

Happily Ever After: The Effect of Identity-Consistency on Product Satiation

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Repeated consumption of products and experiences leads to a reduction in enjoyment over time, a phenomenon that is commonly referred to as “satiating.” Three studies show that consumers satiate more slowly to products that are consistent with a currently active identity. Because satiation is a natural human response when consuming a product repeatedly, all consumers are likely to feel the pull downward on their product enjoyment over time. This drop in enjoyment produces dissonance in consumers with an activated identity because reduced enjoyment with identity-consistent products conflicts with their identity. Resisting this drop results in lowered levels of satiation, and these satiation differences are even reflected in subsequent consumption behavior. These results have theoretical implications both for the nascent research area of satiation in consumer behavior, and for developing a fuller sense of the relationship between consumer identity and consumption.

Keywords: Satiating, identity, hedonic adaptation, dissonance, identity threat, consumption.

Consumers acquire products in large part to increase their life happiness. Unfortunately, the satisfaction derived from most of these acquisitions declines with repeated consumption (e.g., Diener, Lucas, and Scollon 2006; Frederick and Loewenstein 1999), and begins declining almost immediately after acquisition (Frank 1999; Galak, Redden, and Kruger 2009; Lyubomirsky 2011; Nicolao, Irwin, and Goodman 2009; Wang, Novemsky, and Dhar 2009). This reduction in product enjoyment is termed “satiation” (Coombs and Avrunin 1977), and it informs post-acquisition consumer satisfaction, influences product disposal and replacement behavior, and partially determines the relationship between products and life happiness. Because satiation often leaves consumers dissatisfied with initially desired products, it could pose a threat to consumers who derive personal meaning and see themselves through the products they use (e.g., a wine aficionado, a sports fan). The present research explores this potential relationship between satiation and products linked with self-identity.

Satiation, despite its crucial role in post-acquisition consumer happiness, remains fairly unexplored. Previous studies of satiation have largely focused on how the rate of satiation depends on product-level characteristics such as variety (Galak et al. 2009; Redden 2008), product type (Nicolao et al. 2009), or experience continuity (Nelson and Meyvis 2008). Largely absent in the literature is knowledge about how products interact with consumer motivations. Our research fills this gap by testing how a consumer’s desire to maintain consistency with a self-concept affects satiation.

Years of consumer research have confirmed that identity motivations and consumption behavior are intimately connected (e.g., Weiss and Johar 2013; White and Argo 2009). Products help to define and maintain people’s self-concept by reinforcing their identities (Berger and Ward 2010; Birdwell 1968; Gao, Wheeler, and Shiv 2008; Ward and Broniarczyk 2011). Thus,

consumers are attracted to, and more likely to purchase, identity-consistent products to affirm important self-concepts. In fact, consuming products inconsistent with an important identity sometimes causes cognitive dissonance that motivates consumers to change their behavior to better reflect their identity. For example, they sometimes cease to consume a product that appears to have become less identity-consistent (Berger and Heath 2008), and they often seek out and consume products with more identity-consistent characteristics (Ward and Broniarczyk 2011).

Although consuming products consistent with an identity can reduce dissonance, we study a situation in which identity consistency can increase dissonance. We propose that consumers can experience cognitive dissonance from identity-consistent products with repeated consumption. The force of satiation works to reduce product enjoyment as soon as consumption begins and regardless of whether the enjoyment is measured or not (Frank 1999; Galak et al. 2009; Lyubomirsky 2011; Nicolao et al. 2009; Redden and Haws 2013). Presumably, such satiation would be threatening to an important identity. For example, a Star Trek fan may start questioning whether Star Trek is really a key part of who he or she is when experiencing reduced enjoyment while watching a 20-episode marathon. When the decline in enjoyment that naturally occurs with satiation happens for an identity-consistent product, the decline represents an inconsistency between a consumer's evaluation and an important self-concept. We propose that consumers resolve this dissonance through a slowing down of satiation to identity-consistent products, and that this reduced satiation ultimately has behavioral consequences, for example greater consumption (e.g., eating more) of identity-consistent products.

Three studies confirm our hypotheses using real-time tracking of satiation and with replications of the effect across identities and product types. These are the first studies to

illustrate that satiation may be problematic beyond the drop in enjoyment that it causes; we show that satiation produces dissonance when the consumer would like to continue enjoying a product or experience, in this case because of an identity link.

Using a reaction-time task and a classic dissonance-reduction technique of allowing participants to misattribute any experienced dissonance to an external source (Zanna and Cooper 1974; Zhou et al. 2009), we show that satiation is significantly slowed for products consistent with active identities and that this effect is induced by dissonance reduction. These studies thus establish that identity can influence post-acquisition product satisfaction, and are the first to show exactly how and why identity has this effect.

CONCEPTUAL BACKGROUND

Identity and Consumption

Identity refers to a consumer's thoughts and feelings about his or her self. Consumers use their identities, or self-concepts, to help organize and direct their lives. Self-concepts of import to consumers inform a variety of consumer behavior decisions including choice of accessories (Berger and Ward 2010), choice of office décor (Gosling, Ko, and Mannarelli 2002), and brand preference (Escalas and Bettman 2003). Identity-consistent products are consumed as a signal to others, but these products also serve as signals to the self (Gosling et al. 2002; Shrum et al. 2013). Individuals have a need for coherence, meaning, and control (Heine, Proulx, and Vohs 2006; Swann 1983, 2012), and for this reason seek out products that provide feedback consistent with their self-concept. For example, a consumer's sense of self influences preference for

products (Oyserman 2009), and consumers become attached to products that help them maintain their self-concept (Ball and Tasaki 1992). Similar to the well-known idea of self-perception in psychology (Bem 1967), consumers often seem to infer who they are from what they like to consume.

Consumers also utilize product choice to offset dissonance-arousing self-concept threats encountered in the environment (Rucker and Galinsky 2008; Sivanathan and Pettit 2010). For example, Berger and Heath (2008) found that students chose to stop using formerly identity-consistent wristbands after they became associated with dissimilar others (the “geeks” on campus). Also, because giving an identity-inconsistent gift to a close friend poses a threat to one’s self-concept, the gift-giver is subsequently more likely to purchase an identity-consistent product for personal use as a way to compensate (Ward and Broniarczyk 2011). In sum, consumers exhibit a preference for identity-consistent products in order to achieve a sense of coherence, and they largely avoid products that run counter to an important identity because those products are likely to cause dissonance.

This research explores the possibility that dissonance can also arise from consuming products *consistent* with a consumer’s self-concept. Satiation is a strong force in product consumption over time (Coombs and Avrunin 1977; Diener et al. 2006; Frederick and Loewenstein 1999), and we argue that the experience of declining enjoyment with an identity-consistent product could pose a threat to a consumer’s self-concept. In the face of this potential self-threat, it is easier for consumers to slow satiation than it is for them to adjust a chronic self-concept, and thus we propose that consumers resist satiation to products that are consistent with active identities.

Identity-Consistent Products and Dissonance

The literature on identities (see Swann and Bosson 2010 for a review) has established two broad classes of identities: personal self-concepts that reflect individual characteristics (e.g., talented, lazy), and social self-concepts that signify associations with a group (e.g., American, female). We focus on social self-concepts in the present research, and we assume a product is identity-consistent if it embodies a consumer's identity in some way. For example, a shirt with the flag of the consumer's native country would be consistent with the consumer's national identity. Similarly, music created by an artist from a student's university would be consistent with the student's university identity. Consuming these products serves to reinforce the associated identities.

In order for satiation to identity-consistent products to cause dissonance, however, the focal identity relevant to the product has to be activated in the consumer. Consumers hold and balance multiple identities (Hugenberg and Bodenhausen 2004; Rydell, McConnell, and Beilock 2009), and the identities that influence consumer behavior are those that are active in the moment (LeBoeuf, Shafir, and Bayuk 2010). Although some identities may be more chronically active than others, any of multiple identities can be activated in a given context, and it is these active identities that shape behavior. For example, Forehand, Deshpande, and Reed (2002) found that consumers evaluated marketing communications targeting their ethnicity more favorably than other advertisements only when their ethnic identity had been activated prior to viewing the advertisement. Similarly, we expect identity to affect satiation only when the identity is active and salient.

Study Overview

Three studies support our predictions. Study 1 uses a visual stimulus (a painting) to illustrate that consumers exhibit less satiation to identity-consistent versus neutral products when the focal identity has been activated. Using a thought-listing task, study 2 provides evidence consistent with the hypothesis that satiation is linked to a consumer's self-concept by showing that the rate of satiation to identity-consistent products depends on the number of active connections consumers have between their sense of self and the focal identity. This analysis includes a sequential mediation to illustrate that the number of connections to identity predicts the reduction in satiation. In addition, study 2 uses a food stimulus to illustrate the generalizability of the effects. Finally, study 3 uses a classic dissonance-misattribution technique to directly test the underlying dissonance mechanism. We show that slower satiation to identity-consistent products disappears if consumers are allowed to misattribute any experienced dissonance to an external source unrelated to the self. All of the studies track product enjoyment during consumption to gauge the continual growth in satiation from initial consumption through ongoing repeated consumption. Study 2 also includes a behavioral component to show that the satiation differences are reflected in actual behavior (amount eaten of a candy) as well.

STUDY 1

Study 1 tested our core claim that satiation from repeatedly consuming a product depends on the extent to which the product is linked to a self-identity. Specifically, we tested the prediction of our theory that making salient the association of a product with an active self-

identity should slow the rate of satiation. To test this prediction, we used a prime to activate the focal identity in half of the participants. Then, we framed a painting as either identity-consistent or identity-neutral and tracked subsequent satiation by measuring painting enjoyment over time. We predicted less satiation to the painting if it was framed as being identity-consistent versus identity-neutral, but only for participants whose identity we activated.

Procedure

Six hundred thirty-nine undergraduates from the University of Texas participated in return for partial course credit or \$5. The data was collected in two waves which we address with the *paugmented* statistic in the summary section of this study. The dependent variable of enjoyment with the target painting was measured three times throughout the session, making trial a within-subject factor. We manipulated identity relevance of the painting (identity-consistent or identity-neutral) and identity activation (identity activation prime or no prime) between-subjects.

Participants were seated at computers in individual and private cubicles. They learned they would be responding to multiple surveys from different researchers. After answering a few demographic questions, participants began what they thought was the first study but which actually instead was the manipulation of identity activation. In this study, the focal identity as the university identity. Participants were randomly assigned either to complete the identity activation prime or not. If they were in the identity activation prime condition they answered two questions to activate their university identity: “Is being a Longhorn important to you?” (1 – Not at all, 7 – Very much so), and “Below, please take a few minutes to describe why being a Longhorn is important to you.” Participants had 90 seconds to respond to this prime before they were allowed

to continue to the next page. Then, they proceeded to what they were told was a survey from another researcher. Participants in the no prime condition proceeded to the next portion of the study without completing the identity activation prime questions.

In the subsequent and ostensibly unrelated section, participants learned they would be viewing and providing ratings of a painting. Those in the identity-consistent condition were told that the painting was created by an artist visiting the students' campus and that he "was inspired to paint this field by the landscaping, colors, and the spirit of the students he interacted with during his visit." Those in the identity-neutral condition were told that the painting was created "by an artist who was inspired by the landscaping, colors, and spirit of one of the places he read about in a novel."

Participants next viewed a painting of a landscape for 25 seconds and rated "How happy does this painting make you?" (0 – Not happy at all, 100 – Very happy, on an unmarked sliding scale). The marker's location on the scale was translated to a 100-point scale to serve as the rating of enjoyment. Participants then viewed the painting six more times for 15 seconds on each trial. They rated the painting on the same scale after every third viewing. Finally, to measure whether participants were paying attention, we included an attention check question that told participants, "If you are reading this please do not answer this question," similar to methods used in past work (Oppenheimer, Meyvis, and Davidenko 2009).

Results and Discussion

The 11 participants who answered the question, "If you are reading this please do not answer this question," were dropped, leaving 628 participants in our analyses. We next analyzed

the initial enjoyment ratings with contrast-coded variables for identity activation (1 if identity primed, -1 if identity not primed) and identity relevance (1 if identity consistent, -1 if identity neutral) as between-subjects factors. The model also included the interaction between these two variables. We found no significant effects of identity activation ($F(1, 627) = 0.12$, NS), identity relevance ($F(1, 627) = 2.48$, $p = .12$), or their interaction ($F(1, 627) = 0.84$, NS) on initial enjoyment level. The fact that our identity manipulations had no effect on enjoyment of the first trial means that our satiation results cannot be attributed to differences in initial enjoyment.

We next analyzed enjoyment across trials (i.e., satiation). This study had a continuous within-subject variable, trial number, and two between-subjects variables, identity activation and identity relevance (two levels each). We used a standard simultaneously-estimated hierarchical model (i.e., a mixed model) in order to model both the error present in the enjoyment ratings across trials and the effect of the manipulated independent variables on painting enjoyment. This model predicted enjoyment with trial number, identity activation, identity relevance, and their interactions. There was a significant effect of trial number on enjoyment ($F(1, 627) = 629.23$, $p < .001$, $\eta^2 = .50$) indicating that there was significant satiation overall (see table 1). There were no effects of identity activation, identity relevance, or their interaction on overall enjoyment across all of the trials (F 's < 1.3 , NS).

Our analyses of interest are interactions between trial and our manipulated variables; i.e., whether satiation depends on our manipulations. The effect of trial on enjoyment did not interact with either identity activation or identity relevance alone (F 's < 1.1 , NS). However, as we predicted, there was a three-way interaction between trial, identity activation, and identity relevance ($F(1, 627) = 4.44$, $p < .05$, $\eta^2 = .01$). We used spotlight analysis on the discrete measure of identity (Irwin and McClelland 2001) to explicate the interaction. Among

participants with an activated university identity, participants satiated more slowly over time when the product was framed as identity-consistent versus neutral ($\beta_{idconsistent} = -11.26$ vs. $\beta_{neutral} = -14.41$; $F(1, 627) = 4.88, p < .05, \eta^2 = .01$). Specifically, when the identity was activated, the enjoyment ratings dropped 22% less in the identity-consistent condition versus the neutral condition. There were no differences in satiation across product framing when identity was not activated ($\beta_{idconsistent} = -13.50$ vs. $\beta_{neutral} = -12.33$; $F(1, 627) = .63, NS$). Furthermore, within the identity-consistent condition, participants satiated more slowly if identity was activated versus not ($\beta_{idactivated} = -11.26$ vs. $\beta_{idnotactivated} = -13.50$; $F(1, 627) = 4.88, p < .05, \eta^2 = .01$). Within the identity-neutral condition, there was no difference in rate of satiation between the identity activated and the identity not activated groups ($\beta_{idactivated} = -14.41$ vs. $\beta_{idnotactivated} = -12.33$; $F(1, 627) = 1.71, NS$).

 Insert table 1 about here.

Summary

This study supported our core prediction: Consumers satiated more slowly to a product when it was perceived to be more consistent with an active and salient identity. These results are consistent with the hypothesis that satiating to a product relevant to an active identity causes dissonance, and consumers resist satiation to alleviate that dissonance.

It should be noted that we added a second wave of data post-hoc in order to increase power due to variance in the initial sample ($N_1=362$ and $N_2=266$). In case the unanticipated second wave caused alpha-level issues, we computed the statistic *paugmented*, a conservative

adjustment of p -values when there are different waves of sampling (Sagarin, Ambler, and Lee 2014), for the interaction between trial, identity relevance, and identity activation. The *paugmented* range for this test was [.066, .069] with 10,000 slices, which suggests a reliable effect given the quite stringent nature of this test.

In subsequent studies we explore whether our satiation effects translate into behavior, whether the effect obtains across product category, and whether the effect is indeed due to dissonance.

STUDY 2

Study 2 built on our prior findings in four ways. First, product category was different (chocolate candies), allowing for a replication of study 1 in a different product category. Second, study 2 expanded the results of study 1 by measuring whether consuming products associated with an active identity influences not only satiation, but also satiation-related behavior such as quantity consumed.

Third, this study explored why consumers satiate more slowly to products that are consistent with active, important self-identities. In order for our dissonance argument to hold, happiness with identity-consistent products would need to be a reflection of consumers' embodiment of the identity. Study 2 tested this link in our theory by measuring the extent to which participants' self-concept was linked to the relevant identity during the experience. If stronger associations between self and the identity result in less satiation, then these links are driving the lower satiation, consistent with our dissonance account of the effects. More and

stronger associations to the self would, we argue, lead to a greater sense of dissonance in the presence of ongoing satiation, and therefore more need to resist this dissonance.

Finally, study 2 replicates the findings of study 1 in a context very unlikely to be influenced by demand effects. It is possible that in study 1, participants felt that the experimenters expected them to resist satiation to identity-consistent products when their identity was active. We rule out this alternative explanation by showing that the effect follows through to ostensibly unmonitored consumption during the free-eating period, and by tying our effects to links between the self and the relevant identity that would be very unlikely to be caused by experimenter demand.

Procedure

One hundred twenty-eight native English speakers with no dietary restrictions participated in this study for partial course credit or \$5. The focal identity was university affiliation and participants were students from the University of Texas or the University of Minnesota. Identity activation (identity activation prime or no prime) was manipulated between-subjects, and self-identity association was measured as a potential mediator. We measured enjoyment of the identity-related chocolates twice during the session to gauge satiation, making trial a within-subject factor. Quantity of chocolates consumed at the end of the study served as an additional behavioral measure of satiation.

Before participants arrived at the lab, each private computer workstation was stocked with (1) a plastic cup containing 15 milk chocolate pieces, and (2) a clear sandwich bag containing 54 grams of the same chocolate pieces. These chocolates were coated with candy

shells in the students' university colors, and the cup and sandwich bag were covered to keep them out of view until it was time for participants to begin the tasting task.

Upon arrival, participants sat at a workstation and the computer system randomly assigned them to one of two between-subjects conditions: identity activation prime, or no prime. Those in the identity activation condition learned that before beginning the main study they would answer a prompt as part of a pretest of language analysis software that the Linguistics Department was considering purchasing. We then activated their university identity by asking them to rate, "Is being a [University Mascot Name] important to you?" (1 – Not at all, 7 – Very much so), and to write for 90 seconds about "Why being a [University Mascot Name] is important to you." Participants in the no identity activation condition continued to the next section without any prime.

Participants then learned that for the main study they would take part in a chocolate-tasting task. They first indicated their general liking of chocolate by answering, "In general, how much do you like eating chocolate?" (1 – Greatly Dislike, 10 – Greatly Like). It is standard in research using food stimuli to use general liking as a covariate because of large individual differences in tastes for food (Kahn and Wansink 2004; Rahinel and Redden 2013; Rolls et al. 1981). In our data, we found that including the covariate made the effects of interest stronger, although the directions of the effects were always the same with or without the covariate.

Participants then retrieved the plastic cup with the chocolates and read that "[University Name] is considering purchasing these [University Mascot] chocolates to include as part of the snacks they offer campus visitors," and that the purpose of this task was to understand how much people enjoyed the chocolates. This information, combined with the fact that the chocolates were in the university colors, made the product consistent with the focal university identity.

To measure enjoyment with the chocolates, participants tasted two of the chocolate pieces from the cup and rated, “How much are you enjoying eating the candies?” by sliding a marker along an unmarked line with the endpoints “not at all” and “very much so.” The marker’s location on the line was translated to a 100-point scale to serve as the rating of enjoyment. Similar measures of enjoyment with candy have been used in previous research (Galak et al. 2009, study 2; Ratner, Kahn, and Kahneman 1999; Redden 2008, study 3). Participants then ate the remaining 13 pieces of chocolate and responded to the same rating question once more. The sample consumed up to this point was designed to be large enough for some satiation to manifest, yet still small enough to allow room for further consumption during the subsequent free-eating period.

Participants were then told that the tasting was over and the next study would take five minutes to load due to technical considerations. They learned that, if they wanted, they could snack on the [University Mascot] candies in the sandwich bag while they waited. This phase was the free-eating period. After five minutes, we instructed participants that the next study was ready and asked them to put the bags away because they could not view or consume food while completing the next study.

After approximately five minutes of other tasks, participants completed a measure of self-identity association. They learned that an ostensibly unrelated task would measure their response speed. They were asked to “briefly list reasons why being a student at [University Name] is meaningful to you,” and over the course of 45 seconds came up with as many self-identity associations as they could before the screen automatically advanced. The number of associations they listed served as the measure of self-identity associations accessible and active during the experience, and thus is a good proxy for strength of self-identity association (Chaplin and John

2005). Finally, participants responded to the same attention check measure used in study 1: “If you are reading this please do not answer this question.” After participants left the lab, the bags of chocolates left behind were weighed, and those weights were subtracted from the starting weights to calculate the grams of chocolates consumed by each participant during the free-eating period.

Results and Discussion

The four participants who answered the question, “If you are reading this please do not answer this question,” were dropped, leaving 124 participants in our analyses. As in the previous study, we first analyzed the initial enjoyment ratings with a contrast-coded variable for identity activation (1 if identity is primed, -1 if not primed) as a between-subjects factor and general liking of chocolate as a covariate. General liking of chocolates positively predicted initial enjoyment ($F(1, 123) = 36.86, p < .001, \eta^2 = .23$), and there was no effect of our identity activation manipulation on initial enjoyment ($F(1, 123) < 1.00, NS$).

Satiation. This study had a within-subject variable, trial number, and two between-subjects variables, identity activation (two levels) and general liking of chocolate (continuous individual difference measure). Using a simultaneously-estimated hierarchical model, we predicted enjoyment with trial number, identity activation, their interaction, general liking of chocolate, and the interaction between general liking and trial number. The analysis found no main effect of identity activation ($F(1, 123) = 0.11, NS$) and a main effect of the covariate such that those who liked chocolate more indicated greater liking of the chocolates overall ($F(1, 123)$

= 49.58, $p < .001$, $\eta^2 = .29$). There was a main effect of the number of trials ($\beta = -7.68$; $F(1, 123) = 26.11$, $p < .001$, $\eta^2 = .18$): Overall, participants satiated to the chocolates over time. There was no interaction between the covariate and number of trials, meaning the covariate did not significantly affect satiation ($F(1, 123) = 2.14$, $p = .14$). More importantly, the rate of satiation interacted with identity activation such that participants with an activated university identity satiated more slowly ($\beta_{Active} = -4.91$) than participants without an activated university identity ($\beta_{NotActive} = -10.92$; $F(1, 123) = 3.96$, $p < .05$, $\eta^2 = .03$; see table 2). Thus, as in study 1, participants satiated less to an identity-consistent product when the identity was activated.

 Insert table 2 about here.

Quantity Consumed. The next analysis tested whether identity activation affected quantity of chocolates consumed during the free-eating period. Quantity consumed was regressed on the contrast-coded identity activation variable, including general liking of chocolate as a covariate. The covariate affirmed that participants who liked chocolates more in general consumed more ($F(1, 123) = 17.67$, $p < .001$, $\eta^2 = .13$). More importantly, as predicted, participants consumed more identity-consistent chocolates during the free-eating period when the identity was activated versus when it was not ($M_{Active} = 28.75\text{g}$ vs. $M_{NotActive} = 22.72\text{g}$; $F(1, 123) = 6.64$, $p < .05$, $\eta^2 = .05$; see table 2).

Relationship between Satiation and Chocolates Consumed. To test whether satiation predicted the quantity of chocolates consumed, we regressed quantity consumed on satiation (i.e., the change in enjoyment from the first to the second trial) and the covariate of general

liking of chocolate. Satiation predicted quantity of chocolate consumed ($F(1, 123) = 13.84, p < .001, \eta^2 = .10$). The less participants satiated during the taste test, the more chocolate they freely ate while waiting for the next study to load.

Satiation as a Mediator. We used the analytic methods described in Preacher, Rucker, and Hayes (2007, Model 4) to test if satiation mediated the relationship between identity activation and chocolates consumed. A conditional indirect effects test (bootstrapping with 1,000 samples) showed significant mediation by satiation as the 95% confidence interval excluded zero [0.06, 2.02]. Identity activation reduced satiation to the chocolates, and this effect on satiation subsequently increased the amount of chocolates consumed during the free-eating period. These analyses verified that changes in satiation mediate the effect of identity activation on chocolate consumption, as our theory predicts.

Degree of Self-Identity Association. We argue that consumers resist satiation because experiencing declining enjoyment with a product that is identity-consistent produces dissonance. If true, dissonance from satiation should be related to the degree of self-identity connections active during the experience: The more the consumer feels connected to the product, the more satiation should create dissonance. To test this prediction, we first established whether identity activation predicted self-identity association by regressing the number of self-identity associations listed on the contrast code for identity activation (including the covariate of general liking of chocolate). There was no effect of our covariate ($F(1, 123) < 1.00, NS$) in this model. As expected, there was a marginal main effect of identity activation such that participants with an active university identity listed more self-identity associations in the 45 seconds they were

given for the task ($M_{Active} = 6.04$ vs. $M_{NotActive} = 5.33$; $F(1, 123) = 3.03$, $p = .08$, $\eta^2 = .02$; see table 2). Previous research indicates that number of associations is a good indication of strength of association between the self and identity (Chaplin and John 2005), and thus this result shows that the prime increased strength of association.

Next, we tested whether self-identity associations (with general chocolate liking as a covariate) predicted satiation. There was no main effect of self-identity associations on enjoyment ($F(1,123) = 1.26$, NS). As predicted, there was instead an interaction between trial and the number of self-identity associations on enjoyment: Spotlight analysis revealed that those who listed more self-identity associations satiated more slowly ($\beta_{ISDAboveMean} = -3.92$) than those who listed fewer self-identity associations ($\beta_{ISDBelowMean} = -11.41$; $F(1, 123) = 6.26$, $p < .05$, $\eta^2 = .05$). Thus, the greater the number of self-identity associations, the less participants satiated to the identity-consistent chocolates, as our theory would predict.

The primary analysis of interest was whether the degree of self-identity association mediated the relationship between identity activation, satiation, and chocolates consumed. A conditional indirect effects test (bootstrapping with 1,000 samples) using the Preacher, Rucker, and Hayes (2007) methodology for sequential mediation (Model 6, see figure 1) showed that the direct path from identity activation to amount of chocolates consumed was significantly mediated by self-identity association and satiation in sequence as the 95% confidence interval excluded zero [0.01, 0.38]. This final test supports our previous results. Identity activation increased the association between the self and the focal identity, these increased associations caused participants to exhibit decreased satiation to the identity-consistent chocolates, and the decrease in satiation led to increased consumption of the identity-consistent chocolates.

Insert figure 1 about here.

Alternative Mediation Model. Although self-identity associations mediated the relationship between identity activation, satiation, and consumption, an alternative mediation path is always possible. Specifically, perhaps the degree of self-identity associations resulted from participants' experienced satiation and not the other way around. This alternative theory is conceivable given self-identity associations were measured after participants experienced satiation to the chocolates. If it were affirmed, it would work against our assertion that the above mediation test supports our process explanation.

Thus, to rule out this alternative explanations, we ran another sequential mediation model (Model 6) with identity activation as the independent variable, consumption as the dependent variable, and satiation and self-identity association as sequential mediators in that order. A conditional indirect effects test (bootstrapping with 1,000 samples) showed that the direct path from identity activation to amount of chocolates consumed was not significantly mediated by satiation and self-identity association in sequence (95% confidence interval includes zero [-0.06, 0.18]). The failure of this sequential mediation model rules out the alternative explanation and lends additional support to our theory.

Summary

Study 2 replicated the findings from study 1 in a different product category, food, and demonstrated the ultimate behavioral consequences of changes in satiation rates. In addition to

satiating more slowly, participants ate more pieces of a chocolate candy in their school colors when their university affiliation was made salient.

Our findings with a covert behavioral measure also help rule out a demand-effect based explanation of study 1's effects. Adding actual consequences to the design provides even stronger evidence for a true experimental effect because it is less likely that participants would consume differently to please the experimenter, especially when they did not know we were measuring their food consumption.

This study also provides support for the dissonance mechanism at the core of our theory. Mediation evidence showed that activating an identity slowed the rate of satiation because it triggered self-identity associations with which satiation presumably conflicts. This finding is consistent with the idea that consumers resist satiation because of the self-threat and dissonance resulting from the experience of declining enjoyment with an identity-consistent product. Our theory accounts for both the pattern of results and the mediation model that helps to explicate the underlying drivers of the effect.

Note that in both studies 1 and 2, there may have been an already high baseline activation of the university identity across participants which could have limited the power of our identity activation manipulation. In study 1, all participants in the identity relevant painting condition learned that the painting represented their university identity, and in study 2, all participants consumed chocolates in the colors of their university and learned that their university was considering purchasing the chocolates to offer campus visitors. Given that the university identity is likely easy to activate among university students, there may have been some level of overall identity activation already, rendering our identity prime less powerful than otherwise. In other

words, the tasks in studies 1 and 2 may have been conservative tests of our hypothesis, under-representing the actual magnitude of the effects.

Though we posit a dissonance mechanism, a subtly different potential alternative explanation for the findings in study 2 is that identity-activated consumers satiated more slowly to identity-consistent products because of higher experience complexity (i.e., more memory nodes activated) during consumption of the chocolates. An additional alternative explanation is that the identity activation prime resulted in a more strongly-held attitude toward the stimuli, and the strongly-held attitude may be more resistant to change over time. Study 3 rules out complexity and attitude strength as explanations and provides direct process evidence for our proposed cognitive dissonance mechanism. We borrow a method from the dissonance-reduction literature to show that allowing participants to misattribute dissonance to an external source unrelated to the self ameliorates decreased satiation because participants no longer attribute their experienced discomfort to their inconsistent behavior (Zanna and Cooper 1974; Zhou et al. 2009). Misattribution affects dissonance but should not affect the complexity of memory associations or attitude strength. Such a result would both rule out those alternative explanations.

STUDY 3

In study 3 we used a prime and a misattribution paradigm to test the proposed cognitive dissonance mechanism. Previous research has shown that when individuals misattribute dissonance to an external source, the motivation to correct dissonance-causing behavior is eliminated because consumers no longer attribute their experienced discomfort to their inconsistent behavior (Zanna and Cooper 1974; Zhou et al. 2009). Thus, study 3 provides an

external source to which participants can misattribute their discomfort. All participants completed the study on a computer screen on which the background became gray; half were told that the color gray was known to cause tension and the other half learned that the color gray enhances reading comprehension. If dissonance underlies the moderating effect of identity on satiation, then participants who have the opportunity to misattribute potential dissonance to the background (i.e., those who learned the gray background causes tension) will exhibit less of the slowdown in satiation when identity is activated.

Study 3 also rules out the alternative explanations that the relative complexity of identity-relevant experiences and/or attitude strength are driving the moderating effect of identity relevance on satiation that we found in prior studies. Neither complexity nor attitude strength can explain why the opportunity to misattribute dissonance would be a moderator. Finally, to increase the generalizability of the findings, study 3 utilizes another identity, the American identity, and uses a diverse national sample of participants instead of college students.

Procedure

Four hundred thirty-nine United States residents who were native English speakers from Amazon Mechanical Turk participated in this study for \$1.50 compensation. American (i.e., United States) identity was the focal identity and the product was a painting. Participants rated enjoyment four times during a painting viewing task, making trial a within-subject factor.

Satiation domain (identity vs. non-identity) was manipulated between-subjects using random assignment. Participants who were assigned to the identity domain condition both completed an American identity prime and viewed an identity-consistent painting. The

participants who were assigned to the non-identity domain condition both completed a neutral prime and viewed an identity-neutral painting. We expected cognitive dissonance from satiation to arise in the identity domain condition but not in the non-identity domain condition.

Misattribution opportunity (present vs. absent) was also manipulated between-subjects. We expected the misattribution opportunity to interact with the identity variable: Misattribution would affect adaptation in the identity-domain condition, accelerating adaptation in that condition (versus the identity-domain, misattribution absent condition) because the dissonance underlying slowed adaptation would be attributed to the background, not to satiation.

When participants began the online survey, they first answered basic demographic questions and indicated which country they considered to be their home country; those who did not indicate the United States as their home country were prevented from continuing the survey. Then, participants in the identity domain condition answered two questions to activate their American identity: “Is being an American important to you?” (1 – Not at all, 7 – Very much so), and “Below, please take a few moments to tell us about a time you were proud to be an American and became emotional about it.” Participants in the non-identity domain condition answered: “Is being part of teams important to you?” (1 – Not at all, 7 – Very much so), and “Below, please take a few moments to tell us about a time you were proud to be part of a team at work or school and became emotional about it.” Participants had 90 seconds to respond to these questions before they were allowed to continue to the next page. Note that in prior studies, the neutral prime condition was the absence of a prime altogether. This study provides a neutral condition that is more parallel to the identity activation prime condition (instead of simply having no prime) by asking participants to discuss why something unrelated to the focal identity was important to them.

Next, participants learned that they would be viewing and rating a painting. In order to make sure participants in the identity conditions indeed linked the relevant painting to their identity, this study had a slightly more detailed method. Four paintings were shown to the participants at first. In the identity domain condition, the paintings were labeled with country names and participants read, “The paintings below are labeled by the country where the artist lives. All paintings were inspired by the home of the artist, to express their feelings and thoughts about their home and the spirit of the people who live there. You indicated earlier that you are from the United States. Please select the painting from your country.” In the non-identity domain condition, the paintings were labeled by abstractness score and the participants read, “The paintings below are labeled by degree of abstractness and vary on how abstract they are. Some are less abstract (they feature a scene that can be found in real life), and some are more abstract (they aren’t trying to make an impression of something in real life). Please select the painting that is the *least* abstract. That is, select the painting with the *lowest* abstractness score.” We intentionally made the painting labeled as from the United States the least abstract in the group of paintings (a realistic sailboat on the water during sunset). Thus, nearly every participant (96.51%) across both conditions chose the same painting (there were no statistical differences in our analyses between participants who chose the focal painting versus those who did not).

After choosing the painting, participants in the identity domain condition read, “The painting you selected was created last year by a contemporary American artist to represent the United States and to express his strong love and emotion for his country.” Participants in the non-identity domain condition read, “The painting you selected was created last year by a contemporary artist to represent ancient sailboats and to express his strong love and emotion for them.”

Next, participants learned that they would soon view and rate the painting they selected and then complete a decision-making task designed to examine the effect of color on decision-making. They learned that the background color of the survey would change from white to gray to allow the effect of the color to set in for the decision-making task while they completed the painting task. After the survey background changed to gray, participants in the misattribution opportunity present condition read, “Note: Recent experimental findings show that this color may produce a reaction of tenseness, uncertainty, and discomfort. The side effect of tension, uncertainty, and discomfort will disappear once the background changes back to white.” In the misattribution opportunity absent condition the words, “tenseness, uncertainty, and discomfort” were replaced with, “enhanced reading comprehension.”

Participants then viewed the painting they chose for 25 seconds and then responded to: “How much are you enjoying viewing this painting?” (0 – Not at all, 100 – Very much, on an unmarked sliding scale). As in prior studies, the marker’s location on the line was translated to a 100-point scale to serve as the rating of enjoyment. Participants viewed the painting for 15 seconds each a total of nine more times, rating the painting after every third viewing. Each time the painting was displayed, either “Inspiration for painting: The United States” or “Inspiration for painting: Ancient Sailboats” was displayed above depending on the satiation domain condition.

After the satiation task, participants responded to a few filler questions and the same attention check measure used in prior studies, “If you are reading this please do not answer this question.”

Results and Discussion

Nineteen participants who failed the attention check measure, “If you are reading this please do not answer this question,” and 19 who could not recall a time they became emotional about being American (prime in identity domain condition) or being part of a team (prime in non-identity domain condition) were dropped. The remaining 401 participants were used in our analyses. First, we analyzed the initial enjoyment ratings by satiation domain (1 for identity domain, -1 for non-identity domain), misattribution opportunity (1 for present, -1 for absent), and their interaction. There were no effects of satiation domain, misattribution opportunity, or their interaction on initial enjoyment (F 's < 1.4, NS).

We again used a simultaneously-estimated hierarchical model to examine satiation. Recall that this study had a within-subject variable, trial number, and two between-subjects variables, satiation domain and misattribution opportunity (two levels each). There was an effect of trial number on enjoyment ($\beta = -12.98$, $F(1, 400) = 650.02$, $p < .001$, $\eta^2 = .62$) indicating significant satiation overall. There were no main effects or interaction effects of satiation domain or misattribution opportunity on enjoyment (F 's < 1.8, NS).

Most importantly, the focal interaction was significant: There was a three-way interaction between trial, satiation domain, and misattribution opportunity on enjoyment ($F(1, 400) = 4.00$, $p < .05$, $\eta^2 = .01$; see table 3). We used spotlight analysis to explicate the interaction. The key test was whether participants in the identity domain condition satiated more quickly to the painting when the misattribution opportunity was present vs. absent. Indeed, this effect obtained ($\beta_{\text{misattributionpresent}} = -14.03$ vs. $\beta_{\text{misattributionabsent}} = -10.89$; $F(1, 400) = 4.84$, $p < .05$, $\eta^2 = .01$). As expected, misattribution opportunity had no effect on satiation in the non-identity domain

condition ($\beta_{\text{misattributionpresent}} = -12.96$ vs. $\beta_{\text{misattributionabsent}} = -13.42$; $F(1, 400) = .10$, NS). In the misattribution opportunity absent condition, we obtained effects consistent with prior studies: Participants in the identity domain condition satiated marginally less than participants in the non-identity domain condition ($\beta_{\text{identitydomain}} = -10.96$ vs. $\beta_{\text{non-identitydomain}} = -13.42$; $F(1, 400) = 2.93$, $p = .09$, $\eta^2 = .01$). Participants in the misattribution opportunity present condition, on the other hand, satiated at the same rate whether they were in the identity domain condition or the non-identity domain condition ($\beta_{\text{identitydomain}} = -14.57$ vs. $\beta_{\text{non-identitydomain}} = -12.96$; $F(1, 400) = 1.24$, NS). Thus, presenting participants with an opportunity to misattribute their tension to an external source eliminated the identity effects seen in the misattribution opportunity absent condition (and seen in our prior studies).

 Insert table 3 about here.

Summary

Study 3 provides experimental evidence to support our proposed dissonance explanation with a new identity and diverse sample population. Giving participants the opportunity to misattribute experienced dissonance to an external, non-identity related source eliminated the differences in satiation seen in identity conditions in study 3 and in our prior studies. We posit that participants with activated identities who were resisting satiation to the identity-consistent painting were able to satiate freely after they could easily dismiss any dissonance arising from satiation conflicting with their identity.

These findings also rule out the alternative explanation that identity-activated consumers satiated more slowly to identity-consistent products because of higher experience complexity or attitude strength. If the process driving our effects is not related to identity motivations, then a dissonance misattribution opportunity should not have eliminated the identity effects as it did.

GENERAL DISCUSSION

Satiation is often cited as a barrier to prolonged happiness (Brickman and Campbell 1971; Lyubomirsky, Sheldon, and Schkade 2005). The present findings suggest that consumption related to the self may offer an inherent protection against such a barrier. For identity-consistent products, identity motivations and satiation work in opposition. It stands to reason that a consumer with a particular active identity would seek to maintain that identity by consuming an identity-consistent product often, such as by consuming goods with school mascots on them or by wearing clothing with identity-consistent symbols or labels (Berger and Ward 2010; Birdwell 1968; Gao et al. 2008; Ward and Broniarczyk 2011). Ironically, using identity-consistent products more often results in a higher likelihood for satiation and, thus, dissonance.

We provide evidence for our predictions, as well as for the underlying theoretical process, across a series of three studies. Study 1 first establishes our core effect that satiation from repeatedly consuming a product will slow when that product is made consistent with a salient self-identity. Specifically, undergraduates primed to see their university as core to their self-concept satiated less quickly on a painting linked to their university, compared with the same painting not linked, or undergraduates from the same population not primed with this self-concept.

Study 2 replicated this finding in the domain of food, using the school colors of milk chocolate candies to make the product consistent with the university student identity. This study is notable because satiation with food presumably involves a particularly complicated combination of physiological processes and sensory feedback, yet the effects still obtain. Study 2 also extended the effects to the subsequent behavior of the amount consumed, another especially consequential outcome of satiation. Finally, study 2 provided evidence to implicate dissonance as an underlying mechanism. The degree of accessible and active self-associations respondents had with the university mediated the effect of identity on satiation. This finding presumably occurred because only those people with a greater number (and, by implication, overall strength) of associations between themselves and the product would experience a large degree of dissonance during the consumption experience.

Study 3 concluded by extending the findings to another type of identity (country affiliation) and further demonstrating dissonance as an underlying driver. A process testing technique from the dissonance literature (Zanna and Cooper 1974; Zhou et al. 2009) moderated the relationship between satiation and self-identity by providing an easy way to attribute any felt dissonance to an unrelated source (the background color on a computer screen). This result, as well as the full pattern of the findings, is easily accounted for by our proposed theory and not by several alternative theories (e.g., demand effects or attitude persistence).

This research can be expanded to potentially explain some of the current work on happiness. For example, consumers perceive experiences to be more relevant to their self-concept, overall, than the ownership of material products (Gilovich and Carter 2012). If consumers more easily find associations between their self-concept and experience goods, they may also encounter more dissonance when satiating to experiences. The connection between

identity and experiences may be one reason why consumers stay satisfied with positive experiences (vs. material products) for a longer period of time (Nicolao et al. 2009). Likewise, some people develop affinities that seem to defy satiation over years. For example, Star Trek “Trekkies,” the Grateful Dead “Deadheads,” football fanatics, and foodies, among others, seem to keep their affinities despite what may seem like consumption repeated *ad nauseum*, and as they do so integrate the affinities into their sense of self. Our theory can explain such enduring enjoyment as satiation would likely conflict with each of these strongly held identities.

Therefore, as a result, people resist a decline in enjoyment when the consumption relates to this core identity and, perhaps, through this resistance even further strengthen their identity links with the product.

Although identity affected product enjoyment over time in these studies, it is important to note that the effects of the identity manipulations were not apparent in the initial ratings. Thus, if researchers were to examine the influence of active identity on consumers’ enjoyment with products by simply measuring initial product enjoyment, they may conclude that there are no effects. Our finding that satiation is sensitive to identity, even though initial enjoyment may not always be, suggests that studying changes in enjoyment over time (i.e., slope effects) may be an underexplored method of detecting the effects of identity on consumer behavior. It also suggests that identity may have more influence on consumer behavior than researchers have realized. In addition, identity in the actual marketplace may exert an even stronger influence on satiation than it does in laboratory experiments.

There are many fruitful expansions of these results for further study. For instance, how might reduced satiation to identity-consistent products help consumers build and maintain identities? Consumers who enjoy an identity-consistent product for a longer period of time, and thus consume more of that product, may in turn end up strengthening that identity through the development of expertise. This increased expertise and identity-relevance may lead to even less satiation, thus creating a self-reinforcing process. Our findings would suggest that it may be critical to make this identity salient throughout the formation of expertise in order for the effects to obtain, but identity is often naturally made salient to the consumer, especially if the identities are social. Future research may explore the relationship between identity, satiation, and the development of expertise.

Our theory, and specifically the results in study 2, suggests that an important factor driving satiation is the number of associations the consumer has between the self and the product. This finding indicates that one could better resist satiation and better enjoy increased consumption by explicitly developing a deep and broad array of such associations. Likewise, firms could fight satiation with their products by similarly encouraging such associations through advertising, user groups, social media, popular spokespersons, etc. More generally, researchers could fruitfully explore other ways to help consumers resist satiation. Some of these approaches will undoubtedly relate to consumer self-concept, but many others can leverage the creation of dissonance in the more general sense. Whenever the reduced enjoyment inherent to satiation creates a conflict, we would expect that the dissonance this produces should slow the rate of satiation.

Although we used social identities in this research because they made sense for our methodology and hypotheses, social identities are not the only identities of interest to consumer

research. Follow-ups to our work might explore other types of identities, including individualistic traits such as “intelligent” or “classy” (Swann and Bosson 2010). Given such traits may be more unique and/or core to the self than widely-held social identities, they could result in even larger degrees of threat from satiation than what we have found. Future research can also explore weakly-held identities that may be susceptible to change once satiation starts; in this case, the dissonance that satiation induces might be resolved by further weakening the identity instead of by resisting satiation.

In addition, it may be useful to explore satiation to products that embody undesirable identities or identities that are inconsistent with a consumer’s self-concept (Dunn, White, and Dahl 2012; White and Dahl 2006, 2007). Consumers may express accelerated satiation to a product that embodies an undesired identity because expressing prolonged liking for such a product may be a threat to their self-concept. These findings could also have implications for public policy. For example, do at-risk youth experience boredom with school because staying interested in classroom material threatens their identity? If so, educators may be able to frame class material so that it becomes more aligned with students’ strongly-held identities, with the result of greater enduring interest in education from students.

Finally, future research could explore how public consumption contexts influence satiation to identity-relevant products. A public context may make consumers more conscious of their satiation rate, potentially heightening their resistance to satiation. By making satiation more overt, such a research stream could begin to understand whether the reduced satiation we observed in our paper is the result of a conscious vs. unconscious process. In addition, research on the relationship between self-identity and satiation could be used to better understand product satisfaction over time. We have shown that an active self-identity can provide protection against

satiation, but there is more to be explored, such as whether variables that have traditionally been shown to influence product satisfaction, such as the company-consumer relationship and brand loyalty, interact with self-identity to influence satiation rates.

DATA COLLECTION INFORMATION

The first author collected the data for studies 1 and 3 with assistance from research assistants at the McCombs Behavioral Lab at the University of Texas and the Zicklin School of Business at Baruch College. Data for study 1 was collected in the spring of 2011, the autumn of 2012, and the spring of 2014. Data for study 3 was collected in the spring of 2015. Study 2 was collected both by the first author at the McCombs Behavioral Lab at the University of Texas in the autumn of 2011, and by the third author at the Carlson School of Management Behavioral Lab at the University of Minnesota in the spring of 2013. Both authors received assistance in data collection for study 2 from research assistants in the behavioral labs. All three studies were jointly analyzed by the first and second authors, and the data files and analyses were provided to the third author for review.

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Table 1
Satiation to Painting by Condition in Study 1

Identity Activation	Identity Relevance	T1 Enjoyment Mean	T2 Enjoyment Mean	T3 Enjoyment Mean	Slope Coefficient
Identity Activated	Identity-Neutral Painting	54.37	39.92	25.55	-14.41 ^a
	Identity-Consistent Painting	50.01	39.02	27.47	-11.26 ^{ab}
Identity Not Activated	Identity-Neutral Painting	53.37	41.4	28.7	-12.33
	Identity-Consistent Painting	52.24	38.24	25.24	-13.50 ^b

Coefficients sharing superscripts are significantly different from each other ($p < .05$).

Table 2
 Self-Identity Association, Satiation, and Quantity Consumed
 by Identity Activation in Study 2

Identity Activation	Number of Self-Identity Associations	T1 Enjoyment Mean	T2 Enjoyment Mean	Slope Coefficient of Enjoyment	Grams of Chocolate Consumed
Identity Not Activated	5.33*	81.88	71.16	-10.92 ^a	22.72 ^b
Identity Activated	6.04*	78.48	73.39	-4.91 ^a	28.75 ^b

Numbers sharing superscripts are significantly different from each other ($p < .05$).
 Numbers marked with * are marginally different from each other ($p = .08$).

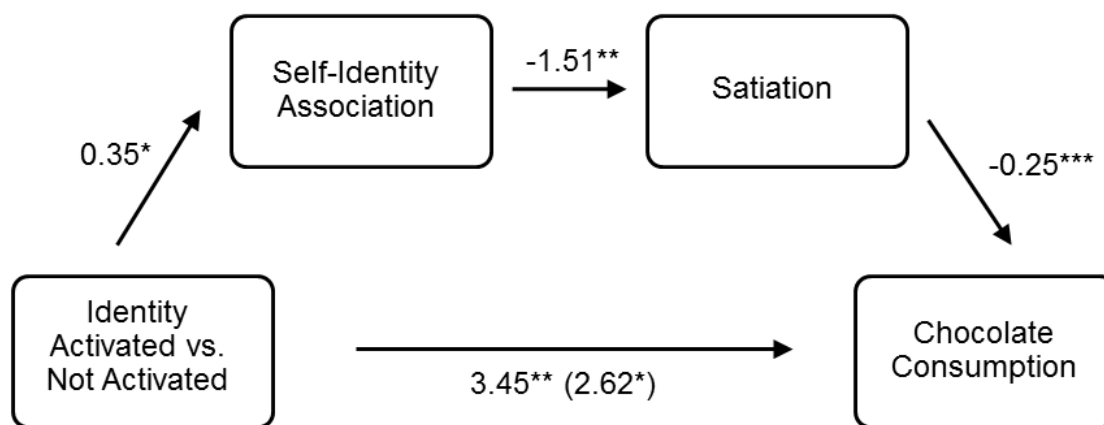
Table 3
Satiating to Painting by Condition in Study 3

Satiating Domain	Misattribution Opportunity	T1 Enjoyment Mean	T2 Enjoyment Mean	T3 Enjoyment Mean	T4 Enjoyment Mean	Slope Coefficient
Non-Identity Domain	Absent	77.39	65.32	49.29	34.14	-13.72 *
	Present	74.41	65.06	49.48	34.86	-12.84
Identity Domain	Absent	72.09	63.49	49.07	33.68	-10.81 ^{a*}
	Present	75.68	67.43	55.13	43.23	-14.03 ^a

Coefficients sharing superscripts are significantly different from each other ($p < .05$).

Coefficients marked with * are marginally different from each other ($p < .10$).

FIGURE 1
SELF-IDENTITY LINK MEDIATES RELATIONSHIP BETWEEN ID
ACTIVATION, SATIATION, AND CONSUMPTION IN STUDY 2



* $p < .10$

** $p < .05$

*** $p < .01$

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