Extending the Mind Online:
How Digital Channels Reduce Luxury Brand Anxiety

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Abstract

Luxury brands often try to maintain a high degree of distance from consumers in order to manage perceptions of high status. As the modern marketplace rapidly evolves, consumers increasingly rely on digital channels to interact with brands and shop for products. Thus, it is necessary to understand how digital channels influence the relationship between consumers and luxury brands. Our findings demonstrate that when consumers access luxury brands through digital channels (vs. physical channels), consumers feel less brand anxiety because the distance between consumers and luxury brands narrows. These effects on brand anxiety do not occur for non-luxury brands. Building on theory of the extended mind, we posit the degree to which consumers offload cognitive functions to digital devices influences brand anxiety due to how close or distant consumers feel to the brands they interact with via this channel. This work has broad implications for managing and studying consumer-brand relationships within an increasingly digital marketplace.

Keywords: luxury brands, digital marketing, physical vs. digital channel, cognitive offloading, consumer technology, distance

INTRODUCTION

As the modern consumer becomes more digitally-dependent, people are increasingly visiting retailers and interacting with brands through their personal devices. Consumers are able to frictionlessly open apps and browsers where they can access retailers and purchase goods immediately. These digital channels (reached via present-day smartphones, tablets, and computers) foster a more intimate and tightening connection with consumers, particularly as people offload more of themselves onto their devices. In fact, in many ways one's personal devices can be seen not merely as physical possessions but rather as a genuine extension of the self (Belk, 1988, 2013; Hoffman & Novak, 2017). In the current work, we argue that the changing relationships between consumers and these brand channels (or devices) have important implications for how firms must manage the relationships between consumers and brands themselves.

Consumer-brand relationships are often at the center of marketing efforts aimed at crafting and maintaining a brand image, and they are a particularly important focus of luxury brands that seek to foster and protect their aspirational brand allure. Rich qualitative work examining these consumer-brand relationships has revealed that luxury brands often manage status hierarchies by making consumers take on the position of class subjects where they understand their role within a social hierarchy (Dion & Borraz, 2017). Correspondingly, rejection during service encounters can actually increase desire for luxury brands (M. K. Ward & Dahl, 2014) and using luxury products on ordinary rather than special occasions can make consumers feel inauthentic (Goor et al., 2019). Indeed, this growing body of evidence suggests that luxury brands arouse appeal by instilling and maintaining an aspirational gap between consumer and brand, in contrast to ordinary (non-luxury) brands that usually seek to facilitate closer relationships between consumer and brand. Yet, as modern consumers increasingly rely on digital technologies and as luxury brands increasingly adopt digital technologies (Deloitte, 2019; Xu & Mehta, 2022), little is currently known about how the changing use of digital versus physical channels may influence consumer relationships with luxury brands. We seek to address this gap in knowledge.

Existing research examining differences in the use of digital versus physical channels has primarily focused on the strategic marketing issues that arise when consumers can interact with brands via multiple channels. For instance, the introduction of online channels can impact strategic variables such as firm valuation (Geyskens et al., 2002), customer profitability (Venkatesan et al., 2007), and customer migration between channels (Ansari et al., 2008). Digital and physical channels can also complement one another, and research has identified phenomena such as showrooming, webrooming, and research-shopping where channels may play different roles at different points within the consumer's shopping journey (Rapp et al., 2015; Valentini et al., 2011; Verhoef et al., 2007, 2015). A recently emerging literature in consumer behavior has also begun to explore some of the psychological aspects associated with the use of digital and physical interfaces. For example, using mobile interfaces can lead to greater affective prominence, resulting in the selection of more hedonic food options (Shen et al., 2016) and more emotional user-generated content (Melumad et al., 2019; Ransbotham et al., 2019). Additional research also suggests that physical goods are actually valued more than comparable digital goods, due to the fact that physical goods are able to garner a stronger association with the self (Atasoy & Morewedge, 2018).

Our work adds to this literature by describing how consumers may conceptualize digital and physical channels differently, presenting unique implications for how consumer relationships with luxury brands must be managed. Specifically, we suggest that in contrast to digital and physical *goods*, digital *channels* are instead often able to forge relationships with brands that are closer in distance to the self. Consequently, we suggest that when shopping for luxury products via digital channels, different digital devices may influence consumers evaluations of luxury brands. Building on theory related to the "extended mind" (Clark & Chalmers, 1998), we posit that when consumers repeatedly offload memories and cognitive functions onto their personal devices, they engage in a form of active externalism that renders the device as being more closely associated with the self. Consequently, using such devices to interact with luxury brands reduces distance to the brand and thus, brand anxiety. We believe that examining consumer conceptualizations of digital channels as an extension of the self introduces a theoretically important perspective that has wide implications as we move into a more digitally-centric marketplace, though we do also acknowledge that there are several important factors that differ between digital and physical retail channels.

We present a series of studies that examine how consumer relationships with luxury brands differ in digital versus physical channels. We first use text analysis (study 1) to explore how luxury (vs. non-luxury) brands influence brand anxiety. We then document the key finding that luxury brands are less potent in their ability to instill brand anxiety in consumers via digital rather than physical channels, after both real store visits in the field (study 2A) and also within a controlled laboratory environment (study 2B). We next explore the factors that weaken luxury brands online through moderation and mediation (study 3). Study 4 examines how the relationship between consumers and different digital devices influences brand anxiety when consumers shop for luxury products.

CONCEPTUAL BACKGROUND

Luxury brands and brand anxiety

Luxury brands have captivated people for centuries. From as far back as the 11th century BCE where ancient Chinese imperial robes were adorned with the Twelve Ornaments to the present day where handbags are emblazoned with Hermès and Gucci brand names, product markings have throughout time served as symbols conveying status, power, and prestige (Bourdieu, 1979; Veblen, 1899). Consumer desire for luxury brands can be driven by perceptions of higher quality (Garvey et al., 2016) as well as by strong self-enhancement motives such as raising one's self-esteem (Rucker & Galinsky, 2008, 2009; Rustagi & Shrum, 2019). Luxury brands can signal important information to others. Evidence suggests that lower-status consumers tend to prefer more clear and conspicuous luxury brand signals (Han et al., 2010), even though they may result in negative inferences made by observers (Cannon & Rucker, 2019;

Ferraro et al., 2013). Higher-status consumers instead often make use of more inconspicuous luxury brand signals (Berger & Ward, 2010), are more likely to fashion nonconforming items (Bellezza et al., 2014), and mix their consumption with low-brow products (Bellezza & Berger, 2019). While luxury brands can arouse aspirations, prompting consumers to yearn for goods that promise to deliver the finest craftsmanship, lifestyle, and esteem, luxury brands can also elicit some negative affective responses from consumers, such as anxiety. These feelings of anxiety are important to consumer psychologists since anxiety can act as a catalyst for compensatory consumption behavior, wherein individuals seek to alleviate feelings of inadequacy or insecurity by acquiring luxury branded products, in turn reinforcing their social standing and self-worth.

In fact, through extensive ethnographic fieldwork, Dion and Borraz (2017) find that luxury brands calibrate consumer interactions to shape class subjectivities—consumers are made to understand their position in a social hierarchy such that they may feel illegitimate entering a store, which can evoke brand anxiety but simultaneously stimulate consumer interest, particularly for new luxury customers. Experimental evidence also supports this notion. For example, Ward and Dahl (2014) show that creating distance between luxury brands and consumers through service encounter rejections actually enhances luxury brand appeal. In addition, luxury brands elicit discomfort when used in less than the most splendid of occasions (Goor et al., 2019), they lose appeal by being closer to their users (Fuchs et al., 2013), and they are protected from brand immigrants who are seen as threats to the brand image (Bellezza & Keinan, 2014). Thus, as brand anxiety holds a critical function in how luxury brands manage relationships with consumers, in this work we first explore how the changing nature of brand interactions within the modern marketplace may influence luxury brand anxiety.

Luxury brand and digital channels

Consumer-brand distance

Throughout most of human history, brand interactions have taken place through physical channels. It is only within the recent past that new digital channels have transformed how people shop for goods. While in June 2000, only one in five consumers had ever purchased products online, by 2016, that statistic had inverted, where only one in five consumers had *not* purchased products through digital channels (Pew Research Center, 2016). In this period of marketplace transformation, luxury brands have toyed with various new strategies to manage relationships with consumers, from Gucci's collaboration with Instagram artists, to Burberry's online customization portal, and even to Louis Vuitton's digital assistant chatbots (Deloitte, 2019). Digital channels certainly present novel opportunities for interactions with customers. However, little is known about how and why these channels could systematically reshape consumer relationships with luxury brands.

While existing consumer behavior research offers limited guidance, a burgeoning literature has started to explore and identify some of the phenomena associated with digital versus physical domains. Evidence suggests that digital goods are generally valued less than physical goods (Atasoy & Morewedge, 2018). Digital interfaces can lead to the selection of more hedonic items

(Shen et al., 2016), greater sharing of emotional content (Melumad et al., 2019; Ransbotham et al., 2019), and increased valuation of goods when using touch interfaces (Brasel & Gips, 2014). In addition, digital devices such as smartphones can both drain attentional resources (A. F. Ward et al., 2017) and provide palliative functions (Melumad et al., 2019).

The effect of digital domains on luxury brands differs greatly from non-luxury brands, requiring its own line of inquiry. Nearly 80% of luxury purchases are influenced digitally, but only 8% of luxury goods are purchased online (Achille et al., 2018). One of the reasons for this phenomenon could be hesitation from luxury brands. For example, Versace did not have its own official website until 2005. Research has referenced this as the "Internet dilemma" that luxury companies face in the digital age. The Internet creates new opportunities for luxury brand companies to build brand equity (Stephen, 2020) or communicate with consumers (Azemi et al., 2022), while also diluting luxury brands' attractiveness since the sense of exclusivity decreases due to the democracy and accessibility of the Internet (Asmussen et al., 2013; Hennigs et al., 2012). Some researchers suggest using the Internet just to communicate with consumers (Holmqvist et al., 2020), but not to distribute the product (Hennigs et al., 2012). However, online shopping has become more and more widespread and demands for luxury goods increased (Chadha & Husband, 2010). Specifically, a report projects that, by 2025, one-fifth of the luxury sales will be online (Achille et al., 2018). Luxury brands need to figure out a way to overcome the challenges (e.g., losing the sense of limited accessibility) that are brought by online retail (Okonkwo, 2009). Thus, it is necessary to understand how different channels (online vs.

physical) influence the relationships between consumer and luxury brands. In this research, we focus on one type of the relationship, consumer-brand distance.

Distance is considered one of the essential components of the concept of accessibility (Weber, 2003) and one of the signals of status (Bellezza, 2023). Existing research has discussed a similar concept, brand-self distance, which is defined as the "perceived distance between a brand and the self…it refers to the valence of the relationship (a close relationship being positive while a distant/far relationship being negative)". However, due to the nature of luxury brands, a distant relationship here is something that some luxury brand companies want to maintain in order to retain their position within a social hierarchy. Therefore, we probe this construct using measures of the luxury brand aspirational gap and anticipated fear of social rejection to understand how close or how distant consumers feel to the brands they interact with.

Luxury brand aspiration defined as "the individual's yearning to consume a luxury brand that has the perceived ability to signal specific extrinsic aspirational elements, namely, self-identity, achievement, self-esteem to the environment and providing social recognition" (Sarkar & Roy, 2016). It is a crucial factor for luxury brand value or emotional attachment to luxury brands (Truong et al., 2010). We theorized that digital channels may uniquely weaken this aspirational gap associated with luxury brands since digital channels facilitate closer consumer-brand interactions (see Web Appendix A for details of studies). Meanwhile, different from physical channels, digital channels involve less interpersonal communication. Consumers can easily complete the whole purchase process individually, reducing the likelihood of being rejected. Previous research has explored the effect of aspiration (Park et al., 2013) and social rejection (Khalifa & Shukla, 2017, 2021) on consumers' emotions and feelings about a brand.

As articulated above, luxury brands (and not ordinary brands) often evoke feelings of anxiety by maintaining an aspirational relationship gap between brand and consumer. However, brand interactions through digital channels may lead to a differential narrowing of the aspirational gap associated with luxury brands and less fear of social rejection. Therefore, we hypothesized that while luxury brands evoke greater brand anxiety relative to non-luxury brands within physical retail channels, digital channel interactions can attenuate this difference by interfering with the ability of luxury brands to maintain this aspirational gap and reducing consumers' fear of social rejection (see Figure 1 for theoretical model 1).

H_1: Luxury (vs. non luxury) brands evoke greater brand anxiety when the channels are physical (vs. digital) ones.

H_2: Consumer-brand distance mediates the interactive effect of brand (luxury vs. non-luxury) and channel (digital vs. physical) on brand anxiety.

Consumer-digital device relationship

As we mentioned above, even though digital channels may cause luxury brands to lose their exclusive status, the inevitable prevalence of online shopping "forces" luxury brands to adopt digital channels. However, digital channels involve different types of digital devices (e.g., smartphones, personal computers, or tablets). In this research, we argue that the relationship between consumers and different digital devices may influence brand anxiety. Consumers often conceptualize digital channels as being closer, resulting in unique implications for consumer relationships with luxury brands. This theoretical proposition builds on the theory of the "extended mind" (Clark & Chalmers, 1998), a concept from the philosophy literature which suggests that the mind, and self, extend beyond the skull and brain to include objects within the external environment. This idea is related to qualitative work in consumer behavior on the extended self (Belk, 1988, 2013; Hoffman & Novak, 2017). Specifically, when people repeatedly rely upon external objects or devices to perform cognitive operations, they begin to offload functions traditionally accomplished by the brain onto the external device, creating a coupled system between the self and artifact. We refer to this tendency to store memories and offload cognitive functions onto a device as "cognitive offloading" (similar to Risko & Gilbert, 2016). Previous research has studied cognitive offloading and the extended digital self (Hamilton & Yao, 2018). We build on these concepts in the current work to study consumer-device relationships.

For example, consider the recurrent task of selecting a restaurant for dinner; rather than engaging in the effortful cognitive operations that involve searching memory for restaurants you've visited in the past, dishes you've ordered, and prices you've paid, it can be more efficient to open up an app or browser on a personal device to access this information more quickly and reliably. We suggest that this process of bypassing one's own internal cognitive processes to instead rely upon an external artifact reflects cognitive offloading, where repeated offloading (i.e., higher level of offloading) can increase the degree to which the device is coupled to and integrated with the self (see Web Appendix B for details of studies). Accordingly, brand interactions through a digital device, which is with a higher level of cognitive offloading, can facilitate a higher level of brand connection and reshape consumers' feelings, in our case, the brand anxiety about luxury brands (see Figure 2 for theoretical model 2).

H_3: When shopping for luxury brands, using digital devices, which have a closer relationship (i.e., a higher level of cognitive offloading) with consumers evokes less brand anxiety than using a digital device with a further relationship (i.e., lower level of cognitive offloading).

OVERVIEW OF STUDIES

We next describe a set of experiments that aim to understand how interactions within digital versus physical channels can reshape consumer relationships with luxury brands. We first present a natural language processing analysis (study 1) that provides an initial exploration into the differences in brand anxiety associated with luxury and non-luxury brands. Study 2 then documents effects on brand anxiety after visits to luxury and non-luxury stores in the field (study 2A) and within a controlled lab environment (study 2B). To further understand how digital channels render luxury brands to be less capable of evoking brand anxiety, studies 3 focus on characterizing intervening processes through moderation and mediation. In study 4, we explore how consumer-digital device relationship influence luxury brand anxiety.

STUDY 1 LUXURY BRAND REPRESENTATIONS IN TEXT

To provide an initial exploration into the differences in brand anxiety associated with luxury and non-luxury brands, we conducted a text analysis study applying natural language processing methods (Berger et al., 2020). Our analysis relies on a text corpus of roughly 100 billion words drawn from Google News articles; neural networks that were trained on this text corpus generate numerical vector representations of every word, i.e., word2vec word embeddings (Mikolov, Chen, et al., 2013; Mikolov, Sutskever, et al., 2013). Put simply, this algorithm creates 300-dimensional vector representations of each word, including brand names, such that concepts that are more similar to one another are more closely aligned within the vector space. Applying these word embeddings, we evaluated whether luxury or non-luxury brands were more closely associated with feelings of anxiety.

Procedure

We employed word2vec word embeddings pre-trained on roughly 100 billion words from Google News articles (Mikolov, Chen, et al., 2013; Mikolov, Sutskever, et al., 2013). This algorithm applies two kinds of models: continuous bag-of-words (CBOW) and continuous skip-gram. CBOW predicts target words based on its surrounding context words, whereas continuous skip-gram uses target words to predict the context words. Using the algorithm, neural networks are trained on a text corpus producing multidimensional vector representations of words that correspond to weights on nodes within the neural network after training. In order to evaluate the degree to which 300-dimensional vector representations of luxury and non-luxury brands were aligned with feelings of anxiety, we adopted a Distributed Dictionary Representations (DDR) approach (Garten et al., 2018) in defining the anxiety construct. Thus, we averaged embeddings across elements of the anxiety dictionary. For each brand, we used cosine similarity to determine the degree of alignment between the brand embedding and the anxiety embedding. Subsequently, as reported within the main text, we compared average anxiety alignment between luxury and non-luxury brands. To do so, we created dictionaries of twenty luxury brands, twenty non-luxury brands, and ten anxiety-related word stems shown in the Web Appendix C. The degree of alignment between the vector representations of each construct is provided by the cosine similarity.

Results

Using cosine similarity to determine how close brand representations were to anxiety, our findings revealed that luxury brands displayed significantly greater alignment with anxiety (M = .0815) relative to non-luxury brands (M = .0326, $t(38)$= 4.77, p < .001, d = 1.55). Please see the Web Appendix C for additional details. These findings suggest that the ways in which luxury brands are discussed in media evoke greater brand anxiety associations compared to discussions of non-luxury brands.

STUDY 2

Study 2 presents two experiments which assess the proposition that luxury brands are less able to evoke brand anxiety through digital rather than physical channels. To evaluate this idea, Study 2A first reports on a field study conducted in China, the fastest growing market for new luxury brand consumers (McKinsey & Company, 2019), in which individuals evaluated their relationships with brands after real store visits. Complementing these findings, study 2B was conducted with a controlled lab experiment with consumers in the United States.

Study 2A

Participants and procedure

We recruited eighty-three business students (58 women, age $M = 23.3$, $SD = 3.09$) residing in a Tier 1 city in China. Participants completed the study in exchange for monetary payment. We employed a 2 (brand: luxury vs. non-luxury, within-subjects) × 2 (channel: digital vs. physical, between-subjects) mixed design.

In this study, participants were informed that they would be making two store visits and evaluating their experiences. Each individual was randomly assigned to either make visits to two different physical retail stores or two different digital retail stores, consisting of one luxury brand and one non-luxury brand in counterbalanced order. After each visit, participants completed a four-item brand anxiety scale (where 1 indicated greatest disagreement and 7 indicated greatest agreement; $\alpha = .94$). These items were originally developed in English and were translated into

Chinese with the aid of two research associates. Please see the web appendix for details on study materials.

All participants selected one luxury brand and one non-luxury brand store that they planned to visit, with options limited to brands that were located within the same shopping center. Luxury brands included Burberry, Dior, Gucci, Hermès, Louis Vuitton, and Prada; non-luxury brands included Abercrombie & Fitch, Gap, H&M, Mango, Uniqlo, and Zara. Participants in the physical channel condition were asked to visit each of the two store locations to browse for products, and participants in the digital channel condition were instead asked to visit each of the two online store locations to browse for products on their mobile phones. All participants completed the brand anxiety scale after each store visit and provided demographic information at the end of the study.

Results and discussion

Brand anxiety

We applied a mixed-effects model to evaluate how digital and physical channels influenced consumers' experience of brand anxiety with luxury and non-luxury brands. Our findings revealed significant main effects of both brand ($t(81) = 10.3$, $p < .001$) and channel ($t(81) = 3.88$, $p < .001$) on brand anxiety. Overall, luxury brands evoked greater anxiety than non-luxury brands, and digital channels evoked lower levels of anxiety than physical channels. Furthermore, and importantly in line with our predictions, we also observed a significant interaction effect between brand and channel ($t(81) = 8.04$, $p < .001$).

These results indicated that within physical channels, consumers experienced considerably greater levels of brand anxiety with luxury brands ($M = 4.95$, $SD = 1.44$) relative to non-luxury brands ($M = 1.63$, $SD = 1.03$, $t(81) = 12.8$, $p < .001$, $d = 2.69$). However, within the digital channel, luxury brands ($M = 2.58$, $SD = 1.56$) were no different than non-luxury brands ($M = 2.16$, $SD = 1.33$, $t(81) = 1.64$, $p = .105$, $d = .29$) in their ability to evoke brand anxiety. Indeed, nonparametric Wilcoxon tests against the scale midpoint revealed that mean anxiety levels were significantly above the midpoint when participants visited luxury brands through physical channels but were below the midpoint for all other brand and channel combinations (ps < .001).

Study 2A shows that the relationships consumers form with luxury brands are markedly different when interacting with brands through digital rather than physical retail channels. These effects on brand anxiety were observed within a key demographic of Chinese consumers that are of growing importance to luxury brands and after actual visits to each brand's digital and physical retail store presence. To further isolate this effect, study 2B builds on these findings by employing a controlled lab study in which we hold products constant across conditions.

Study 2B

Participants and procedure

One hundred ninety-five business students (82 women, age $M = 23.1$, $SD = 5.03$) from a U.S. university participated in this study. We employed a 2 (brand: luxury vs. non-luxury) × 2 (channel: digital vs. physical) between-subjects design.

All participants were instructed to consider shopping for a new pair of sunglasses. In this study we held the product and price of the of item constant across conditions, such that all participants were informed that they were shopping for a pair of Prada-branded sunglasses that cost $340. We manipulated whether the retail channel from which participants were purchasing the item was a digital or physical channel (i.e., an online store vs. retail store) as well as whether the retailer was luxury or non-luxury branded (i.e., Prada vs. Target). After showing participants one of the four stores at random, we subsequently asked people to share the extent to which they would experience anxiety during the shopping experience. Brand anxiety was measured on a four-item scale ($\alpha = .91$). Last, participants answered demographic questions. Please see the web appendix for additional details.

Results and discussion

Brand anxiety

We conducted a two-way ANOVA to evaluate how interactions with luxury brands through the digital and physical retail channels influenced brand anxiety. Our findings again revealed significant main effects of brand ($F(3, 191) = 82.2$, $p < .001$) and channel ($F(3, 191) = 10.8$, $p = .001$). Luxury brands generally evoked greater anxiety and digital channels evoked lesser anxiety relative to their counterparts, regardless of the fact that all participants were shopping for an identical luxury-branded product. Crucially, we once again observed the predicted interactive effect of brand and channel on brand anxiety ($F(3, 191) = 13.23$, $p < .001$).

These findings suggest that within the physical channel, the luxury retailer ($M = 4.56$, $SD = 1.54$) evoked substantially greater levels of anxiety relative to the non-luxury retailer ($M = 1.92$, $SD = 1.04$, $F(3, 191) = 80.3$, $p < .001$, $d = 2.05$). By contrast, the digital channel attenuated the brand anxiety difference between luxury ($M = 3.12$, $SD = 1.88$) and non-luxury ($M = 1.99$, $SD = 1.19$) brands, though the difference still persisted ($F(3, 191) = 14.8$, $p < .001$, $d = .76$). Notably, nonparametric Wilcoxon tests against the scale midpoint again revealed that mean brand anxiety levels were above the midpoint only when participants shopped with a luxury retailer through the physical channel ($W = 240$, $p = .012$). Brand anxiety was significantly below the midpoint for all other brand and channel combinations (ps $< .001$).

Together, studies 2A and 2B establish that luxury brands foster appreciably different relationships with consumers through physical channels compared to digital retail channels. These differences emerged within two different samples, in within- and between-subjects designs, and when all participants were shopping for an identical luxury product. In study 3, we next aim to understand how consumers conceptualize digital and physical channels differently in order to better characterize the consequences for consumer-brand distances.

STUDY 3

Participants and procedure

Two hundred ninety-five participants (181 women, age $M = 37.8$, $SD = 12.6$) residing in the U.S. were recruited for the study via Amazon Mechanical Turk. We employed a 2 (brand: luxury vs. non-luxury) × 2 (channel: digital vs. physical) between-subjects design.

In this study, all participants were asked to consider shopping for a new belt. We manipulated whether participants were shopping at a luxury or non-luxury branded store (i.e., Burberry vs. H&M). Furthermore, we also manipulated whether participants were purchasing the item through the digital or physical channel (i.e., online or offline store). Thus, participants were shown one of four potential stores. Subsequently, we asked participants to evaluate what their shopping experience would be like. As in prior studies, we measured brand anxiety using a four-item scale ($\alpha = .95$).

In addition, we also measured constructs to probe the mediational processes underlying the interactive effect of brand and channel on brand anxiety. Specifically, we focus on the consumer-brand distances by examining the aspirational gap and fear of social rejection. First, because luxury brands (and not ordinary brands) may evoke feelings of anxiety due to the aspirational gap they maintain with consumers, we theorized that digital channels may uniquely weaken this aspirational gap associated with luxury brands since digital channels facilitate closer consumer-brand interactions. Thus, we measured the aspirational gap associated with the brand using a seven-item scale (e.g., “people would feel that the brand reflects their aspirations,” “people would feel that the brand reflects their dreams," 1 = strongly disagree, 7 = strongly agree, α = .89).

It is also clear that digital and physical channels differ on several dimensions, including for example the potentially greater fear of social rejection consumers may experience through physical channels. Therefore, we endeavored to evaluate these social factors as an additional mechanism that may simultaneously contribute to effects on brand anxiety. We measured fear of social rejection using a four-item scale (e.g., "I would be afraid of being socially rejected while at the store," "I would be afraid of being ignored while at the store," 1 = strongly disagree, 7 = strongly agree, $\alpha = .97$). Please see the web appendix for additional details.

Results and discussion

Brand anxiety

First, we conducted a two-way ANOVA to evaluate how luxury and non-luxury brands evoke brand anxiety through digital and physical retail channels. Our findings exhibited significant main effects of brand ($F(3, 291) = 90.8$, $p < .001$) and channel ($F(3, 291) = 72.1$, $p < .001$). Luxury brands overall evoked greater anxiety than non-luxury brands, and digital channels overall evoked less anxiety relative to physical channels. Importantly, we again observed the predicted interactive effect of brand and channel on brand anxiety ($F(3, 291) = 21.1$, $p < .001$).

These data again reveal that within the physical channel, the luxury brand (*M* = 5.15, *SD* = 1.75) evoked greater levels of anxiety relative to the non-luxury brand (*M* = 2.52, *SD* = 1.67, $F(3, 291) = 104.4$, $p < .001$, $d = 1.54$). By contrast, the digital channel attenuated the brand anxiety difference between luxury (*M* = 2.72, *SD* = 1.72) and non-luxury (*M* = 1.80, *SD* = 1.15) brands, though the luxury brand still evoked greater anxiety than the non-luxury brand online ($F(3, 291) = 11.6$, $p < .001$, $d = .65$). Additionally, nonparametric Wilcoxon tests against the scale midpoint again revealed that mean brand anxiety levels were above the midpoint only when participants shopped with a luxury retailer through the physical channel; brand anxiety was below the midpoint for all other brand and channel combinations (*p*s < .001).

Moderated mediation analysis

We tested whether there was an indirect effect of the digital channel on luxury brand anxiety via a narrowing of the aspirational gap, and we also examined whether there existed a simultaneous mediational role of social rejection. In specific, applying PROCESS model 8 from Hayes (2017) with 10,000 samples and 95% bias-corrected intervals, we conducted a moderated mediation analysis with brand as the focal predictor, channel as the focal moderating variable, brand anxiety as the outcome, and aspirational gap and social rejection as parallel mediators. In support of the process we outlined, we observed a significant index of moderated mediation for the aspirational gap (index = .207, *SE* = .091, 95% CI = [.049, .406]). In addition, we also observed a significant index of moderated mediation for social rejection (index = 1.745, *SE* = .296, 95% CI = [1.201, 2.362]).

These findings demonstrate that luxury brand anxiety is lowered within the digital channel via a combination of processes. First, our data reveal that digital channels can indeed weaken the luxury brand aspirational gap that these brands are normally able to maintain through physical channels, a theoretically important process that we describe in this work. In addition, our evidence also indicates that digital channels can simultaneously attenuate fear of social rejection through an independent process. These independent mechanisms identify distinct levers through which luxury brands may be able to act on in order to manage their relationships with consumers through digital channels. Even though, in general, digital channels reduce brand anxiety more than physical channels do, we argue differences among digital devices may also matter. In study 4, we focus the relationships between consumers and digital devices to explore how luxury brands can keep a certain extent of brand anxiety while still using digital channels.

STUDY 4

Participants and procedure

One hundred thirty-two business students (50 women, age *M* = 22.4, *SD* = 5.2) from a U.S. university participated in the study. To evaluate whether the degree of cognitive offloading associated with a digital channel can impact luxury brand anxiety, we employed a within-subject design manipulating the device. The device was associated with either a high degree or low degree of cognitive offloading.

In this study, we asked participants to consider purchasing gifts for friends from the Gucci online store. Each participant was asked to browse for two different items, including a gift for women and a gift for men. All participants visited the actual online store using two different devices. Using each device, they were instructed to visit the Gucci online store, browse for gifts, and add items to their shopping cart. In the high-offloading condition, participants were asked to visit the Gucci online store on their own personal computers, and in the low-offloading condition, participants were asked to visit the Gucci online store on a laboratory-assigned computer. The order of the high-offloading and low-offloading conditions as well as the order of browsing for gifts for men and for women was fully counterbalanced. After each shopping task, participants shared the extent to which they experienced brand anxiety while browsing the Gucci website, applying the same brand anxiety scale used in prior studies ($\alpha = .84$). We also measured the degree of cognitive offloading associated with each device ($\alpha = .95$).

Results and discussion

Brand anxiety

In line with our hypothesis, participants reported significantly greater levels of brand anxiety after browsing the Gucci online store using the low-offloading device ($M = 3.07$, $SD = 1.57$)

compared to using the high-offloading device ($M = 2.72$, $SD = 1.51$, matched pairs $t(131) = 2.54$, $p = .012$, $d = .23$).

Cognitive offloading

Furthermore, we confirmed that participants indeed felt that they offloaded more of themselves onto their personal computer ($M = 5.67$, $SD = 1.34$) compared to the laboratory-assigned computer ($M = 1.67$, $SD = 1.26$, matched pairs $t(131) = 27.2$, $p < .001$).

Mediation analysis

In order evaluate whether lower cognitive offloading facilitated feelings of greater brand anxiety when shopping on the Gucci online store, we conducted a mediation analysis using MEMORE model 1 (Montoya & Hayes, 2017) with 10,000 samples and 95% bias-corrected intervals. This analysis confirmed that cognitive offloading indeed mediated the effect of the device on luxury brand anxiety ($b = .058$, $SE = .035$, 95% CI = [.007, .154]).

Consistent with the idea that digital channels reduce luxury brand anxiety due to their greater integration with the self, the findings from study 4 indicate that weakening the integration between consumers and digital channels (through the use of low-offloading devices) in fact increased the degree of anxiety experienced during real interactions with luxury brands.

GENERAL DISCUSSION

We argue in this work that the changing relationships between consumers and brand channels can reshape consumer relationships with brands themselves. Across studies in the lab and field, our findings demonstrate that digital channels can transform consumer relationships with luxury brands. Our findings establish that luxury brands become less capable of evoking brand anxiety through digital channels (studies 2a and 2b) and support the role of this mediational path (study 3). Our results also demonstrate that individuals who are less coupled to their devices are less susceptible to digital channel attenuation effects (studies 4). We also support our theoretical conceptualization by applying natural language processing methods (study 1) and through experiments characterizing the greater centrality of digital channels to the self (Web Appendices A and B).

One of the major challenges luxury brands face in embracing the digital marketplace is the careful balance that must be struck between extending access to a wider customer base while maintaining the symbolic value of the brand (Kapferer, 2015). Our findings offer insights into how luxury brands may manage this conflict and also point to several new directions for research exploring both online luxury and offline digitization.

First, brands that do not embrace digital channels face greater risk of losing control of their brand image. Without official digital channels, brand-anxious customers may be more inclined to turn to unofficial blogs, online forums, and social media sources in order to manage their uncertainty and anxiety associated with shopping for luxury branded goods. Thus, these brand-focused discussions may be driven by newer customers and may deviate from or potentially contaminate the brand image that is painstakingly curated through traditional customer interactions. To gain more insight into these issues, future research could examine how social media engagement patterns differ among higher and lower-status consumers as well as how engaging with luxury brands on social media channels may signal information to others.

Digital channels certainly increase access to a wider customer base, which can lead to valid concern about the potential dilution of luxury brand equity. Interpreted through a brand immigrant framework (Bellezza & Keinan, 2014), the adoption of digital channels could be seen as an “open border” policy such that luxury brands may feel the need to “build a wall” in response. Some brands have indeed walled off their product offerings through the use of invite-only online stores (e.g., Net-a-Porter’s EIP Privé). However, we believe that use of a less draconian system of gates could allow luxury brands to better take advantage of the benefits of digital channels while preserving perceptions of brand status. Our findings illustrate that digital channel interactions with brands can facilitate increased self-brand integration (Web Appendix A); in a world in which high-end boutiques are increasingly abundant, fostering greater connection to consumers can in fact be valuable in building brand loyalty. Digital brand channels can serve this purpose, particularly in building relationships with new customers who may experience luxury brand anxiety. Yet, in order to sustain an aspirational gap with consumers, luxury brands need not make all products instantly available. Instead, brands may offer mass-market items online but reserve more upmarket items for in-store purchases only. In addition, luxury brands may make use of status tier systems to provide access to a wider selection of items and services only after customers accrue status with the brand. In this way, luxury brands can maintain an aspirational gap within the digital channel by requiring consumers to "earn" access in order to gain higher standing and esteem with the brand (similar to moving from a "permanent resident" to "naturalized citizen" status).

Our studies in this work focus primarily upon digital retail channels that are accessed through personal devices such as smartphones and computers. However, our theoretical conceptualization applies more broadly, suggesting that greater cognitive offloading associated with a digital device can create a more tightly coupled system between the consumer and artifact. This perspective thus has implications for new forms of technology that may replace or complement present-day devices as time progresses. Our theoretical conceptualization makes an important distinction between devices that are able to offload cognitive operations and those that are not. This consequently results in the prediction that some new devices (e.g., standard wireless earbuds) may not be integrated with the self while others (e.g., AirPods with Siri function) may indeed become integrated with the self, because Siri's functions can allow consumers to repeatedly offload cognitive operations to the device (e.g., searching for stores, information, etc.) in lieu of relying on one's own memory. In addition, while voice-based assistants such as Amazon Alexa and Google Home may currently be error-prone or slow, this theory suggests that as the use of voice assistants becomes more efficient than relying on one's own brain, consumers will become increasingly coupled to these devices, fostering closer relationships to brands though interactions in these channels. In fact, more generally, to the degree that individuals are increasingly becoming tightly coupled to an ensemble of devices (Hoffman & Novak, 2017), examining how the traditional "consumer sans device" unit of analysis finds and processes information may be less relevant toward understanding consumer behavior within the modern marketplace.

The idea that people become closely connected to personal devices through cognitive offloading also has implications for how brands may manage relationships with consumers. Our findings illustrate that weakening the connection between consumer and device can increase luxury brand anxiety and minimize differences between digital and physical channels (Web Appendix B). Thus, as luxury brands also seek to digitize offline retail channels by creating seamless omnichannel experiences and adopting in-store digital style assistants, it is important to consider how the integration of these digital interfaces could impact consumer-brand relationships. If omnichannel experiences are so seamless that they prompt customers to rely heavily on their personal devices while shopping in store, this could reduce luxury brand anxiety in a way that interferes with the luxury brand's ability to manage relationships with consumers. To mitigate this issue, brands could for example provide customers with a branded-tablet to enhance their shopping experience while decoupling consumers from their personal devices, to which they are more intimately attached. Future research could explore the different ways in which consumers could temporarily be psychologically decoupled from their devices without physical intervention.

Definitions of what constitutes luxury is also evolving over time, where consumers increasingly consider social values and environmental consciousness to be more important than historical brand prestige (Deloitte, 2019). Because environmentally conscious brands (e.g., Patagonia) may build perceptions of status through engaging in value-oriented authentic behaviors rather than maintaining an image of mystique, the consumer-brand relationship dynamics could differ in this context relative to typical luxury fashion brands. Interactions with brands through digital rather physical channels thus could potentially allow consumers to feel closer to the brand's values, and consequently allow consumers to derive more benefit from their purchases.

As consumers increasingly become digitally-dependent, the boundaries between the self and the rest of the world are becoming blurred, presenting new and important questions of how consumers relate to brands within today's marketplace. We show in this work that these trends have great significance for how luxury brands manage relationships with consumers, and we hope to prompt future research on the consequential and profound questions addressing consumer behavior in the modern era.

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FIGURES

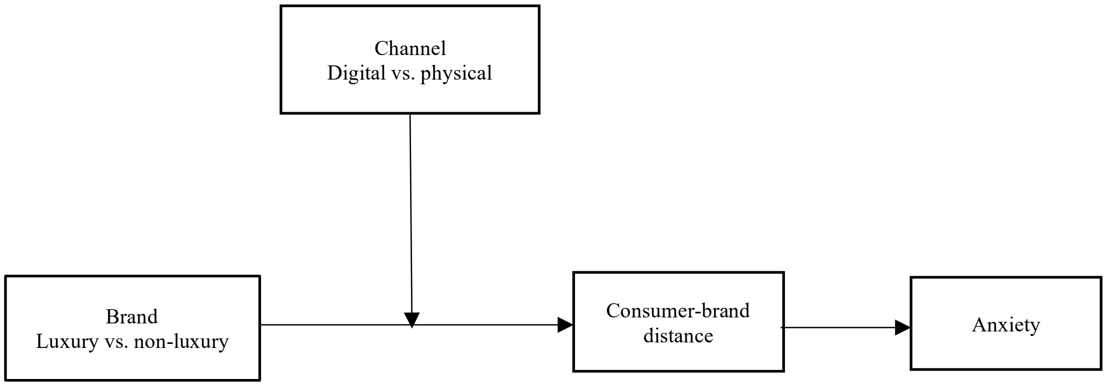

Figure 1 Theoretical Model 1

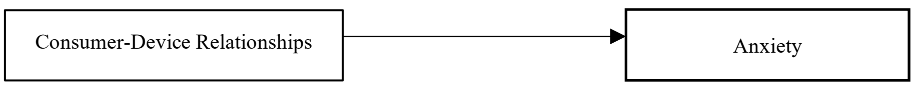

Figure 2 Theoretical Model 2