

# It's Too Pretty to Use! When and How Enhanced Product Aesthetics Discourage Usage and Lower Consumption Enjoyment

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Marketers invest a lot of resources in product aesthetics and design, but does this strategy always lead to favorable consumer outcomes? While prior research suggests enhanced aesthetics should have a uniformly positive influence on pre-usage evaluations and choice, the present research examines the downstream effects of nondurable product aesthetics on consumption behavior and post-consumption affect. First, we document an inhibiting effect of aesthetics on actual consumption. We find that highly aesthetic products elicit greater perceptions of effort in their creation, and that consumers have an intrinsic appreciation for such effort. Because the consumption process indirectly destroys the effort invested to make the product beautiful, people reduce consumption of such products because usage would entail destroying something they naturally appreciate. Second, we show that in cases where individuals do consume a beautiful product, they exhibit lower consumption enjoyment and increased negative affect. These negative post-consumption outcomes are mediated 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. Across a series of studies, we challenge the common assumption that enhanced aesthetics always lead to positive consumer outcomes.

*Keywords:* aesthetics, effort, product usage, consumption enjoyment, predicted vs. experienced utility, implicit self-theories

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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, we argue that after purchase,

consumers exhibit both decreased consumption of such products and reduced enjoyment if consumption does occur, precisely *because* of their beauty. We 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, we 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, we demonstrate that there are two distinct mechanisms underlying these effects. First, we 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, we 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 our knowledge, we are 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 (Reimann et al. 2010), across a variety of perishable and disposable (i.e., nondurable) consumption contexts, we 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 (Dweck 2000), in our exploration of effort as our underlying mechanism, we 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, we 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), ours 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, we add to the growing body of research that explores when and why the drivers of predicted and experienced utility diverge (Lee and Tsai 2014; Thompson, Hamilton, and Rust 2005).

Notably, as opposed to prior research that describes how enhanced aesthetics motivate choice and purchase (Raghubir and Greenleaf 2006; Reimann et al. 2010), we investigate the impact of aesthetics after purchase. Thus, our 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 our research centers on the notion that highly aesthetic products elicit greater perceptions of effort, we 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, we are 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.

## CONCEPTUAL BACKGROUND

### 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 (Raghubir and Greenleaf 2006; Yang and Raghubir 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, consumer bias toward 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 (Raghubir and Greenleaf 2006; Reimann et al. 2010). However, despite the positive role that enhanced aesthetics play in motivating choice, we predict that there are also negative consequences of acquiring such products that can emerge during and after consumption. Next, we discuss the pivotal role that effort inferences play in our conceptualization.

### 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, Bonney, and Herd 2011; Norton, Mochon, and Ariely 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, we 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), we 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, we 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, we 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.

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	$r = .36, p < .001$	$r = .33, p < .001$

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, we 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 our 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 our 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).

These findings suggest that 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 of our studies consist of higher and lower aesthetic products within a given product category (e.g., a higher vs. lower aesthetic cupcake) rather than across product categories (e.g., a cupcake, which tends to be more aesthetic, vs. a bagel, which tends to be less aesthetic).

In the current research, we 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 we established in our pretest, 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, we 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, we 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 our conceptualization, we 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, we 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, we discuss an individual difference that makes some consumers even more (vs. less) likely to appreciate effort.

## Understanding Post-Consumption Affect

Beyond examining the factors that drive lower usage likelihood of beautiful products, we also investigate how consumers feel once consumption has occurred. While we 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, we believe such concerns will continue to shape the emotional consequences of consumption, given that 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, we 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 toward 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, we argue that 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), we 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, we 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, we argue that while the effort inferences made before consumption will continue to mediate emotional outcomes, given that consumption involves the actual destruction of effort, we 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. We 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.

## SUMMARY AND OVERVIEW OF STUDIES

In sum, our conceptual model posits that different processes underlie consumer responses to highly aesthetic products depending on whether or not consumption has taken place. Before consumption, we 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, we 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 salient only post-consumption.

We test our predictions in field and laboratory studies across multiple consumption contexts, summarized in [table 2](#). 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 our final two studies, we 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. The table in [appendix B](#) summarizes the results of a pretest showing that all of the higher (vs. lower) aesthetic stimuli utilized in our studies have greater aesthetic appeal. Thus, aesthetics manipulation checks are not discussed in specific studies.

## STUDY 1: ESTABLISHING THE INHIBITING EFFECT OF ENHANCED AESTHETICS ON USAGE IN THE FIELD

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. We worked with a fitness studio to conduct a field experiment that involved monitoring client toilet paper use over two weeks. We anticipated that clients would use less toilet paper when it was more (vs. less) aesthetically appealing. Importantly, we used the exact same brand and type of toilet paper in both conditions, which allowed us to vary its aesthetics while holding constant all other unrelated factors, such as quality, texture, and absorbency.

### Method

*Participants and Procedure.* We 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, as the study took place two weeks before Christmas.<sup>1</sup> Of note, in addition to the pretest assessing different levels of aesthetic appeal between the two different types of toilet paper, another between-subjects

<sup>1</sup> In coordinating the field study, we originally made plans to run at two locations to counterbalance the order of presentation of the toilet paper (lower aesthetic first vs. higher aesthetic first). Unfortunately, the second studio encountered plumbing issues during the course of the study, invalidating the data, thereby yielding results from only one studio.

**TABLE 2**  
STUDY OVERVIEW

Study	Context	Product	Design	Dependent variable(s)	Statistical controls	Findings
1	Field	Toilet paper	• 2 (aesthetics: higher vs. lower)	• Number of sheets used		• <b>Basic effect:</b> Aesthetics reduced the average number of sheets used (3.70 vs. 6.66; $p < .001$ ).
2	Lab	Cupcake	• 2 (aesthetics: higher vs. lower) × hunger (continuous)	• Consumption amount • Consumption enjoyment	• Perceived expense	• <b>Moderation of basic effect:</b> Aesthetics × hunger interaction ( $p = .03$ ): aesthetics reduced consumption of the cupcake, primarily among hungry individuals. • <b>Post-consumption consequences:</b> Aesthetics × hunger interaction ( $p = .01$ ): aesthetics reduced enjoyment of the cupcake, primarily among hungry individuals.
3	Simulation	Paper napkin	• 2 (aesthetics: higher vs. lower)	• Usage likelihood • Effort inferences • Concerns about effort destruction	• Willingness to pay	• <b>Basic effect:</b> Aesthetics reduced usage likelihood (5.81 vs. 6.28; $p < .001$ ), increased perceptions of effort (3.80 vs. 3.19; $p < .01$ ), and increased concerns about effort destruction (2.54 vs. 1.95; $p < .01$ ).
4	Simulation	Paper napkin	• 2 (napkin information: none vs. higher aesthetics required lower production effort)	• Choice of napkin to use (higher vs. lower aesthetic)	• Perceived cost	• <b>Pre-consumption process by mediation:</b> Aesthetics → effort inferences → concerns about effort destruction → usage likelihood (95% CI = [-0.09, -.01]). • <b>Basic effect:</b> In the control condition, 19.8% chose to use the higher aesthetic napkin.
5	Lab	Paper napkin	• 2 (aesthetics: higher vs. lower) × implicit self-theories (continuous)	• Napkin usage	• Willingness to pay	• <b>Pre-consumption process by situational boundary condition:</b> In the intervention condition, where the higher aesthetic napkin was described as requiring less effort to produce, 63.6% chose to use the higher aesthetic napkin ( $p < .001$ ). • <b>Basic effect:</b> Aesthetics reduced napkin usage ( $p = .03$ ). • <b>Pre-consumption process by individual difference moderator:</b> Aesthetics × implicit self-theories interaction ( $p = .04$ ): aesthetics reduced napkin usage, primarily among incremental theorists.
6A	Simulation	Paper napkin	• 2 (aesthetics: higher vs. lower, between) × 2 (aesthetic judgment: before vs. after usage, within)	• Emotions • Changes in aesthetic judgment across time		• <b>Post-consumption consequences:</b> Usage of aesthetics increased negative affect (3.05 vs. 2.46; $p < .001$ ) and decrements in beauty across time ( $p < .001$ ). • <b>Post-consumption process by mediation:</b> Aesthetics → decrements in beauty → emotions (95% CI = [.04, .29]).
6B	Simulation	Paper napkin	• 2 (aesthetics: higher vs. lower)	• Emotions • Changes in aesthetic judgment • Effort inferences • Concerns that effort had been destroyed		• <b>Post-consumption consequences:</b> Usage of aesthetics increased negative affect (3.13 vs. 2.83; $p < .05$ ), decrements in beauty (2.63 vs. 1.77; $p < .001$ ), perceptions of effort (3.49 vs. 2.87; $p < .001$ ), and concerns that effort had been destroyed (2.62 vs. 2.00; $p < .001$ ). • <b>Post-consumption process by parallel mediation:</b> 1. Aesthetics → decrements in beauty → emotions (95% CI = [.23, .54]). 2. Aesthetics → effort inferences → concerns that effort had been destroyed → emotions (95% CI = [.06, .23]).

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 us with the number of people who attended classes each week, and employees, who remained blind to our 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.

## Results and Discussion

As predicted, clients used less of the more aesthetically appealing toilet paper: 2,578 total sheets of the lower aesthetic toilet paper were used, while only 1,425 sheets of the higher aesthetic toilet paper were used. Because we were provided with the number of class attendees, we 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.* We 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.

## STUDY 2: THE IMPACT OF AESTHETICS ON FOOD CONSUMPTION AND ENJOYMENT

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 we evaluate what we eat (Hurling and Shepherd 2003; Wada et al. 2010). We chose cupcakes as our 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 our predictions about higher aesthetics lowering

consumption. Details of this pretest are available in the web appendix.

Importantly, given the inherent nature of food, we are cognizant of baseline individual differences that could affect the amount consumed (Lisjak et al. 2015). We ran this study throughout the day (from 10 a.m. to 5 p.m.) across multiple days, so we accounted for individual differences in hunger, and measured state hunger at the start of the study. We expect that the inhibiting effect of aesthetics on consumption will be greatest among hungry participants, as the need to exhibit restraint should be observed only among those motivated to engage in consumption in the first place. We 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, we also aim to replicate study 1's findings while controlling for perceived expense.

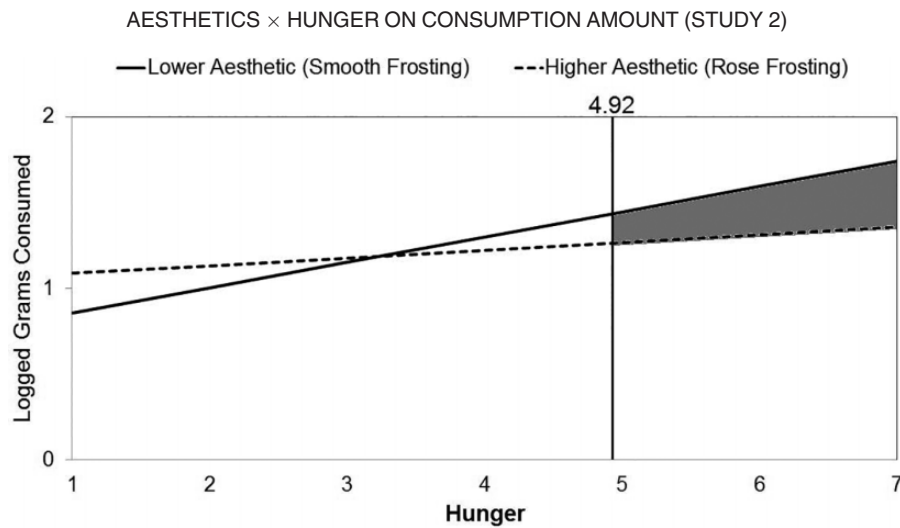
Finally, we seek to provide initial evidence that the consumption of a highly aesthetic product will negatively affect how much participants enjoy the consumption experience, a notion we explore in depth in study 6. In line with our predictions for consumption amount, we expect the negative influence 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 be observed only among those motivated to engage in consumption in the first place.

## Method

*Participants and Procedure.* One hundred eighty-three undergraduate students from a southwestern university participated in a 2 (aesthetics: higher vs. lower)  $\times$  continuous (hunger) between-subjects study in exchange for partial course credit. Five participants were excluded from the analysis: four 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, ages 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 preweighed each cupcake before the start of each session.

FIGURE 1



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 that assessed 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).

## Results and Discussion

We 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 we controlled for perceived expense.

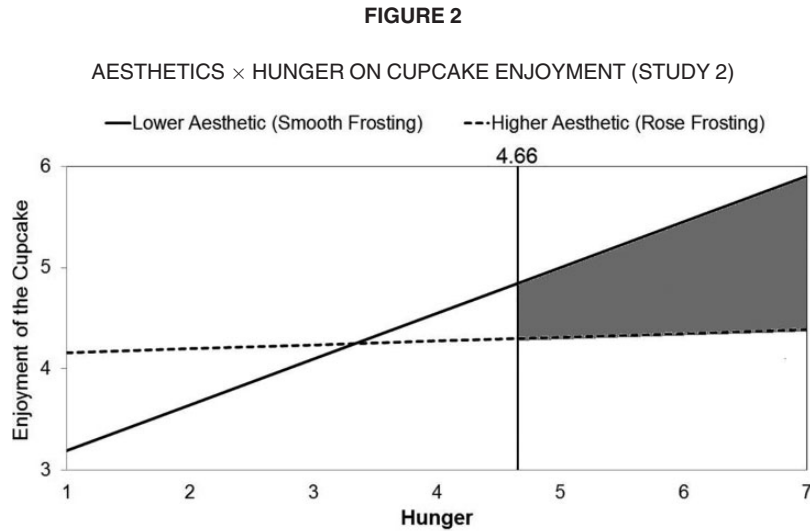
*Consumption Amount.* We first log-transformed the dependent variable to normalize the distribution (Cleveland 1984). Next, we performed a 2 (aesthetics condition) × continuous (hunger) multiple regression analysis on the logged consumption amount. Regressing this logged amount on the aesthetics manipulation, 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, we

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), we 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 et al. 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 our predictions, such effects were not observed among satiated individuals, who displayed low motivation to eat regardless of the cupcake's appearance.

*Enjoyment of the Cupcake.* A 2 × 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 ( $p < .05$ ).

*Perceived Expense.* A 2 × 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 we controlled for expense, the  $2 \times$  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% CI:  $[-.08, .05]$ ) or degree of enjoyment ( $b = .12$ ; 95% CI:  $[-.05, .35]$ ) among hungry individuals, revealing that inferred monetary value was not driving our effects.

*Discussion.* Though our 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, we increase the generalizability of our findings to food, a domain for which visual presentation plays a fundamental role. We also provide initial evidence that consumption of highly aesthetic products can carry negative implications for the consumption experience, a notion we explore in greater depth in studies 6A and 6B. These effects continued to hold even when we controlled 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, we next elucidate the underlying process through three

different approaches. First, we provide evidence for our proposed mechanism via mediation (study 3). Second, we directly manipulate effort inferences to show process by moderation (study 4), and third, we identify a theoretically grounded individual difference moderator (study 5).

### STUDY 3: THE MEDIATING ROLE OF EFFORT INFERENCE AND EFFORT DESTRUCTION

The goal of study 3 is to replicate our 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 our theorizing, we 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, we can more confidently ensure that our findings are not merely artifacts of the stimuli we have chosen (although handmade highly aesthetic foods, such as the cupcakes used in study 2, are ubiquitous in the marketplace).

#### Method

*Participants and Procedure.* Two hundred sixty participants were recruited from Amazon Mechanical Turk to participate in a two-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, ages 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 toward the counter to see how they could clean up the spill. We 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). Additional details of the procedure are available in the [web appendix](#). 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 our usage likelihood index ( $\alpha = .81$ ). Next, to examine effort inferences, we asked participants how much effort they thought went into making the napkins (1 = none at all, 7 = quite a bit). To examine concerns about effort destruction, we asked participants to rate 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 our effects, participants indicated how much they would be willing to pay for a pack of the napkins in the scenario (i.e., dollar value).

## Results and Discussion

We 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 we controlled 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 we controlled 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 we controlled for willingness to pay ( $p < .02$ ).

*Mediation.* We conducted a serial multiple mediator model (model 6, [Hayes 2013](#)) testing our 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 our 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 our 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, we 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, we once again demonstrate that inferred monetary value does not account for our results. Next, we manipulate effort inferences directly to show that shifting the perceived effort required to make an aesthetic product will mitigate our focal effect.

## STUDY 4: THE MODERATING ROLE OF EFFORT INFERENCE

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, we 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 article, 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 us to extend the generalizability of our 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 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 us 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 we examine directly in study 4.

## Method

*Participants and Procedure.* Two hundred forty-six participants were recruited from Amazon Mechanical Turk to participate in a two-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, ages 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 (higher aesthetic option) or plain white (lower aesthetic option; see appendix A, row 4, for images), and both napkin images were presented at once. Additional details are available in the [web appendix](#).

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.<sup>2</sup> 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).

## 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 we control 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 our 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 we observed in the higher aesthetics = lower effort condition, since the aesthetic appeal of the

2 A pretest confirmed the validity of study 4's effort manipulation. Participants ( $n = 201$ ) completed a 2 (aesthetics)  $\times$  2 (effort intervention) between-subjects study where they read the same scenario but were randomly assigned a napkin choice and asked to make effort inferences about the napkin. Results revealed a significant interaction ( $p < .001$ ). Whereas in the control condition, the higher aesthetic napkin elicited higher perceptions of effort ( $M_{\text{control, higher aesthetic}} = 3.91$  vs.  $M_{\text{control, lower aesthetic}} = 3.35$ ;  $p < .04$ ), this pattern reversed in the low effort condition ( $M_{\text{low effort, higher aesthetic}} = 3.02$  vs.  $M_{\text{low effort, lower aesthetic}} = 4.31$ ;  $p < .001$ ). Procedural details and full results are available in the [web appendix](#).

napkins remained constant; only the perceived effort had changed. Thus, we 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 our 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.

We next provide additional evidence for our 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.

## STUDY 5: THE ROLE OF IMPLICIT SELF-THEORIES IN SHAPING USAGE

Based on our 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).

We 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, we 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) scores 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;<sup>3</sup> all anchored at 1 = strongly disagree, 7 = strongly agree;  $\alpha = .91$ ). We 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, we 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.

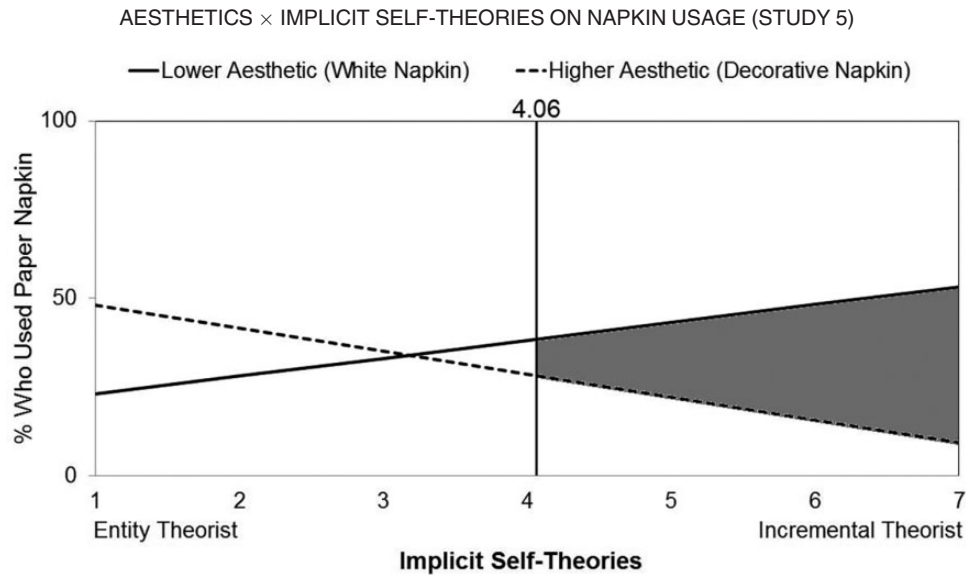
## Method

*Participants and Procedure.* One hundred eighty-seven undergraduate students from a southwestern university participated in a 2 (aesthetics: higher vs. lower)  $\times$  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 we had measured in a separate presurvey several weeks prior to the focal study. Thus, the final sample comprised 174 participants (52% female [four did not report gender], median age = 21, ages 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. We 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 our 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 aesthetic 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

3 The other items were: (2) I really appreciate it when somebody takes the time and effort to make something, (3) I treasure something more when I know a lot of effort has gone into creating it, (4) I have an appreciation for products that reflect a great deal of effort on the maker's part, and (5) I value something more when I know it took a lot of time and energy to produce.

FIGURE 3



rated as equally versatile in their usage ( $M_{\text{higher aesthetic}} = 5.80$  vs.  $M_{\text{lower aesthetic}} = 5.91$ ;  $t(79) = .47$ ,  $p > .60$ ;  $\alpha = .91$ ). Additional pretest details are available in the [web appendix](#).

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 our hypotheses. To again ensure that perceived cost was not influencing our focal effects, we 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.

## Results and Discussion

A 2 (aesthetics condition)  $\times$  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 we controlled for willingness to pay ( $p < .04$ ). We 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. We 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.

*Discussion.* In study 5, we provide further evidence for our 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. We 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 our final two studies, we

elucidate the drivers of post-consumption emotions while holding usage constant, thereby allowing us 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.

## STUDY 6A: DECREMENTS IN BEAUTY AND POST-CONSUMPTION AFFECT

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 we propose is determined by two processes working in tandem. First, we 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), we 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 we measured the amount consumed as well as post-consumption enjoyment, in study 6A, we 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. We measure this decrement by capturing aesthetic judgments immediately before and after usage.

### Method

**Participants and Procedure.** Four hundred sixteen participants were recruited from Amazon Mechanical Turk to participate in a 2 (aesthetics: higher vs. lower, between)  $\times$  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 [11 did not report gender], median age = 30, ages 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 seven-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 10 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. Additional details of the procedure are available in the web appendix.

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 we combined into an index of post-consumption negative affect (1 = not at all, 7 = very much so;  $\alpha = .91$ ).

### Results and Discussion

We 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)  $\times$  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  $\times$  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 our 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, we are 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 that 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, not only does the usage of higher (vs. lower) aesthetic products result in larger decrements in beauty, but such losses also drive greater negative affect after consumption. Notably, while we asked participants to assess the aesthetic qualities of the napkins before and immediately after usage to more precisely capture the changes in beauty we observed, we 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 we measure this change in a less invasive manner, after consumption. We also integrate changes in beauty and effort inferences into emotional reactions linked to consumption.

### STUDY 6B: TESTING THE FULL CONCEPTUAL MODEL FOR POST-CONSUMPTION AFFECT

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 us 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, we 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, we try to better understand consumers' emotional reactions after aesthetic product usage by not highlighting the product's aesthetic qualities beforehand. Finally, we measure implicit self-theories to examine whether one's inherent degree of effort appreciation moderates post-consumption negative affect.

### Method

*Participants and Procedure.* Four hundred participants were recruited from Amazon Mechanical Turk to participate in a two-cell (aesthetics: higher vs. lower) between-subjects study in exchange for payment. Ten individuals participated in this study twice and 17 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, ages 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, we 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.

### 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 we 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, we conducted two separate mediation analyses, one testing the path of product aesthetics  $\rightarrow$  decrements in beauty  $\rightarrow$  negative affect (model 4, Hayes 2013), and the other testing the serial path of product aesthetics  $\rightarrow$  effort inferences  $\rightarrow$  concerns about effort destruction  $\rightarrow$  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 that 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, we 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 become evident only after an aesthetic product has been visibly compromised through consumption also lead to negative affect.

*Discussion.* Study 6B, which allowed us 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.

We should also note that we 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 versus 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. Additional details are available in the web appendix.

Though we 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, we 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.

## GENERAL DISCUSSION

Across a series of laboratory and field studies, using a variety of nondurable product categories and consumption situations, we reveal the negative impact of enhanced product aesthetics on usage and post-consumption consequences. First, we 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, we 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, we 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.

*Theoretical Contributions.* Our work makes several theoretical contributions. First, while prior research has shown that consumers respond favorably to both product aesthetics and effort, we believe we are the first to establish a causal relationship between these constructs. We 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. We 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 (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, our results suggest that once beautiful products are acquired, consumers may be less likely to consume them 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), we 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, our work reveals that usage of highly aesthetic disposable products can actually lower overall enjoyment of 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. Thus, we 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, we demonstrate that enhanced aesthetics have the ability to later discourage usage and lower consumption enjoyment.

*Substantive Implications.* Our 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, our 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. Our recommendations are admittedly less straightforward under such circumstances, as consumers are able to derive utility from the products' enhanced aesthetics simply by displaying them.

Our 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 our 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 food choices (Cornil and Chandon 2016; McFerran et al. 2010; Scott et al. 2008). The results of study 2 suggest that 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.

*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, we recognize that this phenomenon, like many, is likely driven by multiple processes (Fuchs, Schreier, and van Osselaer 2015). Indeed, as evident in our research, consumption likelihood and consumption enjoyment each have distinct sets of drivers. For instance, while we accounted for cost across multiple studies and demonstrated that our effects held even after we controlled for the perceived price of the product, we 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 we focus on the role of effort inferences in driving lower usage of highly aesthetic products, we are 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. We 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 our 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 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.<sup>4</sup> 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 our experimental designs did not allow us to examine whether destruction is a continuous versus discrete function of consumption, it is worth noting that we did document lower usage across varying degrees of consumption (e.g., consumption was continuous in study 2, but discrete in study 5), and we did find that different levels of consumption still led to reduced enjoyment. Nevertheless, we believe this is an important empirical question worth investigating in the future.

Finally, while we have limited our 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,

4 We thank one of the anonymous reviewers for this suggestion.

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 or 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 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, our 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, our 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, we conclude that while products may never be too pretty to choose, they can, in fact, be too pretty to use.

### DATA COLLECTION INFORMATION

All studies were designed and analyzed by the first author under the guidance of the other authors. The data for study 1 was collected at the Scottsdale Pure Barre studio in fall 2015 by research assistants and employees under the supervision of the first author. Research assistants collected the data for studies 2 and 5 under the supervision of the first author at the W. P. Carey School of Business Marketing Department Behavioral Lab in spring 2015. The data for the conceptual replication (reported in the discussion of study 6B) was collected by research assistants under the supervision of the first author at the W. P. Carey School of Business Marketing Department Behavioral Lab in summer 2015. The data for study 4 (both the effort manipulation pretest and the main study) and the correlational study examining the relationship between implicit self-theories and appreciation for others' effort were collected by the first author using Amazon Mechanical Turk in spring 2016. The first author collected the data for the aesthetic appeal pretest

(described in appendix B), studies 3, 6A, and 6B using Amazon Mechanical Turk in summer 2016. Lastly, research assistants collected the data for the correlational study examining the relationship between aesthetics and perceived effort (described in the table in “The Role of Effort in Inhibiting Usage”) under the supervision of the first author at the W. P. Carey School of Business Marketing Department Behavioral Lab in fall 2016.

## APPENDIX A

### 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

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 to rate each product along the following dimensions: beautiful, pretty, artistic, and aesthetically pleasing (1 = not at all, 7 = very much), which formed our aesthetic appeal index.

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