also worth mentioning that because effort and beauty are inextricably linked constructs, concerns over destroying effort may share, to some extent, overlapping variance with concerns over the imminent losses of beauty. This suggests that in other contexts, anticipated

decrements in beauty may also play a role in driving usage, potentially for products of extreme aesthetic appeal that are more defined by their beauty, as opposed to the colored napkins used here. Nonetheless, in the current context, the results demonstrate that shifting perceptions about the amount of effort needed to create a higher aesthetic product is sufficient to overcome any inhibition to consume it.

I next provide additional evidence for my conceptualization by investigating a theoretically-driven individual difference that affects the degree to which effort is inherently appreciated and, by extension, should influence decisions to use highly aesthetic products.

### **1.8. Study 5**

Based on my theory, because the higher effort ascribed to beautiful products underlies their lower likelihood of usage, such a reduction should be moderated by the degree to which effort is intrinsically valued, or people's implicit self-theories. According to research on implicit self-theories, entity theorists view their personal qualities as stable and unable to be enhanced by self-improvement, while incremental theorists view these qualities as flexible and able to be cultivated through labor and effort (Dweck 2000). Similarly, entity theorists tend to view effort as ineffective and pointless, while incremental theorists are more optimistic that their efforts carry intrinsic value and will eventually bear fruit (Dweck and Leggett 1988).

I propose that beyond the recognition of personal effort, implicit self-theories affect the extent to which consumers appreciate *others'* effort, and by extension, the effort that goes into the creation of highly aesthetic products. To test this prediction, I

conducted a correlational study examining the relationship between implicit self-theories and the propensity to appreciate effort-laden products. Participants ( $n = 134$ ) first completed the implicit self-theories scale (Levy, Stroessner, and Dweck 1998), where higher [lower] numbers indicate greater endorsement of incremental [entity] self-theory. Next, they indicated their agreement with five items reflecting appreciation for others' effort (e.g., I notice when people work really hard to create something; all anchored at 1 = strongly disagree, 7 = strongly agree;  $\alpha = .91$ ). I found a significant positive correlation ( $r = .23, p < .01$ ), such that incrementally oriented individuals were more likely to appreciate things that reflect a great deal of effort.

Thus, based on this appreciation for others' effort, in study 5, I predict that incremental theorists will be less likely to consume products that are highly aesthetic, and by extension, laden with effort. By contrast, because entity theorists have lower intrinsic appreciation for effort, they will be equally likely to use a product regardless of its aesthetic appeal.

### **1.8.1. Method**

*Participants and procedure.* 187 undergraduate students from a Southwestern University participated in a 2 (aesthetics: higher vs. lower) X continuous (implicit self-theories) between-subjects study in exchange for partial course credit. Two participants reported having a gluten allergy that prevented them from consuming the goldfish crackers accompanying the napkins. An additional 11 participants were excluded from the analysis – one respondent participated in this study twice, and 10 had missing data on implicit self-theories, which I had measured in a separate pre-survey several weeks prior

to the focal study. Thus, the final sample comprised 174 participants (52% female, four did not report gender, median age = 21, aged 18–41).

Study 5 employed the same cover story about pairing foods with videos used in study 2, but this time using Pepperidge Farm Goldfish Crackers. I chose these crackers because they are slightly messy to eat—people would want to use a napkin but did not necessarily have to, creating an ideal context within which to test my hypotheses. Participants received an individual pack of goldfish crackers along with a paper napkin, which was either decorative with a white background (higher aesthetic condition) or plain white (lower aesthetic condition) (both 6½ inches square; see Appendix A, row 5 for images). Importantly, the experimenter gave no explicit instructions on what to do with this napkin. Of note, in addition to the pretest assessing different levels of aesthetical appeal between the two napkins, another between-subjects pretest ( $n = 81$ ) showed that participants liked the higher (vs. lower) aesthetic napkin and its design more ( $M_{\text{higher aesthetic}} = 5.16$  vs.  $M_{\text{lower aesthetic}} = 3.65$ ;  $t(79) = -5.16$ ,  $p < .001$ ;  $r = .87$ ), but both napkins were rated as equally versatile in their usage ( $M_{\text{higher aesthetic}} = 5.80$  vs.  $M_{\text{lower aesthetic}} = 5.91$ ;  $t(79) = .47$ ,  $p > .60$ ;  $\alpha = .91$ ).

Participants were told to watch a 3.5-minute video on wildlife animals while they ate the crackers, and that they were free to eat as much or as little as they liked. Once participants finished the video, the experimenter collected the napkin and any leftover crackers and recorded whether the napkin had been used or not (0 = no, 1 = yes) in another room. A napkin was coded as “used” if it showed any signs of usage (i.e., had any food stains on it, looked crumpled, or had been used to spit out gum), and was coded as “unused” only if it appeared untouched and in pristine condition, making it a highly

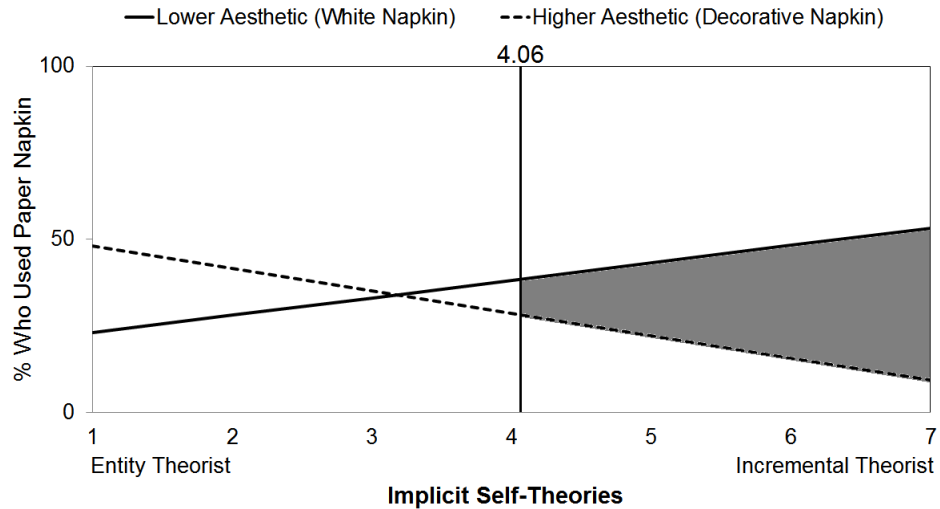
conservative test of my hypotheses. To again ensure that perceived cost was not influencing my focal effects, I asked participants how much they would be willing to pay for a pack of napkins (i.e., dollar value). Finally, participants completed a series of filler measures that assessed how interesting the video was and how much they liked eating goldfish crackers in general.

### **1.8.2. Results and Discussion**

A 2 (aesthetics condition) x continuous (implicit self-theories) logistic regression on napkin usage behavior (used: yes, no) was performed. Regressing usage behavior on the aesthetics manipulation, mean-centered levels of implicit self-theories, and their interaction revealed a significant simple effect of aesthetics at the mean of implicit self-theories ( $b = -.37$ , Wald  $\chi^2 = 4.60$ ,  $p = .03$ ), such that a smaller percentage of people used the napkin in the higher aesthetic condition across all participants, conceptually replicating prior studies. Importantly, the interaction was also significant ( $b = -.30$ , Wald  $\chi^2 = 4.19$ ,  $p = .04$ ; see figure 3). Notably, this interaction continued to hold even when controlling for willingness to pay ( $p < .04$ ). I used the Johnson-Neyman technique to identify the range of implicit self-theories for which the simple effect of the aesthetics manipulation was significant, where lower values imply an entity-oriented mindset while higher values imply an incrementally-oriented mindset. I found a significant reduction in usage of the higher aesthetic decorative (vs. lower aesthetic white) paper napkin for any value of implicit self-theories above 4.06 (at  $p < .05$ ), but not for any value less than 4.06. In other words, incremental theorists were less likely to use a higher (vs. lower) aesthetic

napkin, whereas entity theorists were equally likely to use a napkin regardless of its appearance.

FIGURE 3 – STUDY 5 RESULTS: NAPKIN USAGE



*Discussion.* In study 5, I provide further evidence for my proposed mechanism by showing that implicit self-theories, or consumers’ chronic appreciation for invested effort, shapes decisions to use an aesthetically pleasing product. Incremental theorists, who are more appreciative of effort, were less likely to use a higher aesthetic decorative napkin than a lower aesthetic plain white napkin, but such effects were not observed among entity theorists, who have lower intrinsic appreciation for effort. I have now reliably established the inhibiting effect of product aesthetics on consumption across multiple products and consumption contexts and provided convergent support for the underlying mechanism. In my final two studies, I elucidate the drivers of post-consumption emotions while holding usage constant, thereby allowing me to hone in on post-consumption consequences in a more controlled fashion, since people are inherently

less likely to use higher aesthetic products, which could potentially result in self-selection issues.

### **1.9. Study 6A**

Recall in study 2 that when the cupcake was highly aesthetic, consumption enjoyment was lower among individuals most motivated to engage in consumption (i.e., hungry individuals), an effect I propose is determined by two processes working in tandem. First, I expect that the effort inferences made prior to consumption will continue to drive emotional outcomes, given the consumption process involves the actual destruction of effort. Second, and only evident post-consumption, are the decrements in beauty that aesthetic products undergo when their aesthetic qualities are visibly compromised through usage. Because beautiful products are inherently pleasurable (Reber et al. 2004; Reimann et al. 2010), I predict that individuals will experience less pleasure and more negative affect when they witness highly aesthetic products undergo steeper drops in beauty as a result of consumption. Consistent with prospect theory's value function (Kahneman and Tversky 1979), initial changes—here, the larger losses of beauty associated with the usage of a higher (vs. lower) aesthetic product—should be particularly jarring and lead to more negative affect (Frederick and Loewenstein 1999).

Importantly, unlike in study 2, where I measured the amount consumed as well as post-consumption enjoyment, in study 6A, I hold usage constant in the higher and lower aesthetic conditions and hone in on the changes in beauty with a longitudinal study design. Specifically, the objective of study 6A is to extend prior work on the relationship between beauty and pleasure by establishing its corollary—that the consumption of a

higher (vs. lower) aesthetic product will lead to greater perceived losses of beauty, and that such decrements in beauty will in turn have a negative influence on post-consumption affect. I measure this decrement by capturing aesthetic judgments immediately before and after usage.

### **1.9.1. Method**

*Participants and procedure.* 416 participants were recruited from Amazon Mechanical Turk to participate in a 2 (aesthetics: higher vs. lower, between) x 2 (aesthetic judgment: before vs. after usage, within) mixed design study in exchange for payment. Six individuals participated in this study twice and four had missing data on the focal dependent measures and were excluded from the analysis, yielding a final sample of 406 participants (54% female, eleven did not report gender, median age = 30, aged 18 – 76).

The procedure was similar to that of study 3, featuring the same bakery scenario and stimuli but with several modifications. After participants were initially presented with either the higher or lower aesthetic napkins following the spill, they immediately completed two semantic differential items of aesthetic evaluations for these unused napkins on 7-point scales: “not at all pretty/very pretty” and “not at all ugly/very ugly,” (reverse-coded), which have been shown in prior work to capture aesthetic judgments (Reber, Winkielman, and Schwarz 1998;  $r = .47$ ). After completing these baseline aesthetic judgment measures, participants proceeded with the scenario. They were told they realized they would need to grab at least ten napkins to come close to cleaning up the spill, and were subsequently shown a stack of unused napkins. The scenario ended



with an image of a bundle of napkins, now drenched with coffee, that were used to clean up the spill.

Immediately after reading the scenario, participants completed the same set of aesthetic judgment items a second time, this time rating the coffee-drenched napkins, which served as a measure of post-usage aesthetic judgments. Participants then indicated to what extent they experienced each of the following negative emotions while they were using the napkins to clean up the spill: stressed, regretful, bad, afraid, fearful, sad, sorry, and guilty, which I combined into an index of post-consumption negative affect (1 = not at all, 7 = very much so;  $\alpha = .91$ ).

### **1.9.2. Results and Discussion**

I predicted that participants would experience greater negative affect after using the higher (vs. lower) aesthetic napkins, an effect that would be driven by the larger decrements in beauty that stem from the consumption of higher aesthetic products.

*Emotions.* A one-way ANOVA on negative emotions experienced after consumption revealed that participants who used the higher aesthetic floral napkins to clean up the spill felt more negative affect than those who used the lower aesthetic white napkins ( $M_{\text{higher aesthetic}} = 3.05$  vs.  $M_{\text{lower aesthetic}} = 2.46$ ;  $F(1, 404) = 16.86$ ,  $p < .001$ ).

*Decrements in beauty (longitudinal).* A 2 (aesthetics: higher vs. lower) x 2 (timing: before usage vs. after usage) mixed ANOVA on aesthetic judgments yielded main effects of both aesthetics ( $F(1, 404) = 106.52$ ,  $p < .001$ ) and timing ( $F(1, 404) = 1256.29$ ,  $p < .001$ ), which were qualified by a significant aesthetics x timing interaction ( $F(1, 404) = 53.02$ ,  $p < .001$ ). Planned contrasts revealed that whereas the higher

aesthetic napkins elicited more favorable aesthetic judgments than the lower aesthetic napkins before usage ( $M_{\text{higher}} = 5.94$  vs.  $M_{\text{lower}} = 4.47$ ;  $F(1, 404) = 152.69$ ,  $p < .001$ ), this difference was substantially reduced after usage ( $M_{\text{higher}} = 2.37$  vs.  $M_{\text{lower}} = 2.11$ ;  $F(1, 404) = 4.84$ ,  $p = .03$ ). Importantly, and arguably most central to my research, the decrement in aesthetic ratings through usage was significantly larger in the higher aesthetic condition, in fact, 151% larger, than that observed in the lower aesthetic condition (i.e., a drop of 3.57 units vs. a drop of 2.36 units).

*Mediation.* Finally, I am interested in whether decrements in aesthetic judgment emanating from product usage underlie post-consumption affect. Consistent with predictions, mediation analysis (Model 4, Hayes 2013) revealed that the indirect effect of aesthetics on negative affect through changes in aesthetic judgment was significant ( $b = .15$ ; 95% CI: [.04, .29]), suggesting product aesthetics affected the experience of negative emotions through the larger losses of beauty resulting from the consumption of higher aesthetic products.

*Discussion.* While past work has shown that aesthetics are inextricably linked with pleasure (Reber et al. 2004; Reimann et al. 2010), study 6A extends this body of research by revealing that in the context of nondurable products, where consumption entails damaging product design, the usage of higher (vs. lower) aesthetic products not only results in larger decrements in beauty, but that such losses also drive greater negative affect after consumption. Notably, while I asked participants to assess the aesthetic qualities of the napkins before and immediately after usage to more precisely capture the changes in beauty I observed, I recognize that this design may have caused the aesthetic appeal of the napkins to be more salient prior to consumption, making its

decrement therefore more pronounced after consumption. Thus, having established that beauty decrements resulting from aesthetic product usage underlie post-consumption affect, in study 6B I measure this change in a less invasive manner, after consumption. I also integrate changes in beauty and effort inferences into emotional reactions linked to consumption.

### **1.10. Study 6B**

The goal of study 6B is to elucidate the drivers of post-consumption emotions while continuing to hold usage constant in both conditions, thereby allowing me to test the full conceptual model in a more controlled fashion. As alluded to in study 6A, the inherently lower consumption likelihood of higher aesthetic products could potentially result in self-selection issues. In study 6B, I predict that participants will experience more negative affect after using a higher (vs. lower) aesthetic product, an effect driven in tandem by effort inferences as well as changes in beauty. Further, I try to better understand consumers' emotional reactions after aesthetic product usage by not highlighting the product's aesthetic qualities beforehand. Finally, I measure implicit self-theories to examine whether one's inherent degree of effort appreciation moderates post-consumption negative affect.

#### **1.10.1. Method**

*Participants and procedure.* 400 participants were recruited from Amazon Mechanical Turk to participate in a 2 cell (aesthetics: higher vs. lower) between-subjects study in exchange for payment. Ten individuals participated in this study twice and

seventeen had missing data on the focal dependent measures and were excluded from the analysis, yielding a final sample of 373 participants (55% female, two did not report gender, median age = 32, aged 18 – 76).

The study design of study 6B was almost identical to that of study 6A aside from several modifications. First, participants completed the same negative emotion index from study 6A ( $\alpha = .91$ ) immediately after reading the scenario, instead of after aesthetics judgment measures (which were not included in this study). Second, instead of assessing aesthetic ratings at two separate points in time, I utilized a new single, cross-sectional measure to capture decrements in beauty post-consumption: By using the napkins, it felt like I was turning something that was once beautiful into something ugly (1 = strongly disagree, 7 = strongly agree). Next, to examine effort inferences as a parallel driver of negative affect after consumption, participants completed the same effort inferences and effort destruction measures from study 3, although these measures are distinct from study 3 in that they were assessed after usage had already taken place. Finally, participants completed the implicit self-theories scale.

### **1.10.2. Results and Discussion**

*Emotions.* Replicating study 6A, a one-way ANOVA on negative emotions revealed that participants who used the higher aesthetic floral napkins to clean up the spill felt more negative affect than those who used the lower aesthetic white napkins ( $M_{\text{higher aesthetic}} = 3.13$  vs.  $M_{\text{lower aesthetic}} = 2.83$ ;  $F(1, 371) = 3.94, p < .05$ ). Of note, this main effect did not interact with implicit self-theories ( $p > .30$ ), suggesting that both incremental and

entity theorists experienced more negative affect after using the higher (vs. lower) aesthetic napkins to clean up the spill, a finding I revisit in the discussion section.

*Decrements in beauty (cross-sectional).* A one-way ANOVA on changes in beauty indicated that the higher aesthetic napkin underwent greater decrements in beauty through consumption ( $M_{\text{higher}} = 2.63$  vs.  $M_{\text{lower}} = 1.77$ ;  $F(1, 371) = 26.71, p < .001$ ).

*Effort inferences.* A one-way ANOVA on effort inferences indicated that participants ascribed greater effort to the higher aesthetic napkins ( $M_{\text{higher}} = 3.49$  vs.  $M_{\text{lower}} = 2.87$ ;  $F(1, 371) = 13.59, p < .001$ ).

*Effort destruction.* A one-way ANOVA on concerns about effort destruction indicated that participants had stronger concerns that effort had been destroyed in the higher aesthetic condition ( $M_{\text{higher}} = 2.62$  vs.  $M_{\text{lower}} = 2.00$ ;  $F(1, 371) = 13.55, p < .001$ ).

*Mediation.* Finally, I conducted two separate mediation analyses, one testing the path from product aesthetics → decrements in beauty → negative affect (Model 4, Hayes 2013), and the other testing the serial path from product aesthetics → effort inferences → concerns about effort destruction → negative affect (Model 6). Results from the first analysis revealed that the indirect effect of aesthetics on negative affect through changes in beauty was significant ( $b = .37$ ; 95% CI: [.23, .54]), suggesting product aesthetics affected the experience of negative emotions through larger decrements in beauty in the higher aesthetic condition. Second, the indirect effect of aesthetics on negative affect through effort inferences and concerns about effort destruction (in serial) was also significant ( $b = .12$ ; 95% CI: [.06, .23]), as was the indirect effect of aesthetics on negative affect through effort destruction alone ( $b = .11$ ; 95% CI: [.01, .23]).

Finally, I also included beauty decrements, effort inferences, and effort destruction into the model as parallel mediators to gain greater understanding of the relative strength of these drivers. This analysis revealed that when all three mediators were in the model, the indirect effect through decrements in beauty remained significant ( $b = .22$ ; 95% CI: [.11, .36]), as did the indirect effect through effort destruction ( $b = .15$ ; 95% CI: [.06, .27]). Taken together, these results suggest that while concerns about effort destruction continue to play a role in driving the emotional outcomes of aesthetic product usage, the decrements in beauty that only become evident after an aesthetic product has been visibly compromised through consumption also lead to negative affect.

*Discussion.* Study 6B, which allowed me to examine the entire post-consumption conceptual model, revealed that people who used higher (vs. lower) aesthetic napkins subsequently experienced greater negative affect, an effect driven by two processes operating in parallel: concerns about the destruction of effort and decrements in beauty. In other words, the consumption experience was associated with more negative affect because the consumption process not only involved the actual destruction of effort, but it also took a beautiful product that was typified by pleasure and transformed it into something marked by displeasure.

I should also note that I replicated the post-consumption findings with actual paper napkins in a lab context. In a separate study using study 5's procedure, participants watched a video and received a snack to eat, along with a higher vs. lower aesthetic napkin, and then indicated how they felt about the consumption experience. Participants who chose to use their higher aesthetic napkin reported feeling more negative affect relative to those who chose to use their lower aesthetic napkin ( $p = .04$ ), and relative to

those who did not use their higher aesthetic napkin ( $p < .01$ ). Thus, aesthetic product usage increased negative affect even when consumers could choose to either use the aesthetic product or not, and when the aesthetic product (the napkin) was tangential to the affect measures collected, which specifically pertained to the video-watching and snack-eating task.

Though I provide evidence that effort inferences continued to partially drive consumer responses to beautiful products after usage, it is interesting to note that post-consumption affect was not moderated by the degree to which effort is intrinsically appreciated (i.e., implicit self-theories). While unexpected, I speculate that this may occur because post-consumption enjoyment is not exclusively driven by effort inferences. Since losses of beauty also play a substantial role in shaping emotional outcomes after consumption, the beauty decrements associated with aesthetic product usage may have brought entity theorists to a similar emotional state as incremental theorists, resulting in everybody feeling worse off after consumption, irrespective of individual differences in effort appreciation. More broadly, since post-consumption affect appears to be multiply determined, it is difficult to completely disentangle the negative affect stemming from the destruction of effort from the negative affect stemming from decrements in beauty. Study 6B offers a distinct test of this conjecture since it made usage (and hence losses of beauty) salient through images of visibly used napkins.

### **1.11. General Discussion**

Across a series of laboratory and field studies, using a variety of nondurable product categories and consumption situations, I reveal the negative impact of enhanced

product aesthetics on usage and post-consumption consequences. First, I document an inhibiting effect of product aesthetics on consumption behaviors for disposable and perishable products in both real world (study 1) and lab (study 2) settings. Next, I shed light on the drivers of usage likelihood using mediation (study 3), a context-based boundary condition (study 4), and a theoretically-derived individual difference moderator (study 5), thereby providing convergent support for an underlying process based on effort. Finally, in studies 6A and 6B, I hold product usage constant to elucidate the drivers of post-consumption affect, and show that the decrements in beauty that aesthetic products inherently undergo as a result of consumption, combined with concerns that one has actually destroyed effort, underlie these effects.

### **1.11.1. Theoretical Contributions**

My work makes several theoretical contributions. First, while prior research has shown that consumers respond favorably to both product aesthetics and effort, I believe I am the first to establish a causal relationship between these constructs. I find that highly aesthetic products can elicit greater perceptions of effort, regardless of whether this effort was exerted during product design, physical production, or both processes. I further reveal that these effort inferences are not limited to handmade products such as perishable foods, but also apply to mass-produced products such as consumer packaged disposable goods.

Second, while existing literature suggests that consumer preferences should increase as a function of a product's aesthetic appeal, the prevailing ways of assessing the impact of aesthetics on consumer preference have been limited to purchase intentions,



product evaluations, and choice (e.g., Hagtvedt and Patrick 2008; Raghurir and Greenleaf 2006; Reimann et al. 2010; Townsend and Shu 2010). Surprisingly, the role of aesthetics after choice has received little empirical attention to date. Despite the stimulating effect that enhanced product aesthetics have on choice and pre-usage evaluations, my results suggest that once acquired, consumers may be less likely to consume beautiful products because the higher inferences of effort attributed to their creation elicit stronger concerns that such effort would be destroyed during consumption.

This research also shows that the impact of implicit self-theories on consumer behavior may be more pervasive than previously thought. While prior research in psychology has shown that incremental and entity theorists carry dissimilar beliefs about the value of their own effort (Dweck 2000), I provide support for the novel prediction that beyond the recognition of personal effort, implicit self-theories affect the extent to which consumers appreciate the effort that goes into the creation of aesthetically appealing products.

Finally, contrary to the notion that enhanced product aesthetics are always beneficial to consumption enjoyment, my work reveals that usage of highly aesthetic disposable products can actually lower overall enjoyment with the consumption experience through two separate pathways: 1) by eliciting concerns that one has actually destroyed effort, and 2) by compromising the beauty that typically characterizes aesthetic products. As such, I add to the literature on aesthetics and pleasure by showing how the consumption of highly aesthetic products can result in larger losses of beauty, and that such decrements in turn drive the relationship between aesthetic product consumption and negative affect.

More generally, these findings speak to research that explores when and why the drivers of predicted and experienced utility might diverge. For instance, Thompson et al. (2005) found that consumers' initial desire for product capability before purchase leads them to choose products packed with features, but their growing desire for product usability after usage leads them to ultimately prefer simpler products. Similarly, Lee and Tsai (2014) showed that price promotions can stimulate sales but lower attention during consumption, which in turn reduces consumption enjoyment. In the same vein, despite the delight initially elicited by the choice of beautiful products, I demonstrate that enhanced aesthetics have the ability to later discourage usage and lower consumption enjoyment.

### **1.11.2. Substantive Implications**

My findings carry important practical implications, as they pose an interesting dilemma to managers. While conventional wisdom suggests that marketers should strive to invest the highest degree of effort into making their products look aesthetically pleasing, at least to the extent that company resources will allow, my research reveals that the story is not so simple. Enhancing product aesthetics might positively affect initial attention, interest, and choice, but should be considered with caution given that such increased appeal could inhibit usage and reduce enjoyment relative to less aesthetically appealing products. Relatedly, people likely consume highly aesthetic disposable products more slowly, which could affect interpurchase time. Thus, the pursuit of product aesthetics and improved short-term sales must be constantly balanced against the need to encourage consumption, ensure customer satisfaction, and maintain long-term

profitability. Still, certain products, such as beautiful candles and soaps, may serve a decorative purpose in addition to their basic utilitarian function, and consequently may also carry intrinsic aesthetic value. My recommendations are admittedly less straightforward under such circumstances, as consumers are able to derive utility from the products' enhanced aesthetics simply by displaying them.

My results also have clear implications for managers and policy makers interested in promoting conservation and sustainable business practices. A growing number of retail and service establishments have been switching to unbleached paper products, as the traditional bleaching process that removes imperfections and gives paper its white appearance also produces hazardous chemicals (e.g., chlorine and dioxins) that are harmful to the environment (Evans 2010). While the transition to unbleached paper products has benefited the environment, the results from my investigation suggest the growing popularity of this trend may be a double-edged sword. To the extent that unbleached paper products are considered less aesthetically appealing, consumers may show less restraint in using them, leading to backfiring effects for conservation efforts. Put another way, the positive environmental impact of producing unbleached paper products could potentially be offset by consumers' reduced inhibition in consuming these products. Thus, increasing the aesthetic appeal of products may actually be an effective way for companies to promote environmentally sustainable behaviors, even after incorporating the increased cost of implementing such practices.

Finally, given that rising obesity rates are a major public health concern traced to increased consumption (Chandon and Wansink 2007), there has been burgeoning interest in the various factors that shape consumer's food choices (e.g., Cornil and Chandon

2015; McFerran et al. 2010; Scott et al. 2008). The results of study 2 suggest one way to curb overeating might be to enhance the aesthetic presentation of food products, especially hedonic foods. Of course, additional research is needed to better explore the impact of aesthetics in this important area, given the counteracting effects that food aesthetics exert on consumption versus enjoyment.

### **1.11.3. Limitations and Future Research**

While the current set of studies was designed to elucidate perceived effort as an underlying mechanism of lower usage of aesthetically appealing products, I recognize that this phenomenon, like many, is likely driven by multiple processes (Fuchs, Schreier, and van Osselaer 2015). Indeed, as evident in my research, consumption likelihood and consumption enjoyment each have distinct sets of drivers. For instance, while I accounted for cost across multiple studies and demonstrated that my effects held even after controlling for the perceived price of the product, I believe that cost may certainly play a role in certain situations. For example, certain highly aesthetic products elicit perceptions of luxury (Hagtvedt and Patrick 2008) and may consequently reduce consumption because they appear “too expensive to use,” and cost may even interact with aesthetics under certain circumstances to impact consumption, such that the inferences of effort typically ascribed to aesthetically appealing products could be mitigated if people are told that they were extremely inexpensive.

In addition, classic research by Loewenstein (1987) showed that people often prefer to delay consumption of enjoyable experiences. It may be that people are averse to immediately consuming a highly aesthetic product because they are able to derive more

utility by savoring the experience and postponing consumption. Further, as alluded to in study 4, it is possible that anticipated decrements in beauty may play a larger role in shaping usage in other consumption contexts. Thus, while I focus on the role of effort inferences in driving lower usage of highly aesthetic products, I am cognizant of the fact that other mechanisms likely exist, which would provide intriguing avenues for further investigation.

It would also be interesting to examine whether the negative influence of enhanced aesthetics would hold across different consumption contexts. That is, are there situations where the present phenomenon would not emerge? Indeed, one could argue that service establishments such as upscale restaurants and luxury resorts, which regularly pamper their guests with beautifully plated entrées and folded towel animals, would eventually be driven out of business if the consumption of highly aesthetic products always resulted in lower enjoyment. I believe that whether the usage of highly aesthetic products is accompanied by decreased consumption and increased negative affect will hinge on the nature of the consumption environment. Prior research indicates that my surroundings are capable of automatically eliciting normative behaviors when situational norms are well-established (Aarts and Dijksterhuis 2003). Extending this perspective, it is possible that the effects observed in this article may be relatively weakened when consumption occurs in environments characterized by strong expectations to engage in indulgent consumption, such as in a fancy restaurant or luxurious hotel.

Relatedly, it would be interesting to examine whether calling attention to the fact that the aesthetic product, if left unconsumed, will face inevitable destruction could enhance consumption likelihood and enjoyment to some extent, particularly for perishable

products such as food. Indeed, recent research has shown that consumers display a strong aversion to waste and unused utility (Bolton and Alba 2012). Thus, future studies should examine whether the effects documented in this article could be attenuated if the inevitable destruction of effort is made salient to consumers (e.g., the product will go bad, be thrown away, or somebody else will consume the product even if they do not). In summary, future work should explore situations where enhanced aesthetics might carry more weight in the utility function for the overall consumption experience and subsequently increase consumption and boost enjoyment.

Another area for future research would be to examine whether the destruction of product aesthetics is an “all or nothing” event, such that any amount of consumption (even a single bite of a cupcake) would be viewed as destroying the product’s overall beauty. While my experimental designs did not allow me to examine whether destruction is a continuous versus discrete function of consumption, it is worth noting that I did document lower usage across varying degrees of consumption (e.g., consumption was continuous in study 2, but discrete in study 5), and I did find that different levels of consumption still led to reduced enjoyment. Nevertheless, I believe this is an important empirical question worth investigating in the future.

Finally, while I have limited my analysis to nondurables (perishable and disposable products specifically), an intriguing path would be to investigate the potential moderating role of product durability on usage likelihood and subsequent enjoyment of highly aesthetic products. It may be that the relative durability of the aesthetic product could affect individuals’ ability or motivation to anticipate decrements in beauty before consumption has occurred, which would have implications for usage likelihood. For

instance, with big ticket, high involvement purchases such as sleek furniture (e.g. a beautiful new white sectional sofa), consumers may more readily anticipate losses of beauty since they will have to live with and encounter the product on a daily basis, even after its original beauty has faded or been tarnished through repeated use. This may explain why covering new furniture with plastic was at one time a very common practice (DiSalvo 2009).

On the other hand, for nondurable, lower involvement products such as those used in the current research, perhaps people do not have the motivation nor ability to consider shifts in aesthetic appeal before consumption. Further, products often vary in their degree of durability – a delicate embroidered blanket, while by no means nondurable or disposable, may begin to show visible signs of wear and tear sooner than a durable fleece blanket. Although the present research specifically focused on perishable and single-use products, it would be worth examining when and how the degree of durability, or even perceptions of fragility, might shape decisions to use beautiful products.

In conclusion, my research documents an inhibiting effect of enhanced product aesthetics on consumption, particularly for disposable and consumable nondurable products. Although beautiful products have the ability to promote positive pre-usage evaluations and stimulate choice, my work indicates that consumers are subsequently less likely to use them, and those who do use them ultimately experience higher negative affect and lower enjoyment. In addition, different processes underlie consumer responses to highly aesthetic products depending on whether or not consumption has taken place. Thus, I conclude that while products may never be too pretty to choose, they can, in fact, be too pretty to use.

## **CHAPTER 2**

### **BEAUTY IS PAIN: UNDERSTANDING HOW PAYMENT AESTHETICS SHAPE SPENDING AND PURCHASE SATISFACTION**

#### **2.1. Introduction**

Gift cards are playing an increasingly prominent role in the retail and services landscape. Sales of gift cards in the United States reached a new peak of \$130 billion in 2015, a number that is expected to continue growing (CEB 2015). Contributing to this proliferation, consumers no longer have to purchase gift cards directly from the retailer or service provider for which they are specified, but are able to buy dozens of different gift cards at kiosks located in grocery, drug, and convenience stores (Uhler 2017). From the demand side, gift cards have been the most requested gift item for eleven years in a row (National Retail Federation [NRF] 2017), and the average consumer typically spends \$153.08 on gift cards during the holiday season (NRF 2015). Consumers often reference practicality as a major reason for preferring to give and receive gift cards, as they enable the recipient to choose exactly what they want (NRF 2015), thereby reducing the risk of mispredicting recipients' preferences (Gino and Flynn 2011).

Given the popularity of gift cards, it is perhaps not surprising that firms are devoting significant resources to making their gift card offerings even more appealing. For example, Starbucks regularly releases and promotes highly attractive gift card designs (BucksCards.com 2018), and Sephora is known for the care they put into packaging their gift cards at the point of sale (Hunter 2018). Third-party vendors have begun producing and selling decorative gift card holders in the marketplace as well.



These are often sold alongside gift cards in stores but have also sparked a recent DIY trend; a search for “gift card holders” on Etsy, a popular e-commerce platform that specializes in handmade products, yields over 59,000 results (Etsy 2018).

Beyond gift cards, credit card companies have also recognized the importance of setting their offerings apart through attractive and distinctive credit card designs (Knerl 2017; Steele 2015). There is even a movement to make regular cash gifts even more appealing by folding the cash into intricate origami designs, a practice known as orikane (LaFosse and Alexander 2011). Indeed, this increased focus on gift card, and more broadly, payment aesthetics, has stemmed from a concerted effort to further boost sales by making these offerings more personalized and attractive (Hunter 2018).

Given the rising popularity of gift card and payment aesthetics in the marketplace, the current research seeks to examine the impact that these beautified payments may have on the overall purchase experience, specifically focusing on how they may decrease spending and lower purchase satisfaction. The fact that nearly \$1 billion in gift cards go unredeemed every year (Paul 2017) underscores the importance of this research question from a substantive perspective. Case in point, Starbucks, Chipotle, and Barnes & Noble together reported earnings of over \$99 million from unused gift cards in 2016 alone, and such gift card “breakage” is cited as an important source of financial profit for these companies (Wathen 2017).

While the cause for suboptimal gift card redemption rates is most certainly multiply determined, the goal of this paper is to understand how one such factor – payment aesthetics – could be systematically limiting gift card usage, and more broadly, affecting decisions to use versus save various forms of payment. Building on the pain of

payment and aesthetics literatures, I propose that when spending involves compromising the payment's appearance, enhanced payment aesthetics can increase the pain of paying, which in turn lowers spending and decreases purchase satisfaction. Specifically, when consumers must damage a payment's attractiveness before using it (e.g., ripping decorative gift card packaging), they are less likely to use that specific payment form, and experience lower purchase satisfaction when they do, an effect increased driven by increased pain of payment.

In elucidating the negative impact of payment attractiveness on spending and post-purchase consequences, my research makes several contributions to the marketing literature. First, I contribute to the pain of payment literature by identifying payment aesthetics as a novel antecedent to the pain of paying. Whereas previous research has shown that the pain of paying differs as a function of budget exhaustion (Soster, Gershoff, and Bearden 2014), payment decoupling (Prelec and Loewenstein 1998), payment magnitude (Doobs et al. 1969; Shah, Eisenkraft, Bettman, and Chartrand 2016), and payment form (Raghubir and Srivastava 2008; Soman 2001; Thomas, Desai and Seenivasan 2011), my work is the first to systematically explore when and how the aesthetic appeal of a payment might influence pain. As such, the current research considers how a non-monetary factor, unrelated to the financial value of the payment, can increase the pain of paying. Notably, while gift cards are known to be relatively less painful forms of payment when compared to cash, checks, or credit (Helion and Gilovich 2014; Raghubir and Srivastava 2008; Shah et al. 2016), by considering a payment's overall design and appearance, the present investigation suggests that even traditionally less painful payments, such as gift cards, can be associated with greater pain. Relatedly,

this work adds to the accumulating body of evidence indicating that money is not as fungible as standard economic theory would predict (Kahneman and Tversky 1979).

Further, the current research also contributes to a nascent body of research exploring when and how aesthetics can backfire and lead to negative consumer outcomes (e.g., Hoegg, Alba, and Dahl 2010; Townsend 2017; Wu, Samper, Morales, and Fitzsimons 2017). Despite the allure of aesthetics, I demonstrate that beautified payments, particularly those that involve the marring of its attractiveness through usage, can decrease spending and reduce purchase satisfaction. In doing so, this research answers a call to further our understanding of everyday consumer aesthetics, or the study of aesthetics in everyday objects and experiences (Patrick 2016). Importantly, these effects hold regardless of whether the aesthetics pertain to the packaging or the payment itself. Thus, I also add to the product packaging literature by revealing that packaging can shape consumer responses beyond the product immediately stored inside (McDaniel and Baker 1977), given attractive gift card packaging can systematically discourage the acquisition of goods and services. Finally, and more generally, I provide new insights into the conditions that cause predicted utility to diverge from actual enjoyment of a consumption experience (Buechel and Townsend 2018; Etkin 2016; Thompson, Hamilton, and Rust 2005; Wilson and Gilbert 2005).

## **2.2. Conceptual Background**

### **2.2.1. Gift Cards and Pain of Payment**

According to standard economic theory, the overall utility of consumption is computed by subtracting the costs of acquiring a good or service from the enjoyment

derived from its consumption (Hicks 1946; Marshall 1920; von Neumann and Morgenstern 1944). However, more recent work proposes that the costs and benefits of consumption are not exclusively economic, and that various subtleties of the payment experience can influence overall consumption utility. For instance, when people make purchases, they experience a pain of paying, which is a negative emotional reaction to parting with one's money (Prelec and Loewenstein 1998; Zellermayer 1996) that is psychological in nature (Mazar et al. 2018).

This pain of paying has been shown to vary as a function of several different factors. For example, more expensive purchases tend to feel more painful (Doobs et al. 1969; Shah et al. 2016), as does spending that exhausts a budget down to zero (Soster et al. 2014) or is temporally coupled with the consumption experience (Prelec and Loewenstein 1998). In addition, a large body of work has shown that the very way in which consumers pay for goods and services (e.g., cash, credit/debit card, gift card) can systematically shape pain (Raghubir and Srivastava 2008; Shah et al. 2016; Soman 2001, 2003; Thomas et al. 2011). Specifically, paying with cash is more painful than paying with a credit or debit card because cash is a more vivid and transparent form of payment—consumers paying with cash can observe themselves physically parting with their money, whereas the act of swiping a plastic card conceals the true financial value of the transaction (Raghubir and Srivastava 2008; Soman 2001). Further, Helion and Gilovich (2014) found that relative to credit and debit cards, gift cards are associated with even less pain because their monetary value tends to be allocated to less serious mental accounts (Thaler 1985). More generally, gift cards tend to be encoded as “windfalls” and are therefore more likely to be spent frivolously (Raghubir and Srivastava 2008). In short,

the literature to date has demonstrated that payment forms differ in their degree of felt pain, with cash widely considered the most painful form of payment and gift cards the relatively least painful.

However, is it always the case that gift cards cause the least pain of paying, or might there be circumstances in which even gift cards can be made to feel painful to spend? Although there has been a proliferation of beautiful gift card designs, attractive packaging, and handmade gift card holders, I contend that this broad trend, which aims to improve the gift card giving experience, might actually have negative consequences for the overall gift card *usage* experience. In the following section, I draw from the aesthetics literature to propose that the overall attractiveness of a payment form can, under certain situations, backfire and ironically lead to higher pain of paying, an effect that applies directly to gift cards as well as other aesthetic payment forms such as digital tokens and origami cash money.

### **2.2.2. Aesthetics**

The positive impact of aesthetics on consumers is both well established and ubiquitous. Attractive product designs have been shown to drive attention (Folkes and Matta 2004), enhance evaluations (Hagtvedt and Patrick 2008; Raghurir and Greenleaf 2006; Townsend and Shu 2010; Veryzer and Hutchinson 1998; Yamamoto and Lambert 1994), and increase choice (Homburg, Schwemmler, and Kuehnl 2015; Landwehr, Labroo, and Herrmann 2011; Townsend and Sood 2012). Further, this appreciation for aesthetics appears to be automatic, spontaneous, and enduring (Bloch 1995; Leder et al. 2004; Reimann et al. 2010; Veryzer and Hutchinson 1998). Thus, it is perhaps not

surprising that marketers consider product design a critical driver of commercial success, used not only to differentiate oneself from comparable offerings but to also garner recognition in a competitive marketplace (Bloch 1995; Bloch et al. 2003; Schmitt and Simonson 1997). In short, consumers' inherent appreciation for aesthetics is so pervasive that it can even override more deliberative judgment and decision-making processes (for exceptions, see Hoegg, Alba, and Dahl 2010; Townsend 2017).

What happens, though, once a beautiful object has been acquired? While the powerful influence of aesthetics on preference and choice is well-documented, the literature has, until recently, remained relatively silent on its impact after initial acquisition. My first dissertation essay (Wu et al. 2017) was the first to address this gap by examining, in the context of nondurable products (e.g., napkins, cupcakes), how product aesthetics affect consumption and post-consumption responses. Specifically, I found that enhanced product aesthetics can paradoxically increase choice but later discourage usage and reduce enjoyment, an effect that occurs because beautiful products elicit higher perceptions of effort in their creation, which people naturally appreciate. Because the consumption process indirectly destroys the effort invested to make the aesthetic product beautiful, consumers reduce their usage, as doing so would entail destroying something they appreciate. Furthermore, I find that the consumption of highly aesthetic products decreases enjoyment by not only facilitating the realization that one has actually destroyed effort, but by also physically damaging the beauty of such products.

Given consumers experience a negative emotional reaction when a product's once-pristine appearance is diminished through usage (Wu et al. 2017), in the current

research, I extend this perspective by positing that the attractiveness and design of a payment can also produce a negative emotional response, the pain of paying, when spending involves damaging its aesthetic appeal. In other words, payment aesthetics, if physically compromised through the act of spending, can serve as another source of pain of payment. This prediction is grounded in work examining people's intrinsic appreciation for aesthetics, or their aesthetic response (Bloch 1995; Leder et al. 2004; Sevilla and Townsend 2016; Veryzer and Hutchinson 1998).

Aesthetic response is the pleasure and gratification derived from sensory perception (Hekkert 2006). It is automatic in nature (Kawabata and Zeki 2004; Raghubir and Greenleaf 2006; Reimann et al. 2010) and is sensitive to any changes that could impact perception (Hekkert and Leder 2008). Thus, if the beauty of a highly aesthetic payment is marred in any way through usage, the accompanying reductions in aesthetic appeal should lead to the removal of pleasure. Put another way, since aesthetics are inherently gratifying, any physical changes that diminish their appeal should result in displeasure, or increased pain.

Importantly, whereas Wu et al. (2017) focused exclusively on nondurable goods, where consumption, by definition, involved damaging the product's appearance, customers do not always have to physically compromise a beautiful payment's attractiveness to spend it. Sometimes individuals must damage aesthetics to use a payment (e.g., ripping attractive gift card packaging to access a gift card), whereas other times they do not (e.g., removing a gift card from a beautiful reusable gift card holder). Thus, I argue that highly aesthetic payments have the potential to lead to the pain of paying, but only when spending involves damaging its aesthetic appeal. If the payment's

appearance is not physically compromised through the act of spending, it will not result in greater pain. Additionally, in line with previous work examining the consequences of the pain of paying, I predict that the increased pain stemming from the destruction of aesthetics will in turn lower spending (Prelec and Simester 2001; Raghurir and Srivastava 2008; Soman 2001; 2003) and reduce satisfaction with one's purchases (Soster et al. 2014). More formally:

- H1:** Consumers will be less likely to make a purchase with a payment that has higher (vs. lower) aesthetic appeal, but only when spending involves damaging its attractiveness.
- H2:** Purchase satisfaction will be lower after using a higher (vs. lower) aesthetic payment to make a purchase, but only when spending involved reducing its attractiveness.
- H3:** The reductions in spending likelihood and purchase satisfaction from using a higher (vs. lower) aesthetic payment will be mediated by the pain of payment.

Of note, while recent research has shown that consumers are less likely to spend crisp bills and become less satisfied with their purchases after spending worn, dirty bills (DiMuro and Noseworthy 2013; Galoni and Noseworthy 2015), the current investigation fundamentally differs from their work in that I focus on consumer responses to enhanced vs. mundane payment aesthetics, as opposed to pristine vs. dirty cash money (which are driven by feelings of disgust). Further, from a substantive standpoint, I am interested how the aesthetic appeal of a payment form, which retailers and service providers fully control, impacts consumer spending and satisfaction, as opposed to exogenous factors such as the physical condition of the money.

### **2.3. Summary and Overview of Studies**



In sum, I propose that beautiful payments can reduce spending and lower purchase satisfaction, particularly in situations where its aesthetic appeal must somehow be damaged before it can be used. Further, I expect that the negative influence of payment aesthetics will be driven by the pain of paying. Since the pleasure derived from aesthetic appreciation is sensitive to any perceptual changes that could affect its beauty, spending that involves damaging the payment's attractiveness should lead to the removal of pleasure, or increased pain, which in turn should negatively impact spending and purchase satisfaction. Of note, from a substantive standpoint, these predictions should carry the greatest relevance for gift cards given their ubiquity, whereas from a theoretical perspective, any physical form of payment can be associated with greater pain as long as its aesthetic appeal can be further enhanced (e.g., digital tokens and origami cash money). Thus, within each study, I hold the method of paying constant and examine whether its overall attractiveness and design, independent of its form, can systematically shape the pain of paying.

I test my predictions in field and laboratory experiments across a variety of different payment forms. Study 1, a field experiment involving real consumers, provides initial evidence that aesthetically appealing gift card packaging can limit gift card redemption. Study 2, which employs cash, examines the negative influence of payment aesthetics on both spending behavior and purchase satisfaction while testing the alternative explanation of a desire for preserving aesthetics. Finally, using digital tokens, I hold spending constant in study 3 to focus on the impact of payment aesthetics on purchase satisfaction and elucidate the underlying process. Table 3 summarizes the results of a pretest showing that all the higher (vs. lower) aesthetic stimuli utilized in my

studies have greater aesthetic appeal. As such, aesthetics manipulation checks are not discussed in specific studies.

TABLE 3 – AESTHETIC APPEAL PRETEST FOR ALL STIMULI USED IN STUDIES

	Higher Aesthetic	Lower Aesthetic	Comparison	$\alpha$
Gift Card (Study 1)	3.25 (1.54)	2.44 (1.38)	$t(159) = -3.53; p < .001$	$\alpha = .90$
Cash (Study 2)	4.48 (1.49)	3.72 (1.71)	$t(159) = -3.02; p < .01$	$\alpha = .87$
Digital Token (Study 3)	3.97 (1.55)	1.60 (1.12)	$t(159) = -11.10; p < .001$	$\alpha = .94$

NOTE. – Standard deviations are in parentheses.

\*In a between-subjects pretest, participants were asked rate each product along the following dimensions: beautiful, pretty, artistic, and aesthetically pleasing (1 = not at all, 7 = very much), which formed my aesthetic appeal index.

## 2.4. Study 1

The goal of study 1 is to provide preliminary evidence from the field that aesthetically appealing gift card packaging can systematically limit gift card redemption. Although study 1 does not test the full conceptual model, I wished to first obtain ecological validity for my main proposition in the field before testing moderating factors and the underlying process in a more controlled lab setting. I worked with the ASU Bookstore to conduct a field experiment that involved tracking gift card redemption across two weeks, thereby providing initial support for my proposed model in a real-world context. I anticipated that customers would be less likely to redeem a gift card when it comes in more (vs. less) attractive packaging.

### 2.4.1. Method

*Participants and procedure.* Working with graphic designers, I created two different versions of gift card packaging, one with attractive graphics on the package (higher aesthetic condition), and one with plain packaging (lower aesthetic condition; see Appendix A, row 1 for images). Importantly, consumers had to tear open the perforated edge of the packaging to use the gift card inside, thus holding destruction constant across conditions. Alternating between conditions after every twenty customers, a salesperson confederate distributed a total of 198 five-dollar gift cards in front of the ASU bookstore, ostensibly to thank customers for their business and support. Customers were unaware that a study was being conducted or that their behavior was being observed; thus, the conditions for a field experiment were met (Morales, Amir, and Lee 2017). As this study was conducted at the end of the spring semester, I decided a priori to track redemption for two weeks, before the start of the summer break.

#### **2.4.2. Results and Discussion**

As predicted, customers were less likely to redeem the gift card when it came in more aesthetically appealing packaging. A lower percentage of the higher (vs. lower) aesthetic gift cards were redeemed after two weeks (14.14% vs. 25.25%;  $\chi^2(1) = 3.78, p = .0520$ ), providing initial evidence that higher payment aesthetics can deter spending.

*Discussion.* I provide initial evidence, in an ecologically valid setting, that higher gift card packaging aesthetics can discourage gift card redemption, particularly when the packaging must be damaged through spending. These findings are particularly notable given prior work suggesting that gift cards are a less painful form of payment (Helion and Gilovich 2014; Raghurir and Srivastava 2008), and hence more likely to be used freely.

By incorporating aesthetics into a gift card's overall design, study 1 indicates that consumers can even become less likely to spend traditionally painless forms of payment. Further, I add to the literature on product packaging by showing that packaging can also influence consumer outcomes beyond the product immediately stored inside (McDaniel and Baker 1977; Underwood and Klein 2002; White et al. 2016;). Specifically, this first study demonstrates that beautiful gift card packaging can limit the acquisition of new goods and services. In the next study, using a different form of payment, I examine more of the proposed model, documenting the negative influence of payment aesthetics on both spending behavior and purchase satisfaction.

## **2.5. Study 2**

Study 2, which utilizes origami cash money as the payment mode, as inspired by the practice of orikane (LaFosse and Alexander 2011), has two main objectives. First, I aim to examine, within the same experimental paradigm, how higher payment aesthetics can both limit spending and reduce purchase satisfaction. I predict that individuals will be less likely to spend money that has been folded into an aesthetically appealing (vs. plain) design, and that when consumers do choose to make a purchase with beautifully folded money, their purchase satisfaction will be lower.

Second, this study aims to rule out an alternative account based on the desire for preservation. Perhaps the inhibition in spending the higher aesthetic payment stems from a desire to hold onto it indefinitely (Patrick and Hagtvedt 2011). Based on this account, people should be more willing to part with an aesthetically appealing payment if first given the opportunity to preserve its memory, such as by taking a photo of the object

prior to its usage (Barthes 1980; Winterich, Reczek, and Irwin 2017). To the extent that the unwillingness to spend is driven by an underlying desire to preserve the aesthetically appealing payment, having the opportunity to first document this object with a photograph should subsequently encourage consumption, as the photo should serve as a proxy for the product itself going forward (Winterich et al. 2017). If photo-taking has no effect on spending, then a preservation account seems less plausible. Thus, I included a photo opportunity as an additional factor in this study.

### **2.5.1. Method**

*Participants and procedure.* 467 undergraduate students from a Southwestern University participated in a 2 (aesthetics: higher vs. lower) x 2 (photo-taking: yes vs. no) between-subjects study in exchange for partial course credit. Ten participants were excluded from all analyses: one participated in this study twice, one knew the purpose of the study before participating, two did not follow study instructions, and six visited a lab store that had not been properly set up. Thus, the final sample comprised 457 participants (52% female, 1 did not report gender or age, median age = 21, aged 18 – 48).

Participants were told that we were interested in collecting feedback on school merchandise and examining how students prioritize their spending. They would be given \$1 to spend in the lab's store and had the option to purchase something or keep the money (procedure adapted from Di Muro and Noseworthy 2013). The experimenter then handed participants an instruction form. Attached to this form was a one-dollar bill that had either been folded into an intricate origami shirt and tie design (higher aesthetic condition) or simply folded in half (lower aesthetic condition; see Appendix A, row 2 for

both images). In the photo-taking condition, participants were told the Behavioral Research Lab needed photo documentation of this study in case it ever received an audit on studies involving monetary payment, so they were instructed to take a photo of the dollar bill (accompanied by their lab ID) using their cell phone's camera as proof that they received the money. This was done to maintain the cover story and to encourage participants to take a high-quality photograph of the dollar bill. No individual-level identifying information was included in the photo. Participants in the no-photo condition were not given any photo-taking instructions and were asked to proceed directly to the lab store.

Participants were then asked, one at a time, to take their dollar bill and proceed to the lab store, which was in a separate room. There, a second experimenter gave them the opportunity to examine three products available to purchase for \$1 (a ball-point pen, a car decal, and a lip balm, all displaying the school logo) and to decide whether they wished to make a purchase or keep the money (0 = kept the money, 1 = spent the money). Importantly, a sign instructed those who wished to make a purchase to unfold the dollar before placing it in the cash box, thus holding the destruction of aesthetics constant across conditions. There were three unfolded bills sitting in the cash box at all times across conditions to hold social proof constant (Cialdini 1993).

Participants who made a purchase subsequently rated the extent to which they were happy with their purchase (1 = not at all, 7 = very much) and regretted their purchase (reverse coded: 1 = not at all, 7 = very much). They also completed five semantic differential items of overall purchase evaluations on 7-point scales; "bad/good," "negative/positive," "unfavorable/favorable," "dislike very much/like very much," and

“poor/excellent.” These 7 items were highly correlated and combined to form a purchase satisfaction index ( $\alpha = .92$ ).

### **2.5.2. Results and Discussion**

I tested my predictions with a 2 (aesthetics) x 2 (photo-taking) logistic regression on likelihood of spending the dollar. Importantly, beyond examining whether or not people spent the dollar, I focused on the downstream consequences of spending. Specifically, limiting to only those individuals who made a purchase, I used a one-way ANOVA to compare the effects of spending the higher vs. lower aesthetic dollar bill on purchase satisfaction.

*Spending behavior.* A 2 (aesthetics condition) x 2 (photo condition) logistic regression on whether individuals chose to spend the dollar (spent: yes, no) revealed no main effects or interactions (all  $p > .34$ ), suggesting that photo-taking had no effect on spending. Thus, I collapsed across the photo-taking manipulation and performed a 2 cell (aesthetics condition) logistic regression on decisions to spend the dollar. Regressing spending behavior on the aesthetics manipulation revealed a directional effect ( $b = -.27$ , Wald  $\chi^2 = 2.06$ ,  $p = .1515$ ), such that a smaller percentage of people decided to spend the origami (vs. once-folded) dollar.

*Purchase satisfaction.* Next, I examined purchase satisfaction among those who decided to spend the dollar. Of the 457 participants who had participated in the study, 208 made a purchase and were thus able to provide purchase satisfaction ratings. A one-way ANOVA on the purchase satisfaction index indicated that satisfaction was lower among participants who had purchased the product using the origami (vs. once-folded)

dollar ( $M_{\text{higher aesthetic}} = 5.52$  vs.  $M_{\text{lower aesthetic}} = 5.83$ ;  $F(1, 206) = 4.08, p = .0448$ ). In other words, participants who spent the origami dollar were ultimately less satisfied with their purchase compared to those who had spent the once-folded dollar. Of note, a chi-square test indicated that the aesthetics manipulation did not systematically influence the type of product purchased (chi-square = .78,  $p > .67$ ), so it is unlikely the observed differences in purchase satisfaction were driven by purchases participants happened to make in each condition.

*Discussion.* Study 2 achieves several objectives. First, consistent with study 1, I provide evidence that people are (directionally) less likely to spend a dollar that is more aesthetically appealing, and further, that those who do spend ultimately become less satisfied with their purchases. Additionally, the lack of a photo-taking effect on spending likelihood suggests that an alternative account based solely on the desire for preservation is unlikely. One potential weakness of this study is that despite the long-standing existence of orikane, the practice of folding cash into origami creations may still have been considered relatively esoteric to participants. Taken together with the results of Study 1, however, I provide convergent evidence across two different payment forms that higher payment aesthetics can discourage spending and reduce purchase satisfaction. In the final study, I focus on the impact of payment aesthetics on purchase satisfaction and provide evidence for the proposed underlying process.

## **2.6. Study 3**

The main objective of study 3 is to elucidate the mechanism underlying the decrease in purchase satisfaction identified in study 2 by examining the driving role of



the pain of paying. Given people are inherently less likely to use an aesthetically appealing payment, which could potentially produce self-selection bias, I hold spending behavior constant in study 3 to focus on purchase satisfaction in a more controlled fashion. Further, while spending necessitated destruction of aesthetics in the first two studies, whether through the ripping of gift card packaging (study 1) or the unfolding of the dollar (study 2), in study 3, I systematically manipulated destruction to examine whether the mere act of using an aesthetically appealing payment (without destruction) is sufficient to reduce purchase satisfaction, or if as predicted, the marring of beauty through spending is necessary for such effects to emerge.

### **2.6.1. Method**

*Participants and procedure.* 423 undergraduate students from a Southwestern University participated in a 2 (aesthetics: higher vs. lower) x 2 (destruction: yes vs. no) between-subjects study in exchange for partial course credit. 23 participants were excluded from all analyses: one did not wish to make a purchase, two did not follow study instructions, five had missing data on the dependent measures, and fifteen visited a lab store that had not been properly set up. Thus, the final sample comprised 400 participants (51% female, 1 did not report gender, median age = 21, aged 18 – 49).

The procedure was similar to that of study 1, featuring the same shopping task, but with several modifications. First, study 3 utilized digital tokens instead of cash, which were either folded into an attractive shirt and tie design (higher aesthetic condition) or folded into a similarly sized rectangle (lower aesthetic condition; see Appendix A, row 3 for both images) and were treated as a proxy for gift cards. Second, the cover story was

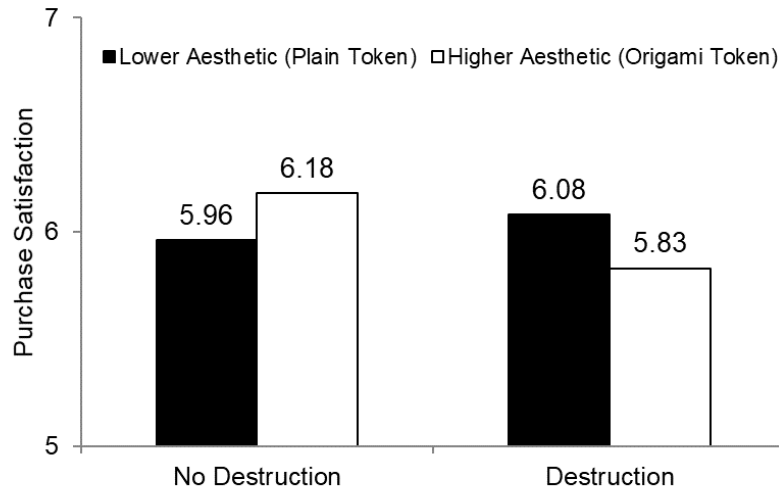
that with today's emerging cashless society, retailers are beginning to accept alternate forms of currency, such as digital tokens, so the purpose of this study was to give participants the opportunity to shop in the lab's store using a digital token containing a QR code. Participants were reminded that the token would not be useful outside the lab and were thus encouraged to make a purchase, thereby allowing me to hold spending behavior constant across conditions. Third, the two products available were lip balm and chewing gum. Similar to Study 1, participants in the destruction condition were asked to unfold the token before paying, ostensibly to enable the experimenter to more easily scan the hidden QR code later, whereas participants in the no-destruction condition were simply asked to turn in the token, and were told that the experimenter will scan the QR code at the end of the session. Finally, participants completed the same purchase satisfaction index from study 1 ( $\alpha = .92$ ), in addition to two items that assessed the pain of payment (adapted from Shah et al. 2016): "How painful was paying for the [product] when you bought it?" and "How painful was the process of turning in your token to purchase the [product]?" (both anchored at 1 = not at all painful, 7 = very painful). These items were highly correlated ( $r = .81$ ) and combined to serve as my measure of pain of payment.

## **2.6.2. Results and Discussion**

*Purchase Satisfaction.* A 2 (aesthetics) x 2 (destruction) ANOVA on purchase satisfaction revealed no significant main effects of aesthetics or destruction ( $p > .22$ ). Importantly, the aesthetics x destruction interaction was significant ( $F(1, 396) = 6.89, p < .01$ ; see figure 4). Planned contrasts revealed that in the destruction condition, replicating

study 1, purchase satisfaction was lower after spending the higher (vs. lower) aesthetic token ( $M_{\text{higher aesthetic, destruction}} = 5.83$  ( $SD = .97$ ) vs.  $M_{\text{lower aesthetic, destruction}} = 6.08$  ( $SD = .91$ );  $F(1, 396) = 3.99$ ,  $p = .0465$ ), whereas in the no-destruction condition, purchase satisfaction was marginally higher after spending the higher (vs. lower) aesthetic token trustworthiness ( $M_{\text{higher aesthetic, no-destruction}} = 6.18$  ( $SD = .84$ ) vs.  $M_{\text{lower aesthetic, no-destruction}} = 5.96$  ( $SD = .92$ );  $F(1, 396) = 2.95$ ,  $p = .0866$ ). From a different perspective, whereas participants were less satisfied with their purchases when they had to destroy (did not have to destroy) the higher aesthetic token to use it ( $M_{\text{higher aesthetic, destruction}} = 5.83$  vs.  $M_{\text{higher aesthetic, no-destruction}} = 6.18$ ;  $F(1, 396) = 7.15$ ,  $p < .01$ ), purchase satisfaction was unaffected by the destruction manipulation in the lower aesthetic condition ( $p > .31$ ). Thus, consistent with my conceptualization, the negative influence of payment aesthetics only emerged when spending involved ruining its design, but when spending did not entail destruction, people actually experienced greater satisfaction after using the higher aesthetic payment.

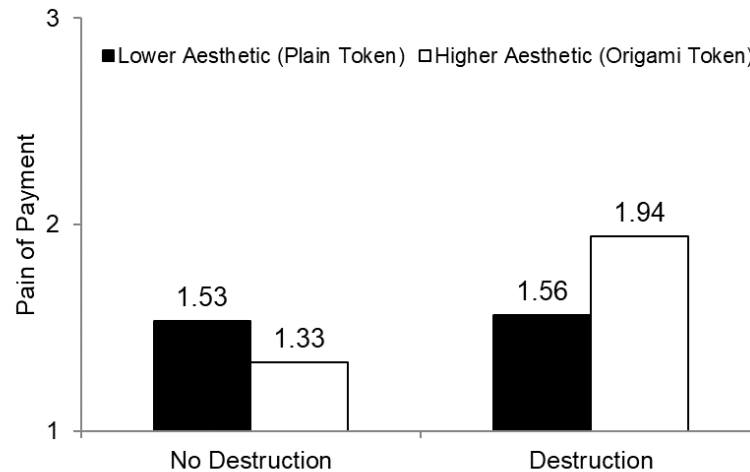
FIGURE 4 – STUDY 3 RESULTS: PURCHASE SATISFACTION



*Pain of Payment.* A 2 (aesthetics) x 2 (destruction) ANOVA on the pain of payment revealed a significant main effect of destruction, such that participants experienced greater pain in the destruction condition ( $M_{\text{destruction}} = 1.75$  ( $SD = 1.22$ ) vs.  $M_{\text{no-destruction}} = 1.43$  ( $SD = 1.04$ );  $F(1, 396) = 8.08, p < .01$ ). Importantly, the aesthetics x destruction interaction was significant ( $F(1, 396) = 6.61, p = .0105$ ; see figure 5). Planned contrasts revealed that in the destruction condition, participants experienced greater pain of payment after spending the higher (vs. lower) aesthetic token ( $M_{\text{higher aesthetic, destruction}} = 1.94$  ( $SD = 1.42$ ) vs.  $M_{\text{lower aesthetic, destruction}} = 1.56$  ( $SD = .98$ );  $F(1, 396) = 5.95, p = .0152$ ), whereas in the no-destruction condition, pain did not differ as a function of aesthetics ( $M_{\text{higher aesthetic, no-destruction}} = 1.33$  ( $SD = .78$ ) vs.  $M_{\text{lower aesthetic, no-destruction}} = 1.53$  ( $SD = 1.23$ );  $F(1, 396) = 1.45, p > .22$ ). From a different perspective, whereas participants experienced greater pain of payment when using the higher aesthetic token involved destroying it ( $M_{\text{higher aesthetic, destruction}} = 1.94$  vs.  $M_{\text{higher aesthetic, no-destruction}} = 1.33$ ;  $F(1, 396) = 14.24, p <$

.001), the level of pain in the lower aesthetic condition was unaffected by the destruction manipulation ( $p > .84$ ).

FIGURE 5 – STUDY 3 RESULTS: PAIN OF PAYMENT



*Mediation.* Finally, I conducted a moderated mediation analysis (Model 8, Hayes 2013) to test my proposed mediation path, whereby the pain of payment mediated the effect of payment aesthetics on purchase satisfaction, but only when usage involved destroying its design. Results showed a significant overall indirect effect of the pain of payment ( $B = -.14$ ; 95% CI:  $[-.24, -.05]$ ). Further analyses revealed that in the destruction condition, the indirect effect of payment aesthetics on purchase satisfaction through the pain of payment was significant ( $B = -.09$ ; 95% CI:  $[-.17, -.02]$ ), but this effect was mitigated in the no-destruction condition ( $B = .05$ ; 95% CI:  $[-.02, .12]$ ). Thus, the pain of paying did not drive purchase satisfaction when spending did not involve destruction of the payment's design.

*Discussion.* Study 3 revealed that people experienced lower purchase satisfaction after paying with a higher (vs. lower) aesthetic payment, but only when spending involved ruining the payment's aesthetic appeal. When the beauty of the payment was not marred through spending, higher aesthetics no longer has a detrimental effect on purchase satisfaction. In fact, under such circumstances, aesthetic payments led to marginally higher satisfaction, which is consistent with prior work demonstrating the pleasure derived from aesthetic response (Hekkert 2006; Raghurir and Greenleaf 2006; Veryzer and Hutchinson 2000). Further, consistent with my conceptualization, study 3 reveals that the pain of paying underlies the negative impact of payment aesthetics on purchase satisfaction, contingent on the destruction of aesthetics. In doing, so, study 3 implicates the destruction of aesthetics through spending as a novel source of pain of payment.

## **2.7. General Discussion**

Across a series of experiments, using a variety of payment forms and operationalizations of aesthetics, I demonstrate that higher payment aesthetics can have a negative influence on spending and purchase satisfaction, particularly in situations where the payment's appeal must be physically compromised through the act of spending. Results from both the field and lab reveal that enhanced payment aesthetics can deter spending (studies 1 and 2) and reduce purchase satisfaction (studies 2 and 3). Further, in study 3, I hold spending constant to elucidate the driver of purchase satisfaction and show that the pain of paying underlies these effects, but only when spending involves damaging its aesthetic appeal.

### **2.7.1. Theoretical Contributions**

My research contributes to the literature in several ways. First, I contribute to the pain of payment literature by identifying payment aesthetics as a novel antecedent to the pain of paying. While prior work has shown that the pain of payment varies as a function of budget exhaustion (Soster et al. 2014), payment magnitude (Doobs et al. 1969; Shah et al. 2016), payment decoupling (Prelec and Loewenstein 1998), and payment form (Raghubir and Srivastava 2008; Soman 2001, 2003; Thomas et al. 2011), the current investigation holds the method of paying constant to explore the conditions under which the overall attractiveness and design of a payment, independent of its form, can systematically shape the pain of paying. Notably, my work suggests that even traditionally less painful forms of payment, such as gift cards (Helion and Gilovich 2014), can be associated with greater pain through the infusion of aesthetics and design, thus limiting spending. Relatedly, this work deepens our understanding of money by showing that it is not as fungible as standard economic theory would predict (Kahneman and Tversky 1979). Although money is only intended to serve as means to an end, consumers nevertheless respond to it very differently depending on peripheral and tangential aspects of the purchase experience (Levav and McGraw 2009; Mishra et al. 2006; Raghubir and Srivastava 2009).

Moreover, while the benefits of aesthetics are well established (Bloch 1995), I build on a growing body of research examining when and how aesthetics can backfire and lead to negative consumer responses. For instance, recent work suggests enhanced aesthetics can undermine perceptions of product performance (Hagtvedt and Patrick 2014; Hoegg et al. 2010), decrease donations (Townsend 2017), and discourage product

usage (Wu et al. 2017). In the present investigation, I extend this notion to the domain of payments, showing that certain kinds of beautified payments can also reduce spending and lower purchase satisfaction. In doing so, I respond to a call to expand our understanding of everyday consumer aesthetics (Patrick 2016). While recent work has examined the influence of the physical condition of money (i.e., how clean or dirty it looks) on spending and product evaluations (Di Muro and Noseworthy 2013; Galoni and Noseworthy 2015), my investigation moves beyond exogenous factors such as perceived cleanliness to examine how a payment's aesthetic appeal, which retailers and service providers fully control, can affect spending and purchase satisfaction. Importantly, these effects hold regardless of whether the aesthetics pertain to the packaging or the payment itself. Thus, my work also extends the product packaging literature by revealing that packaging can influence consumer outcomes beyond the immediate product stored inside (McDaniel and Baker 1977; Scott et al. 2008; Underwood and Klein 2002; White et al. 2016), by showing that attractive gift card packaging can systematically limit the acquisition of products and services.

Finally, and more broadly, I contribute to research exploring when and why the drivers of predicted and experienced utility might diverge. For instance, Buechel and Townsend (2018) found that consumers prefer simpler product designs when choosing for long-term use because they anticipate faster satiation from complex design elements, but such preferences are ultimately misguided and lead to systematic errors in actual enjoyment. Similarly, Etkin (2016) showed that personal quantification (e.g., exercise-tracking devices) can increase the amount of activity people engage in but simultaneously lower intrinsic motivation, which in turn reduces enjoyment of the activity. Analogously,



despite the allure of beautiful payments, I demonstrate that higher payment aesthetics can subsequently discourage spending and lower purchase satisfaction.

### **2.7.2. Practical Implications**

The current findings carry important substantive implications for both managers and consumer welfare. First, companies face an interesting dilemma when considering tradeoffs between initial gift card sales and satisfaction with goods purchased using those gift cards. On one hand, managers may be motivated to maximize the attractiveness of their gift card offerings, as doing so not only increases sales (Hunter 2018) but also discourages eventual redemption, thus producing a stronger bottom line as the result of unredeemed gift cards (Kile Jr. 2007; Wathen 2017). On the other hand, such enhanced appeal can reduce satisfaction among consumers who do make purchases, which could carry negative long-term consequences for the retailer. Therefore, managers should be cautious about maximizing gift card sales through the pursuit of payment aesthetics, given the need to ensure that consumers are using their gift cards and ultimately feeling satisfied with what they buy.

The results of study 3 suggest one possible solution to this dilemma: the creation of attractive gift card packaging that does not necessitate the marring of its beauty through spending. For example, retailers could consider gift card packaging that does not rely on perforations or involve ripping, or focus on increasing the appeal of the gift card itself, which is more durable and not immediately tarnished after a single transaction. In fact, based on the results of study 3, and consistent with the extant literature extolling the benefits of aesthetics (Reimann et al. 2010), higher payment aesthetics that are not

destroyed through spending can even increase purchase satisfaction, creating a win-win for companies and consumers alike.

In the same vein, my findings have significant implications for policy makers interested in promoting consumer welfare. People often choose attractive gift cards precisely because of their aesthetic appeal and because they think such gift cards will make nice gifts, but if the recipient ultimately feels inhibited from spending, this unused utility represents a huge waste of money. Given the ever-increasing popularity of gift cards (NRF 2017) and estimates that nearly \$1 billion in gift cards already go unredeemed ever year (Paul 2017), I believe my findings could also be of use for consumer education purposes, as it would hopefully enable shoppers to make more informed decisions when choosing and purchasing gift cards.

### **2.7.3. Future Research**

The current investigation provides several opportunities for further research. For example, future work could examine the extent to which the documented effects persist over time, particularly for gift cards, since they can be reloaded and reused repeatedly. Specifically, does the pain that arise from the marring of the gift card's packaging eventually wear off, such that it is felt most acutely at the initial point of purchase? Alternatively, to the extent that a consumer is reminded of the gift card's former appeal every time it is used (e.g., a gift card that was most attractive before its removal from the original packaging), could the negative impact of payment aesthetics on purchase satisfaction continue well after its initial aesthetics had been compromised? Relatedly, given the plethora of beautiful credit and debit card designs that are available in the

marketplace (Knerl 2017; Steele 2015), an important extension would be to examine the impact of credit and debit card aesthetics over repeated usage. While the attractiveness of a plastic card is not immediately tarnished after a single transaction, it would be interesting to examine whether the pain of paying could slowly emerge over time through the gradual wear and tear of the credit card's aesthetics. In other words, further research could explore the extent to which the pain from marring payment aesthetics is longitudinal in nature, and how this might subsequently shape purchase satisfaction over time. Alternatively, it may also be the case that if more aesthetic credit and debit cards are able to maintain their high aesthetic appeal over time that consumers may actually derive even more utility from using such payment forms. Future work could provide insight into this interesting research question.

Another interesting avenue for future research would be to examine how the pain from damaging a payment's beauty through spending compares against the disutility from not spending altogether. Put another way, is there a certain point beyond which the disutility from not spending outweighs the pain from destroying aesthetics, which ultimately prompts spending? Relatedly, it would be intriguing to consider how different factors that have been shown to impact the pain of paying might interact with one another. For example, since payment magnitude increases the pain of payment, how might the monetary value of a purchase interact with payment aesthetics and other related factors, such as payment form and payment coupling, to shape the pain of paying? Thus, future work could investigate different antecedents to the pain of paying at the same time to see whether these different sources of pain intersect in additive or multiplicative ways.

Finally, given the act of marring aesthetics through spending feels painful, and research indicating that people experience less guilt and remorse when they can attribute a negative outcome to their passive (vs. active) behavior (Gilovich and Medvec 1995; Kahneman and Tversky 1982), the impact of payment aesthetics on the pain of paying could potentially be mitigated if the beautiful payment is ruined by another individual at the point of purchase (e.g., a cashier), since they no longer have to feel responsible for the destruction (Hagen, Krishna, and McFerran 2017). Thus, a fruitful avenue for further research would be examine whether the pain of paying could be abated by delegating the destruction of payment aesthetics to an employee at the point of sale, and if so, how this intervention could be implemented in retail and service environments to optimize spending and increase purchase satisfaction.

In summary, I identify payment aesthetics as a novel antecedent to the pain of payment. Despite the growing popularity of beautified payments, enhanced payment aesthetics can increase the pain of paying when spending involves damaging its aesthetic appeal (e.g., ripping gift card packaging), which in turn inhibits spending and reduces purchase satisfaction. Thus, although “beauty is pain” is typically used to describe human physical attractiveness, it appears that this adage can also be applied equally to beautiful payments.

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APPENDIX A

CHAPTER 1: STUDY STIMULI

Higher Aesthetic Toilet Paper:



Lower Aesthetic Toilet Paper (Study 1):



Higher Aesthetic Cupcake:



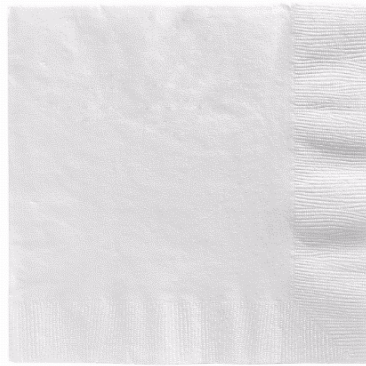
Lower Aesthetic Cupcake (Study 2):



Higher Aesthetic Napkin:



Lower Aesthetic Napkin (Studies 3 and 6):

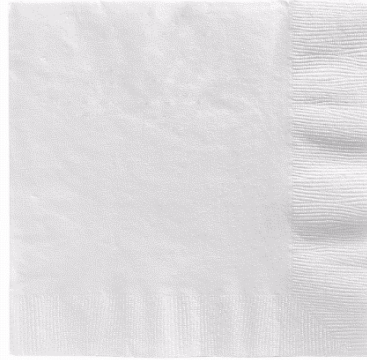




Higher Aesthetic Napkin:



Lower Aesthetic Napkin (Study 4):



Higher Aesthetic Napkin:



Lower Aesthetic Napkin (Study 5):



Higher Aesthetic Calculator:



Lower Aesthetic Calculator:



Higher Aesthetic Coffeemaker:



Lower Aesthetic Coffeemaker:



APPENDIX B

CHAPTER 2: STUDY STIMULI

Higher Aesthetic Gift Card:



Lower Aesthetic Gift Card (Study 1):



Higher Aesthetic Dollar Bill:



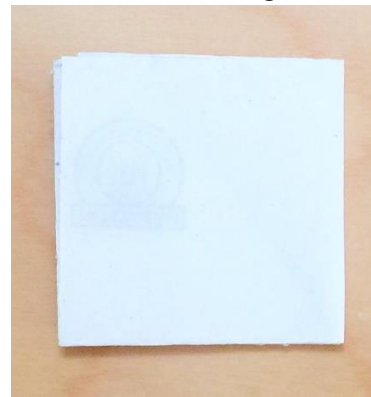
Lower Aesthetic Dollar Bill (Study 2):



Higher Aesthetic Digital Token:



Lower Aesthetic Digital Token (Study 3):



APPENDIX C

HUMAN SUBJECTS APPROVAL

EXEMPTION GRANTED

Andrea Ketcham  
WPC - Marketing  
480/965-6122  
acmorales@asu.edu

Dear Andrea Ketcham:

On 4/6/2015 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	The Impact of Product Aesthetics on Pre- and Post-Consumption Behaviors
Investigator:	Andrea Ketcham
IRB ID:	STUDY00002260
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> <li>• Product Aesthetics IRB_3_27_15.docx, Category: IRB Protocol;</li> <li>• Recruitment letter Marketing Behavioral Lab.pdf, Category: Recruitment Materials;</li> <li>• Sample Survey Questions.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);</li> <li>• Informed Consent for the Marketing Behavioral Lab.pdf, Category: Consent Form;</li> <li>• Informed Consent for the Mechanical Turk Study.pdf, Category: Consent Form;</li> <li>• Sample Survey Questions_MTurk.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);</li> <li>• Recruitment letter Mturk.pdf, Category: Recruitment Materials;</li> </ul>

APPENDIX D

PERMISSION TO USE ARTICLE IN DISSERTATION DOCUMENT

Dear Freeman,

Thank you for very much checking. This is fine as long as a full acknowledgment is made to the original article in JCR (including the journal name, volume, issue, page numbers, year of publication, and title of article) and to Oxford University Press.

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Best,  
Vlad

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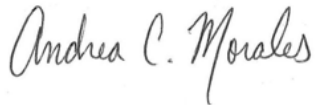
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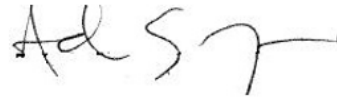
Dear ASU Graduate College,

We are co-authors on the *JCR* article entitled “It’s Too Pretty to Use! When and How Enhanced Product Aesthetics Discourage Usage and Lower Consumption Enjoyment,” and we are writing to grant Freeman Wu permission to use this article in his dissertation document.

Sincerely,



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