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The Influence of Social Crowding on Brand Attachment

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Feeling crowded in a shopping environment can decrease consumers' evaluations of a product or service and lower customer satisfaction. However, the present research suggests that a crowded environment can sometimes have a positive impact on consumer behavior. Although feeling crowded motivates consumers to avoid interacting with others, it leads them to become more attached to brands as an alternative way of maintaining their basic need for belongingness. The effect does not occur (a) when the crowding environment is composed of familiar people (and, therefore, is not considered aversive); (b) when individuals have an interdependent self-construal (and consequently, high tolerance for crowdedness); (c) when people are accompanied by friends in the crowded environment; (d) when the social function of the brands is made salient; (e) when people have never used the brand before; or (f) when the brand is referred to as a general product rather than a specific brand.

Keywords: social crowdedness, brand attachment, avoidance of social interaction, need for belongingness

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Crowded shopping environments are common in daily life. For example, discount stores are more likely to be crowded than high-end department stores; stores are generally more crowded on weekends than weekdays, and are more crowded before Christmas than afterward. In most cases, consumers find the crowdedness to be unpleasant. In such cases, how does the crowdedness of a shopping environment influence their behavior?

Previous research addressing this question has mainly focused on the undesirable consequences of crowdedness. When people feel their personal space has been invaded, they become motivated to protect themselves from potential threats (Lang and Bradley 2008; Tooby and Cosmides 1990). More generally, crowdedness can induce avoidance motivation (Cain and LeDoux 2008) and have a number of negative consequences. For example, it can narrow one's construal level (Maeng and Tanner 2013) and decrease feelings of control (Hui and Bateson 1991). In a shopping environment, it can decrease consumer satisfaction (Eroglu, Machleit, and Barr 2005; Machleit, Eroglu, and Mantel 2000), shorten the time they spend shopping (Hui and Bateson 1991), and negatively affect their product evaluations (O'Guinn, Tanner, and Maeng 2015).

Nevertheless, the effects of feeling crowded on consumer behavior may not be completely negative. The current research showed that a crowded shopping experience can have a quite different effect on consumer-brand relationship. We propose that feeling crowded can influence the way people fulfill their basic need for belongingness. Specifically, when individuals in a crowded environment find the presence of others aversive and the environment decreases their motivation to engage in social interaction, their need for belongingness may be left unfulfilled. Consequently, they are likely to satisfy their need to belong by increasing their attachment to nonsocial targets instead. Brands may often be among these targets.

Brand attachment refers to the connection between oneself and a brand (MacInnis and Folkes 2017; Park et al. 2010; Thomson, MacInnis, and Park 2005). Attachment to a brand can increase the willingness to communicate about it and can increase brand loyalty (Park et al. 2010; Park, Eisingerich, and Park 2013; Thomson et al. 2005). Brand attachment can result from a desire for social connectedness. Thus, people are likely to form stronger attachments to brands if they are lonely (Pieters 2013) or elderly and typically have fewer social connections (Jahn, Gaus, and Kiessling 2012). In these cases, brands serve as a *substitute* for social relationships. Our research, however, suggests that the human aspect of brands can be a detriment to brand attachment. That is, consumers who feel crowded often form stronger attachments to brands that have nonhuman characteristics. To this extent, attachment to brands can provide an *alternative* to social relationships in fulfilling the need for belongingness when social interaction is aversive.

In the remainder of this article, we first develop our conceptualization of when and why social crowdedness increases brand attachment and then report 11 studies that test our predictions.

THEORETICAL BACKGROUND

The Effect of Feeling Crowded on Social Avoidance

Physical crowdedness is defined in terms of the population density per unit area (Maeng and Tanner 2013; Maeng, Tanner, and Soman 2013; O'Guinn et al. 2015). Feeling crowded can result from physical proximity to others in a confined area (Stokols 1972). Because restrictions on one's personal space are often aversive, crowdedness can have a variety of negative consequences (Sommer 2009; Stokols 1972). For example, high-density populations are characterized by a high rate of psychiatric admissions, a high mortality rate, and a high incidence of juvenile delinquency (Cox, Paulus, and McCain 1984; Galle, Gove, and McPherson 1972). Moreover, social crowding can induce stress (Collette and Webb 1976),

feelings of lack of control (Sherrod 1974), and avoidance behavior (Harrell, Hutt, and Anderson 1980).

Crowdedness in the marketplace can have a negative impact on consumers' satisfaction and shopping duration (Eroglu et al. 2005; Hui and Bateson 1991). Moreover, consumers are less willing to pay for products they encounter in a crowded shopping environment (O'Guinn et al. 2015).

Crowdedness can have other effects as well. When people feel that their personal space has been invaded, their sense of individuality and uniqueness is threatened. This motivates them to reassert their freedom (Brehm 1966; Wicklund 1974), as reflected in a preference for more varied options (Levav and Zhu 2009) or more unique choice alternatives (Xu, Shen, and Wyer 2012). Feelings of crowdedness are likely to have similar effects. That is, they could stimulate people to attempt to gain control over their personal space by decreasing their interaction with others (Sommer 2009). Thus, people in a crowded situation might avoid unwanted interaction by looking away from other people (Aiello et al. 1977; Evans and Wener 2007), thereby filtering out aversive inputs from their immediate social surroundings.

However, this avoidance of social interaction has negative consequences. For example, it leaves people's basic need to belong unfulfilled (Baumeister and Leary 1995). How can individuals cope with an aversive crowded situation and still satisfy their need to belong? One way to accomplish this might be to increase attachment to nonhuman objects such as brands.

Brands and Social Connectedness

People have a fundamental need for belongingness, and thus maintaining social connectedness is a powerful human motive (Baumeister and Leary 1995). When situations arise that decrease the bonds that provide this connectedness, people attempt to form others (Baumeister and Leary 1995). Thus, people who experience interpersonal setbacks have a heightened desire to reconnect with other close individuals (Mead et al. 2011). However, if this possibility does not immediately exist, they may attempt to satisfy their need to belong in other ways. For example, people who feel socially excluded might try to fulfill their desire for affiliation by conforming to others or by purchasing products that signal their general connectedness to other persons and groups (Mead et al. 2011; Wan, Xu, and Ding 2014).

Brands as Substitutes for Social Connectedness. Although brands are nonhuman entities, they can sometimes be humanized (e.g., having a human name, or having a human-like physical characteristic). To this extent, they can serve as a substitute for human sources of connectedness (Fournier 1998; MacInnis and Folkes 2017). Strong

attachments to a brand, like attachments to people, may develop over time as a result of numerous interactions between the consumer and the brand (Escalas and Bettman 2005; Lastovicka and Sirianni 2011; Park et al. 2010; Thomson et al. 2005). However, factors that threaten people's feelings of connectedness might increase their need to belong, and consequently might influence their attachment to targets in nonsocial domains. As noted earlier, elderly consumers and lonely consumers, who usually have fewer social connections in their daily life, are more likely to develop attachments to the brands they use (Jahn et al. 2012; Pieters 2013). Similarly, socially excluded individuals may form relationships with brands that exhibit human-like (i.e., anthropomorphized) qualities because those brands are more likely to be perceived as substitutes that can provide social connections (Chen, Wan, and Levy 2017).

Attachment to a brand might also be influenced by non-social factors that temporarily increase the desire for affiliation. For example, fear is more likely to increase the desire to affiliate with others than other emotions (e.g., happiness, sadness, or excitement; Morris et al. 1976). Consequently, if others are not available to satisfy this desire for affiliation when people experience fear, it may increase their attachment to brands that happen to be present in the situation where the fear is experienced (Dunn and Hoegg 2014). This suggests that brand attachment can be strengthened by transitory situational cues that intensify people's need for affiliation.

Brands as Alternatives to Social Connectedness. The assumptions underlying the present research are quite different. We propose a situation in which people can form greater attachment to a brand without considering the brand to have human-like characteristics. While previous research suggests that lack of social connections can motivate people to use brands as substitutes to fulfill the need to belong, we propose that people in a crowded environment would like to avoid social interaction with others in the surrounding environment and, therefore, become more willing to form connections with nonhuman targets, such as brands. To this extent, brands are not viewed as substitutes for human attachment, but rather as alternatives to it.

Previous research suggests that social avoidance can lead people to turn to nonhuman targets as alternatives to fulfill the need for belongingness. For example, autistic individuals, who do not prefer social interactions, tend to withdraw from social interactions but satisfy their need to belong by attaching themselves to specific toys, such as tin cans, keys, or other inanimate targets (Lee, Odom, and Loftin 2007). Similarly, in a crowded environment where social avoidance is activated, people may turn to their possessions such as their mobile phones to avoid communicating with people in their immediate surroundings (Andrews et al. 2015).

We assume that feeling crowded decreases people's desire to interact with others. However, these feelings do not necessarily influence their overall need for belongingness. Rather, they affect their means of satisfying this need. Thus, if a crowded environment leads individuals to find the prospect of interacting with others aversive, it may decrease their feelings of attachment to people in general. Because this leaves their general need for belongingness unfulfilled, they may satisfy this need by increasing their attachment to targets with nonhuman qualities. Brands may be among these targets. Thus:

H1: Social crowdedness can increase brand attachment.

H2: The effect of social crowdedness on brand attachment is mediated by the desire to avoid social interaction.

Qualifications

There are constraints on the generality of these hypotheses. For one thing, crowded situations are not always aversive. When the crowded environment is composed of familiar others, for example, people may be less likely to perceive the crowded environment as aversive (Maeng et al. 2013). In addition, individuals with interdependent self-construals (Holland et al. 2004; Markus and Kitayama 1991) may be more tolerant of the presence of others and may react less negatively to it (Holland et al. 2004). The effect of crowdedness on brand attachment might therefore be less evident in these conditions.

Coping can be either direct or indirect. Brands are a relatively indirect means of coping relative to close human beings (e.g., friends, family members; Dunn and Hoegg 2014; see also Poon et al. 2015). If feeling crowded leads individuals to avoid interacting with people, it might boost their disposition to affiliate with close others (e.g., friends, family members). Only when the latter possibility is unavailable do they turn to secondary means of attachment. Thus, if people in crowded situations are able to fulfill their need to belong more directly, the effect of crowdedness on brand attachment should be weakened.

Moreover, not all brands are viable alternatives to social attachment. If a brand has a strong social function, for example, people are likely to imagine themselves interacting with others while using the brand. In addition, the characteristics of a brand can help signal people's social motivations (Swaminathan, Stilley, and Ahluwalia 2008). Using a brand with an obviously social function may send out a signal that they desire social interactions. Thus, that type of brand is unlikely to be attractive when the motivation to avoid social interaction is high.

Furthermore, previous experience with a brand may be necessary to foster attachment formation. If people have never used a brand before, they have no basis for developing an attachment to it (Fraley and Davis 1997; Zeifman and Hazan 1997).

Finally, crowdedness is more likely to influence attachment to specific brands than to categories of products in general. People generally develop attachment to specific figures who can provide feelings of comfort and security (Bowlby 1969/1992). This suggests that attachment can be formed more easily when the target is readily identifiable. To this extent, a brand name can make a product identifiable and facilitate bonding, whereas general types of products may not provide the feeling of attachment that satisfies the need to belong (Aaker 1991; Keller 1993; see also MacInnis and Folkes 2017; Park et al. 2010; Thomson et al. 2005).

Overview of Studies

We conducted 11 studies to test our hypotheses and to evaluate the contingencies noted above. The first three studies demonstrated that people who are in a crowded (vs. an uncrowded) environment display greater attachment to the brands they are currently using, as reflected in both self-reported attachment to the brand and resistance to switching to a new brand (studies 1–3). Moreover, these effects were mediated by the effect of feeling crowded on the avoidance of social interaction and consequently a desire to fulfill the need to belong (study 2).

Eight other studies confirmed contingencies in the effects we observed. For example, the effects are not evident when the crowded environment is not perceived as aversive (studies 4 and 5). They are also diminished when a brand fails to provide an alternative means of achieving the need to belong (studies 6–9). Moreover, the effects are specific to brands and do not pertain to categories of products in general (study 10). A final study confirmed that the relationship between crowdedness and brand attachment is evident in an actual shopping situation.

Existing measures of brand attachment focus on different aspects of it. While some measures capture emotional brand attachment (i.e., feelings about a brand; Batra, Ahuvia, and Bagozzi 2012; Thomson et al. 2005), others emphasize the cognitive dimension of attachment (i.e., brand accessibility and integration into self-identity; Park et al. 2010). We predict that our effects would be evinced in both aspects of brand attachment. Therefore, we employed various measures of brand attachment across the studies to demonstrate the generalizability of the effect.

STUDY 1

Study 1 provided initial evidence that social crowdedness can increase brand attachment. In doing so, it showed that this effect is due to the *density* of people in the environment rather than the *number* of people. In real life, consumers often visit stores of brands with which they are familiar when they do shopping. Therefore, as an initial

FIGURE 1

STIMULI USED IN STUDY 1

test, we used a scenario in which the store of a brand was manipulated to look crowded or less so.

Method

Participants and Design. One hundred fifty participants living in the United States (70 females, $M_{\text{age}} = 37.62$) were recruited from Amazon's Mechanical Turk and participated for a small monetary incentive. They were randomly assigned to one of three conditions (crowded vs. uncrowded vs. number control).

Procedure. Participants were informed that this study was intended to investigate consumers' mental simulation of consumption situations. Participants first reported the brand of cell phone they used. Then, they were asked to imagine being in a store that sold this brand of cell phone and to think about how they would feel if they were in this store. On this pretense, they were shown a picture of the store and told the picture had been converted from a real photo but that to protect privacy human silhouettes replaced the actual people shown. The pictures were adapted from materials used by O'Guinn et al. (2015). Two pictures showed a store of the same size but with either 35 people in the store (crowded condition) or only four in the store (uncrowded condition; see figure 1). To ensure that the effect we observed was due to the density of people instead of their number per se, a number control condition was run in which the picture showed 35 people in a store that was three times larger than those portrayed in the other conditions.

To measure brand attachment, we asked participants to indicate their feelings toward the brand of cell phone they used by responding to 10 items taken from Thomson et al.'s (2005) brand attachment scale, specifically: affectionate, friendly, love, peaceful, passionate, delighted,

captivated, connected, bonded, and attached. Responses were reported along scales from 1 (not at all) to 9 (very much) and were averaged ($\alpha = .97$).

Results and Discussion

The crowdedness of the scene had a significant effect on participants' attachment to their cell phone brand ($F(2, 147) = 6.73, p = .002, \eta^2 = .08$). Specifically, participants reported greater attachment to their cell phone brand in crowded conditions ($M = 5.72, SD = 1.86$) than in either uncrowded conditions ($M = 4.29, SD = 1.86; t(147) = 3.61, p < .001, d = .73$) or number control conditions ($M = 4.78, SD = 2.13; t(147) = 2.40, p = .018, d = .48$). The latter two conditions did not differ significantly ($t(147) = 1.26, p > .20$).

In summary, study 1 provided initial evidence that crowdedness can boost brand attachment and that its effect is due to the density of persons in the situation the participants imagined, but not the number of persons.

STUDY 2

Study 2 evaluated the mechanisms that underlie the effect we hypothesized. Specifically, it determined whether the effect of crowdedness on brand attachment is driven by the avoidance of social interaction and the resulting increase in the need to satisfy belongingness in other ways. In addition, this study manipulated actual crowdedness to enhance the external validity of the effect.

Method

Participants and Design. One hundred twenty-six students (98 females, $M_{\text{age}} = 21.34$) from a large Asian university participated in the study for a monetary incentive equivalent to \$1.50 USD. They were randomly assigned to one of two conditions (crowded vs. uncrowded).

Procedure. This experiment manipulated actual crowdedness by varying the number of participants in a session (Maeng and Tanner 2013). In the crowded condition, there were 20–23 participants in each session, while in the uncrowded condition there were only 4–6 participants in each session. All sessions were held in the same room.

To assess the motivation to avoid social interaction, we gave participants 12 sets of choice alternatives constructed by Burger (1995). In each item, one alternative described a preference for social activities, and the other described a preference to avoid these activities (e.g., "I enjoy being around people" vs. "I enjoy being alone"; see the appendix). Participants were asked to choose one alternative in each item based on their current feelings at that moment. The number of social avoidance choices they made was used as an overall index of social interaction avoidance.

TABLE 1

EFFECTS OF CROWDEDNESS CONDITIONS—STUDY 2

	Crowded	Uncrowded
Perceived crowdedness	7.14 ^a (1.72)	2.55 ^b (1.77)
Brand attachment	6.62 ^a (1.52)	5.74 ^b (1.68)
Social interaction avoidance	8.34 ^a (2.63)	6.74 ^b (3.32)
Feelings of not belonging	6.18 ^a (1.67)	5.41 ^b (1.69)

NOTE.—Standard deviations are in parentheses. Cells with different superscripts differ at $p < .05$.

Next, participants reported their agreement with four items that measured their need to belong (adapted from Russell, Peplau, and Cutrona 1980; see also Mellor et al. 2008): (a) "I feel in tune with the people in this room," (reverse-coded) (b) "No one really knows me well in this room," (c) "I can easily find companionship if I want it right now in this room" (reverse-coded), and (d) "People are around me but not with me in this room" along a scale from 1 (strongly disagree) to 9 (strongly agree). Responses to these four items were averaged to form a single index ($\alpha = .72$).

After that, participants indicated their feelings about their university using the brand attachment scale developed by Park et al. (2010). Sample items included "to what extent is [the university] part of you and who you are" and "to what extent do you feel personally connected to [the university]" (1 = not at all, 9 = very much). The mean response to these items was used as an index of attachment ($\alpha = .95$).

Finally, to check the manipulation of actual crowdedness, we asked participants to report how crowded they perceived the study room to be along a scale from 1 (not at all) to 9 (very).

Results and Discussion

The results of this study are summarized in table 1. The manipulation of crowdedness was successful: participants perceived the room to be more crowded when it contained many people ($M = 7.14$) than when it contained few ($M = 2.55; F(1, 124) = 218.39, p < .001, \eta^2 = .64$). Correspondingly, they reported greater attachment to the university brand in the former condition than in the latter (6.62 vs. 5.74, respectively; $F(1, 124) = 9.59, p = .002, \eta^2 = .07$).

Supplementary data provided evidence of the processes that underlie this effect. As we expected, participants reported a greater desire to avoid social interaction in crowded than in uncrowded conditions (8.34 vs. 6.74, respectively; $F(1, 124) = 9.02, p = .003, \eta^2 = .07$). In addition, they reported a greater feeling that their need to belong was not met in the former condition than in the

latter (6.18 vs. 5.41, respectively; $F(1, 124) = 6.61$, $p = .011$, $\eta^2 = .05$).

To verify the mediating effects of these variables on the influence of crowdedness on brand attachment, we evaluated the following causal chain: crowdedness $\rightarrow$ social interaction avoidance $\rightarrow$ feeling of not belonging $\rightarrow$ brand attachment. Bootstrapping using 5,000 samples (PROCESS model 6; Hayes 2013) supported the proposed causal relationships. Results revealed that crowdedness predicted social interaction avoidance ($b = 1.60$, $SE = .53$, $t(124) = 3.00$, $p = .003$); social interaction avoidance predicted feeling of not belonging ($b = .23$, $SE = .05$, $t(123) = 5.07$, $p < .001$) when it was in the same model as crowdedness; and feeling of not belonging predicted brand attachment ($b = .37$, $SE = .09$, $t(122) = 4.23$, $p < .001$) in a model with social interaction avoidance and brand attachment. The indirect effect of the overall sequential mediation model was significant (indirect effect = .14, boot SE = .08; 95% bias-corrected CI ranged from .0356 to .3680). An alternative model in which the feeling of not belonging was treated as an antecedent of social interaction avoidance rather than a consequence was not supported (indirect effect = .02, boot SE = .04; the 95% CI ranged from -.0203 to .1463).

In summary, study 2 provided evidence of the processes we assume to underlie the effects of crowdedness on brand attachment. That is, actual crowdedness leads participants to want to avoid social interaction, leaving the need for belongingness unfulfilled and consequently leading participants to turn to brand attachment as an alternative way to satisfy this need.

STUDY 3

Study 2 supported our assumption that consumers become more attached to brands in a crowded environment because they are motivated to avoid social interaction, and alternatively turn to brands to fulfill the basic need to belong. However, an aversive environment that does *not* involve interacting with people should not have this effect. We evaluated this possibility. In addition, to ensure that crowdedness did not create a bias in the brands that participants identified, we controlled for the brands that participants were asked to think about. Finally, we examined whether an increase in brand attachment would be reflected in actual choice behavior. We predicted that greater brand attachment would decrease the likelihood of participants switching from a brand they were using to another.

Method

Participants and Design. One hundred sixty-five university students (130 females, $M_{\text{age}} = 21.12$) from a large Asian university participated in this study for pay

TABLE 2
EFFECTS OF CONDITIONS—STUDY 3

	Crowded	Noisy	Control
Perceived crowdedness	6.43 ^a (2.06)	2.71 ^b (1.81)	2.54 ^b (1.41)
Perceived noisiness	2.63 ^a (1.95)	6.04 ^b (1.94)	2.09 ^a (1.68)
Anxiety	3.99 ^a (2.46)	4.63 ^a (2.19)	2.46 ^b (1.88)
Brand attachment	5.53 ^a (1.67)	4.54 ^b (1.90)	4.25 ^b (1.86)
Brand switching	18.6% ^a	36.7% ^b	41.3% ^b

NOTE.—Standard deviations are in parentheses. Cells in each row with different superscripts differ at $p < .05$.

equivalent to \$1.50 USD. They were randomly assigned to one of three conditions (crowded vs. noisy vs. control).

Procedure. This study manipulated actual crowdedness in the manner employed in study 2. In crowded conditions, 22–25 persons participated in each session and in both noisy and control conditions, only 2–6 persons participated in each session. Participants in noisy conditions were exposed to a noisy sound clip of a construction site throughout the whole study, while this sound clip was not played in the other two conditions. All sessions were held in the same room.

To introduce the study under crowded and noise conditions, we told participants that the study was intended to mimic surveys that are conducted in realistic settings outside the laboratory. On this pretense, each participant was given a pen of one of two brands (Pilot or Zebra), and asked to test it by writing about an ordinary event they had experienced. (The brand of pen they were given to use was counterbalanced within each room condition.) After doing so, they responded to three items: (a) “I feel a bond between me and this brand of pen,” (b) “This brand of pen feels like a friend to me,” and (c) “I am emotionally connected to this brand of pen” along a scale from 1 (strongly disagree) to 9 (strongly agree). Responses to these three items were averaged to form a single index of brand attachment ($\alpha = .88$; Batra et al. 2012). Next, participants rated both how crowded and how noisy the room was along a scale from 1 (not at all) to 9 (very), and reported how anxious the room environment made them feel along a similar scale.

After answering these questions, the participants approached the experimenter individually to receive payment. As they did so, the experimenter indicated that they could receive a gift for participating, and they were asked to choose between the brand of pen they had just used and the other brand. The experimenter recorded their choices. Care was taken to ensure that the participants were not able to observe each other’s choices.

Results

The results of this experiment are summarized in table 2.

Manipulation Checks. Crowded sessions were perceived to be more crowded ($M = 6.43$) than either noisy

sessions ($M = 2.71$; $t(162) = 10.93$, $p < .001$, $d = 2.04$) or control sessions ($M = 2.54$; $t(162) = 11.22$, $p < .001$, $d = 2.13$; $F(2, 162) = 87.17$, $p < .001$, $\eta^2 = .52$), and noisy sessions were perceived to be noisier ($M = 6.04$) than either crowded sessions ($M = 2.63$; $t(162) = 9.76$, $p < .001$, $d = 1.82$) or control sessions ($M = 2.09$; $t(162) = 10.26$, $p < .001$, $d = 2.11$; $F(2, 162) = 65.57$, $p < .001$, $\eta^2 = .45$).

Anxiety. Anxiety varied significantly over conditions ($F(2, 162) = 11.97$, $p < .001$, $\eta^2 = .13$; see table 2). Participants felt more anxious in both the crowded condition ($M = 3.99$; $t(162) = 3.61$, $p < .001$; $d = .69$) and the noisy condition ($M = 4.63$; $t(162) = 4.74$, $p < .001$, $d = .97$) than in the control condition ($M = 2.46$), whereas the former two conditions did not differ ($t(162) = 1.54$, $p > .10$).

Brand Attachment. We expected that although anxiety was greater in both crowded and noisy conditions than in the control condition, brand attachment would be affected only in the crowded condition. This was the case, as shown in table 2. The effect of experimental conditions on participants' attachment to the brand of pen they used during the study was significant ($F(2, 162) = 8.24$, $p < .001$, $\eta^2 = .09$), and indicated that participants were more attached to the brand in the crowded condition ($M = 5.53$) than in either the noisy condition ($M = 4.54$; $t(162) = 2.96$, $p = .004$, $d = .55$) or the control condition ($M = 4.25$; $t(162) = 3.76$, $p < .001$, $d = .71$), which did not differ from each other ($t < 1$, NS).

Brand Switching. The room also influenced participants' likelihood of switching away from the brand of pen they used during the study (Wald $\chi^2(2) = 7.84$, $p = .020$). Participants were less likely to switch to the other brand of pen in the crowded condition (18.6%) than in either the noisy condition (36.7%; Wald $\chi^2(1) = 4.79$, $p = .029$) or the control condition (41.3%; Wald $\chi^2(1) = 6.89$, $p = .009$), and the latter two conditions did not differ significantly (Wald $\chi^2(1) = .21$, $p > .60$).

Mediation Analysis. Regression analyses confirmed the conclusion that brand attachment mediated the effect of room conditions on product choice. Analyses in which the crowded condition and the other two conditions were coded 1 and 0, respectively, revealed that crowdedness was associated with brand attachment ($b = 1.13$, $SE = .28$, $t(163) = 3.99$, $p < .001$), and that brand attachment affected brand switching ($b = -.78$, $SE = .13$, $\chi^2(1) = 35.57$, $p < .001$). However, when brand attachment was added to the predictor of brand switching, the effect of crowdedness decreased to nonsignificance ($b = -.43$, $SE = .44$, $\chi^2(1) = .98$, $p > .30$), but the effect of brand attachment remained significant ($b = -.76$, $SE = .13$, $\chi^2(1) = 32.06$, $p < .001$). The indirect effect of brand attachment was also supported by a bootstrapping analysis (Preacher and Hayes 2008; PROCESS model 4; 5,000 samples), which yielded a 95%

bias-corrected CI from -1.5204 to $-.3750$ (indirect effect = $-.85$, boot SE = $.30$).

Discussion

This study, which induced actual crowdedness and assessed real choice behavior, ruled out an alternative explanation of our findings. That is, although a noisy environment elicited the same degree of anxiety as a crowded environment, it did not affect brand attachment. The brand attachment produced by crowdedness also affected actual choice behavior. Crowded participants were more likely to stick to the brand of pen they had used earlier when they had a chance to choose a gift.

STUDY 4

If the effect of feeling crowded on attachment to brands is mediated by the motivation to avoid social interaction, it should be diminished when social crowdedness does not induce this motivation. Study 4 examined this possibility. Past research suggests that people experience more negative feelings in a crowd of strangers than in a crowd of known people (Maeng et al. 2013). To this extent, the motivation to avoid in-group members should be weaker than the motivation to avoid out-group members, and thus the positive effect of social crowdedness on brand attachment should also be weakened.

Method

Two hundred one United States residents (99 females, $M_{\text{age}} = 38.14$) were recruited from Amazon's Mechanical Turk for a small monetary incentive. They were randomly assigned to conditions of a 2 (crowdedness: crowded vs. uncrowded) $\times$ 2 (customer familiarity: familiar vs. unfamiliar) between-subjects design.

Participants were told that the first task was intended to study the mental simulation of consumption situations, and were presented with either the crowded or uncrowded store picture used in study 1. However, participants in unfamiliar conditions were asked to imagine that "you do not personally know any of the other customers there," whereas those in familiar conditions were instructed to imagine that "you are personally familiar with the other customers there." All the participants briefly described how they would feel when shopping in the store. They were then asked to think about a brand of product they frequently used and responded to the brand attachment scale employed in study 1 (Thomson et al. 2005; $\alpha = .97$). Finally, participants indicated how close they would like their interpersonal relationship with other customers in the store to be along a scale from 1 (not close at all) to 9 (very close).

Results and Discussion

Manipulation Check. Participants indicated a desire for a closer interpersonal relationship with customers who were familiar ($M = 5.20$, $SD = 2.27$) than a relationship with strangers ($M = 3.21$, $SD = 1.98$; $F(1, 197) = 43.46$, $p < .001$, $\eta_p^2 = .18$), and this effect was independent of crowdedness ($F(1, 197) = 2.23$, $p > .10$).

Brand Attachment. Analyses of brand attachment revealed a significant effect of customer familiarity ($F(1, 197) = 8.07$, $p = .005$, $\eta_p^2 = .04$) and an interaction of familiarity and crowdedness ($F(1, 197) = 4.05$, $p = .046$, $\eta_p^2 = .02$). When the other customers were strangers, participants became more attached to a brand they frequently used when the store was crowded ($M = 6.65$, $SD = 1.74$) than when it was not ($M = 5.60$, $SD = 2.23$; $t(197) = 2.60$, $p = .010$, $d = .51$). When other customers were familiar, however, this difference was not apparent ($M = 5.25$, $SD = 1.90$ vs. $M = 5.36$, $SD = 2.27$ for crowded and uncrowded conditions, respectively; $t < 1$, NS).

Discussion. The results of this study indicate that not all crowded situations are aversive. When a crowd consists of all familiar others, the crowded scene would seem less aversive to the consumers and thus they would be less likely to avoid social interactions, which eliminates the effect on brand attachment.

STUDY 5

Study 4 showed that the composition of a crowd can moderate the influence of crowdedness on brand attachment. Study 5 determined whether participants' personal characteristics can also moderate this effect. Specifically, people are likely to be more tolerant of physical closeness if they have an interdependent self-construal than if they have an independent self-construal (Holland et al. 2004). To this extent, the former individuals should feel that being in a crowded environment is relatively less aversive, and so the effect of this environment on their brand attachment should be relatively less evident. In addition, to increase the generalizability of the effect, we employed another manipulation of crowdedness in this study.

Method

Two hundred United States residents (108 females, $M_{age} = 39.38$) were recruited from Amazon's Mechanical Turk and participated for a small monetary incentive. They were randomly assigned to conditions of a 2 (crowdedness: crowded vs. uncrowded) $\times$ 2 (self-construal: independent vs. interdependent) between-subjects design.

Participants were informed that the study consisted of several unrelated tasks. To manipulate self-construal, they completed a scrambled sentence task for the ostensible

FIGURE 2

STIMULI USED IN STUDY 5

purpose of assessing linguistic perception. Specifically, they were given 20 sets of six words each and asked in each case to choose five words that would form a grammatically correct sentence. All trials in independent conditions contained single first-person pronouns (e.g., I, me, my, mine), whereas all trials in interdependent conditions included plural first-person pronouns (e.g., we, us, our, ours; for similar procedures, see Gardner, Gabriel, and Lee 1999; Oyserman et al. 2009).

After finishing this task, participants completed a picture perception task in which they spent a few moments looking at a picture and then described how they would feel if they were in the situation the picture depicted. The picture (see figure 2) conveyed either a crowded street or an uncrowded one.

Finally, participants were asked to think of a brand they frequently used and to complete the brand attachment scale employed in study 1 (Thomson et al. 2005; $\alpha = .97$). Finally, they indicated how close they would like their interpersonal relationship with others to be along a scale from 1 (not close at all) to 9 (very close).

Results and Discussion

Manipulation Check. Participants reported desiring a closer interpersonal relationship if they had been primed with an interdependent self-construal ($M = 4.75$, $SD = 2.65$) than if they had been primed with an independent self-construal ($M = 3.77$, $SD = 2.38$; $F(1, 196) = 7.65$, $p = .006$, $\eta_p^2 = .04$). No effects involving crowdedness were significant ($ps > .10$).

Brand Attachment. Although participants' brand attachment was marginally affected by self-construal ($F(1, 196) = 3.35$, $p = .069$, $\eta_p^2 = .02$), this effect was qualified by a significant interaction of self-construal and crowdedness ($F(1, 196) = 4.35$, $p = .038$, $\eta_p^2 = .02$). Participants whose independent self-construal was primed reported greater brand attachment under crowded conditions ($M = 6.46$, $SD = 1.96$) than under uncrowded conditions

($M = 5.32$, $SD = 2.22$; $t(196) = 2.52$, $p = .013$, $d = .51$). When participants' interdependent self-construal was primed, however, this effect was not evident ($M = 5.21$, $SD = 2.32$ vs. $M = 5.40$, $SD = 2.43$, respectively; $t < 1$, NS).

Discussion. The results of studies 4 and 5 reveal that individual differences as well as situational factors can moderate the effects of crowdedness on brand attachment. Specifically, people with an interdependent self-construal are more tolerant of close interpersonal distances and have less desire to avoid social interaction. Consequently, the effect of crowdedness on their attachment to a brand they often use is weakened.

STUDY 6

Our conceptualization predicts that crowdedness increases brand attachment because it triggers social interaction avoidance, leading consumers to turn to brands to satisfy their need for belongingness. When people can fulfill this need in other, more direct ways, however, they may not resort to brand attachment. For example, although people are motivated to distance themselves from a crowd of strangers, they may find the company of friends relaxing and soothing. To this extent, consumers may become attached to friends rather than brands if they have a chance to do so. This possibility is particularly viable when consumers are accompanied by friends in a crowded environment. Study 6 examined whether the effects of crowdedness on brand attachment would be weakened when consumers could satisfy the need to belong by being with friends.

It is also worth noting that in studies 4 and 5, participants were prompted to think about and report attachment to a brand after the manipulations. However, thinking about familiar others or priming an interdependent self-construal might bias the brand consumers bring to mind. To avoid this possibility in the present study, we asked participants to think about a brand *before* the manipulations.

Method

Two hundred one United States residents (79 females, $M_{\text{age}} = 40.04$) from Amazon's Mechanical Turk participated for a small monetary reimbursement. They were randomly assigned to conditions of a 2 (crowdedness: crowded vs. uncrowded) $\times$ 2 (scenario: alone vs. with friend) between-subjects design.

Participants were first asked to indicate a brand they frequently used. They were then told that the system was preparing questions related to this brand and in the interim they could move to other tasks first.

Then, participants were given the same crowded or uncrowded pictures shown in study 5 under crowded and uncrowded conditions. However, participants in

with-friend conditions were asked to think about a friend with whom they would like to go shopping, and to imagine that they were in the scene with this friend. In alone conditions, participants were asked to imagine they were in the scene by themselves.

After that, participants were asked to complete the same measure of brand attachment as used in study 3 (Batra et al. 2012; $\alpha = .95$). Finally, they were shown the pictures again and asked to indicate the crowdedness of the scene along a scale from 1 (not crowded at all) to 9 (very crowded).

Results and Discussion

Manipulation Check. Perceived crowdedness was significantly influenced by the crowdedness manipulation ($M = 8.42$, $SD = 1.31$ vs. $M = 2.54$, $SD = 1.52$ for crowded and uncrowded conditions, respectively; $F(1, 197) = 850.50$, $p < .001$, $\eta_p^2 = .81$), and this effect did not depend on whether the participants imagined being in the scene alone or with a friend ($F < 1$, NS).

Brand Attachment. Crowdedness had a significant effect on brand attachment ($F(1, 197) = 4.13$, $p = .043$, $\eta_p^2 = .02$), but the effect was qualified by an interaction of crowdedness and scenario ($F(1, 197) = 6.13$, $p = .014$, $\eta_p^2 = .03$). When participants imagined being in the scene alone, a crowded scene ($M = 6.72$, $SD = 2.03$) induced greater brand attachment than an uncrowded one ($M = 5.21$, $SD = 2.47$; $t(197) = 3.24$, $p = .001$, $d = .64$). When participants imagined themselves accompanied by a friend, however, this difference was not evident ($M = 5.38$, $SD = 2.45$ vs. $M = 5.52$, $SD = 2.54$, respectively; $t < 1$, NS).

Discussion. The need to belong can be fulfilled in multiple ways (Baumeister and Leary 1995). Our earlier studies showed that consumers who felt crowded generally avoided social interaction, leaving their need to belong unfulfilled and leading them to attach themselves to brands to satisfy this need. However, study 6 indicates that being with a friend in a crowded environment can fulfill the need to belong and thus consumers do not need to seek attachment from brands.

STUDY 7

Studies 4–6 provided evidence that both situational and individual difference factors can affect consumers' feelings toward crowds and the intention to avoid social interactions. However, the effect of feeling crowded on their attachment to a brand could be affected by characteristics of the brand itself. Products can be perceived as suitable for use in a social context, a nonsocial context, or both, depending on the set of attributes that people happen to think about. If crowdedness enhances consumers' brand

attachment and motivates them to avoid social interaction, it should only increase their attraction to brands used in a nonsocial context. In fact, it might lead them to reject brands that are used in a social context because it reminds them of the social interactions they are motivated to avoid. In this case, the effect of crowdedness on brand attachment should be diminished and perhaps even reversed. Study 7 evaluated this possibility.

Method

Two hundred four United States residents (99 females, $M_{\text{age}} = 39.44$) from Amazon's Mechanical Turk took part for a small monetary compensation. They were randomly assigned to conditions of a 2 (crowdedness: crowded vs. uncrowded) $\times$ 2 (brand attribute: nonsocial vs. social) between-subjects design.

Participants first completed the picture perception task employed in study 5. They were then asked to think about the brand of broadband Internet service they were using and to imagine that it had just launched a new marketing campaign. We manipulated perceptions of the brand's attributes by varying the appeal of the campaign. Participants in nonsocial conditions saw an ad of the brand with the slogan "Save some time for yourself and enjoy private entertainment on the Internet." In social conditions, however, the slogan read "Get to know more people and enjoy the social world on the Internet." A pretest with 60 participants showed that these two slogans were perceived to be equally appropriate ($M = 6.13$, $SD = 2.10$ vs. $M = 5.60$, $SD = 1.92$; $t(59) = 1.52$, $p > .10$).

Participants then responded to the same brand attachment scale used in study 1 (Thomson et al. 2005; $\alpha = .98$) to indicate their feelings toward the brand of Internet service they thought about. Finally, to check the manipulation of brand attribute, we asked participants to indicate the extent to which they would use this Internet service for a social or nonsocial purpose along a scale from 1 (mostly used for a nonsocial purpose) to 9 (mostly used for a social purpose).

Results and Discussion

Manipulation Check. Participants perceived that the brand they thought about was more suitable for a social purpose when a social attribute was highlighted ($M = 6.10$, $SD = 2.21$) than when a nonsocial attribute was highlighted ($M = 4.23$, $SD = 2.49$; $F(1, 200) = 31.76$, $p < .001$, $\eta_p^2 = .14$). This effect was independent of crowdedness ($F < 1$, NS).

Brand Attachment. The brand attribute description had a significant effect on brand attachment ($F(1, 200) = 6.40$, $p = .012$, $\eta_p^2 = .03$), but this effect was qualified by a significant interaction between crowdedness and brand attribute ($F(1, 200) = 11.31$, $p = .001$, $\eta_p^2 = .05$). When a

nonsocial attribute of the brand was highlighted, the effect of social crowdedness on brand attachment was replicated; participants reported being more attached to the brand in crowded conditions ($M = 4.94$, $SD = 2.48$) than in uncrowded conditions ($M = 3.77$, $SD = 2.08$); $t(200) = 2.70$, $p = .008$, $d = .54$). When the social function of the brand was described, however, participants reported being less attached to the brand in crowded conditions ($M = 3.16$, $SD = 1.80$) than in uncrowded conditions ($M = 4.03$, $SD = 2.19$; $t(200) = 2.07$, $p = .040$, $d = .40$).

Discussion. Study 7 provided further support for our conceptualization. Whether consumers show higher or lower attachment to a brand depends on whether they construe it as a way of avoiding social interaction. When they imagine using the product with other people in a social setting, the effect is reversed.

STUDY 8

Previous experience with a brand is presumably a prerequisite for the formation of an attachment to it (Fraley and Davis 1997; Zeifman and Hazan 1997). If this is so, the effect of social crowdedness on brand attachment should occur only for brands with which consumers have had a previous connection. When a brand has not previously been owned or used, it is less likely to provide the comfort consumers seek in the pursuit of belongingness.

In addition to evaluating this contingency, we explored two downstream consequences of the phenomena we identified. Greater attachment to a brand can increase the intention to communicate about it to others and also the willingness to tolerate a product failure (Fedorikhin, Park, and Thomson 2008). Therefore, we examined these effects.

Method

Participants and Design. Two hundred two United States residents (83 females, $M_{\text{age}} = 37.69$) were recruited from Amazon's Mechanical Turk to participate for a small monetary payment. They were randomly assigned to conditions of a 2 (crowdedness: crowded vs. uncrowded) $\times$ 2 (previous experience: used vs. not used) between-subjects design.

Procedure. After completing the picture perception task employed in study 5, participants were asked to think about either a brand they had used frequently (used conditions) or a brand they had often heard about but never used (not used conditions). Next, to measure communication intentions (Fedorikhin et al. 2008), participants indicated their likelihood of: (a) telling others good things about this brand, (b) recommending the brand to someone they knew, and (c) sharing information about this brand with someone they knew. Responses to these three items, along a scale from 1 (not likely at all) to 9 (very likely), were averaged

TABLE 3
EFFECTS OF CROWDEDNESS AND PREVIOUS EXPERIENCE—STUDY 8

	Used brand		Not used brand	
	Crowded	Uncrowded	Crowded	Uncrowded
Brand attachment	6.07 ^a (1.93)	4.88 ^b (2.19)	3.65 ^c (2.21)	3.90 ^c (2.29)
Communication intentions	7.38 ^a (1.43)	6.29 ^b (1.95)	4.03 ^c (1.99)	4.36 ^c (2.23)
Brand forgiveness	7.10 ^a (1.47)	5.84 ^b (2.09)	3.81 ^c (1.77)	3.98 ^c (1.84)

NOTE.—Standard deviations are in parentheses. Cells with different superscripts differ at $p < .05$.

to create a single index ($\alpha = .97$). To measure brand forgiveness (Fedorikhin et al. 2008), we asked participants to imagine that they had bought a new product with the same brand name and found it to be defective. We asked them then to report their agreement with the following statements: (a) “I would probably give the brand another chance,” (b) “I would probably buy the brand again despite this experience,” (c) “I would be less likely to try the brand again” (reverse-coded), and (d) “I would forgive the brand and buy it again.” Responses to these four items, along a scale from 1 (strongly disagree) to 9 (strongly agree), were also averaged ($\alpha = .93$).

Participants also reported their feelings about the brand using the brand attachment scale employed in study 1 (Thomson et al. 2005; $\alpha = .98$). Finally, to check the manipulation of previous experience with the brand, we asked them to report their agreement with four statements (e.g., “The brand went through a lot of experiences with me,” “I feel that the brand is always with me”; adapted from Dunn and Hoegg 2014) along a scale from 1 (strongly disagree) to 9 (strongly agree). Responses to these four items were averaged ($\alpha = .98$).

Results and Discussion

The results of this experiment are summarized in table 3.

Manipulation Check. The manipulation of past experience was successful. Participants felt they had had more experience with the brand they had used in the past ($M = 5.97$, $SD = 2.15$) than the brand they had not used ($M = 2.84$, $SD = 2.16$; $F(1, 198) = 106.05$, $p < .001$, $\eta_p^2 = .35$), and this effect was independent of crowdedness ($F(1, 198) = 1.14$, $p > .20$).

Brand Attachment. Participants’ attachment to the brand they thought about was affected by their previous experience with it ($F(1, 198) = 31.39$, $p < .001$, $\eta_p^2 = .14$), but this effect was qualified by a significant interaction between crowdedness and previous experience ($F(1, 198) = 5.61$, $p = .019$, $\eta_p^2 = .03$). Participants who had previously used the brand were more attached to it in crowded conditions ($M = 6.07$) than in uncrowded conditions ($M = 4.88$; $t(198) = 2.76$, $p = .006$, $d = .55$). If they had never used

the brand, however, this difference was not evident (3.65 vs. 3.90, respectively; $t < 1$, NS).

Communication Intentions. Participants’ intentions to communicate about the brand were affected in the same way that their brand attachment was affected. Analyses yielded a significant effect of previous experience ($F(1, 198) = 95.59$, $p < .001$, $\eta_p^2 = .33$) and an interaction of previous experience and crowdedness ($F(1, 198) = 6.91$, $p = .009$, $\eta_p^2 = .03$). When participants had previously used the brand, their intention to communicate about it was greater in crowded conditions ($M = 7.38$) than in uncrowded conditions ($M = 6.29$; $t(198) = 2.84$, $p = .005$, $d = .57$). When they had never used the brand, however, this difference was not apparent (4.03 vs. 4.36, respectively; $t < 1$, NS).

A moderated mediation analysis (PROCESS model 7; Hayes 2013) using 5,000 samples supported the indirect effect of brand attachment on the impact of crowdedness and its contingency on past experience with the brand. Previous experience moderates the effect of crowdedness on brand attachment ($b = 1.44$, $SE = .61$, $t(198) = 2.37$, $p = .019$). A regression predicting communication intentions from crowdedness and brand attachment yielded a significant effect of brand attachment ($b = .69$, $SE = .05$, $t(199) = 13.36$, $p < .001$). Compared with participants who had previous experience with the brand (conditional indirect effect = .82, boot SE = .29; 95% CI from .2742 to 1.4059), those who had not used the brand before did not show differential brand attachment and thus the intention to spread positive word of mouth was not affected by crowdedness (conditional indirect effect = $-.17$, boot SE = .31; 95% CI: from $-.8248$ to .4074). The overall moderated mediation index further supports that crowdedness influenced communications intentions by affecting brand attachment, and this effect was contingent on previous experience with the brand (index = 1.00, boot SE = .43; 95% CI from .1938 to 1.8744).

Brand Forgiveness. Participants’ willingness to forgive the brand in case of product failure was influenced similarly. Analyses yielded a significant effect of previous experience ($F(1, 198) = 103.14$, $p < .001$, $\eta_p^2 = .34$) and an interaction of experience and crowdedness

($F(1, 198) = 7.93, p = .005, \eta_p^2 = .04$). When participants had previously used the brand, they were more forgiving in crowded than in uncrowded conditions (7.10 vs. 5.84; $t(198) = 3.49, p = .001, d = .70$). If they had never used the brand, however, this difference was negligible (3.81 vs. 3.98 for crowded and uncrowded conditions, respectively; $t < 1$, NS).

A moderated mediation analysis similar to that described earlier was conducted for brand forgiveness. Previous experience moderates the impact of crowdedness on brand attachment ($b = 1.44, SE = .61, t(198) = 2.37, p = .019$). A regression predicting brand forgiveness from crowdedness and brand attachment showed a significant effect of brand attachment ($b = .58, SE = .05, t(199) = 10.74, p < .001$). Compared with participants who had used the brand before (conditional indirect effect = .69, boot SE = .26; 95% CI from .2742 to 1.4059), those without previous experience with the brand before did not show differential brand attachment and thus brand forgiveness was not influenced by crowdedness (conditional indirect effect = $-.15$, boot SE = .26; 95% CI: from $-.8248$ to $.4074$). The overall moderated mediation effect was significant (index = .84, boot SE = .37; 95% CI from .1972 to 1.5978).

Discussion. This experiment indicated that crowdedness only increased attachment to brands with which participants had had previous experience but not those without prior experience. In addition, the increased brand attachment caused by crowdedness could have other downstream consequences, including higher willingness to communicate about the brand to others and greater tolerance of product failure.

STUDY 9

In real life, consumers are often exposed to multiple brands at the same time. Study 9 extended the findings of study 8 to an actual brand choice situation in which two brands were presented and the relative familiarity of the choice alternatives was manipulated. We expected that crowdedness would increase consumers' preference for familiar brands but not unfamiliar ones.

Method

Participants and Design. One hundred ten students (85 females, $M_{\text{age}} = 21.82$) from a large Asian university participated in the study for a monetary incentive equivalent to \$1.50 USD. They were randomly assigned to one of two conditions (crowded vs. uncrowded).

Procedure. Similar to study 2, this study manipulated actual crowdedness by varying the number of participants in each session (20–23 participants in the crowded condition and 4–6 participants in the uncrowded condition).

Participants were told that the study consisted of some unrelated tasks. After completing some filler tasks (e.g., unscrambling sentences with neutral words), they were told that they could choose one soybean milk out of two options to take away as a gift for their participation. One option was a brand that most consumers had consumed before (Vitasoy), and the other was a new foreign brand that was not widely present in the market (Namyang). A pretest with 85 participants from the same subject pool confirmed that the former was indeed more familiar to the consumers in this market than the latter ("How familiar are you with this brand?"; 1 = not familiar at all, 9 = very familiar; $M = 7.91$ vs. 1.47 for Vitasoy and Namyang, respectively; $t(84) = 44.56, p < .001, d = 6.81$).

After making their choice, participants reported their attachment to the two brands along the same scale used in study 3 (Batra et al. 2012). For each brand, responses to the three items in this scale ($\alpha = .92$ and $.89$ for the two brands, respectively) were averaged to form a single index. Finally, participants reported the crowdedness of the situation along a scale from 1 (not crowded at all) to 9 (very crowded) and received the soybean milk they had chosen.

Results and Discussion

Manipulation Check. Participants perceived the room to be more crowded when there were many people in it ($M = 6.98, SD = 1.88$) than when there were few ($M = 2.68, SD = 1.79; F(1, 108) = 150.23, p < .001, \eta^2 = .58$).

Brand Choice and Brand Attachment. Participants were more likely to choose the familiar brand in a crowded room (68.0%) than in an uncrowded room (46.7%; $\chi^2(1) = 4.96, p = .026$).

Participants' attachment ratings are consistent with this difference. An analysis of the effects of crowdedness using brand familiarity as a repeated measure yielded a significant main effect of brand familiarity ($F(1, 108) = 370.28, p < .001, \eta_p^2 = .77$) and a significant interaction of familiarity and crowdedness ($F(1, 108) = 9.63, p = .002, \eta_p^2 = .08$). Specifically, crowdedness increased attachment to the familiar brand (from $M = 5.98, SD = 1.84$ to $M = 7.02, SD = 1.44; t(108) = 3.48, p < .001, d = .67$) but not the unfamiliar brand ($M = 2.62, SD = 1.55$ vs. $M = 2.37, SD = 1.25$, for uncrowded and crowded conditions, respectively; $t < 1$, NS).

Discussion. The results of this study confirmed that crowdedness can increase consumers' attachment to a brand they have previously experienced. However, its effects extend to evaluations of individual brands in isolation as well as real choice of familiar and unfamiliar brands.

STUDY 10

Our previous studies have demonstrated that brand attachment can fulfill the need for belongingness in a crowded situation. Although it is possible that consumers become attached to a general type of product, this possibility seems intuitively unlikely on *a priori* grounds. For one thing, marketers promote the brand names of their products to make them distinguishable from competitors' brands in the hope that consumers will establish a unique relationship with them (Aaker 1991; Keller 1993; see also MacInnis and Folkes 2017; Park et al. 2010; Thomson et al. 2005). To this extent, consumers in the situations we considered should be more likely to seek attachment to specific brands that are easily identifiable than to general product categories. Study 10 evaluated this possibility.

Method

Two hundred forty adults (116 females, $M_{\text{age}} = 41.72$) were recruited from Amazon's Mechanical Turk to participate for a small monetary payment. They were randomly assigned to conditions of a 2 (crowdedness: crowded vs. uncrowded) $\times$ 2 (target: brand vs. product) between-subjects design.

Participants were told that the study consisted of several unrelated tasks. To manipulate crowdedness, they first completed the picture perception task as in study 5, in which they were asked to imagine being either in a crowded or an uncrowded situation. After that, participants in brand conditions were asked to indicate the brand of video-streaming service they were using, and to respond to the 10-item brand attachment scale used in study 1 (Thomson et al. 2005; $\alpha = .98$). In contrast, participants in product conditions, without being led to think about a specific brand, were asked to report their feelings toward video-streaming services in general using a similar scale ($\alpha = .95$). Finally, they reported how crowded they perceived the scene they saw to be along a scale from 1 (not crowded at all) to 9 (very crowded).

Results and Discussion

Manipulation Check. As expected, participants perceived the crowded scene to be more crowded ($M = 8.35$, $SD = 1.20$) than the uncrowded one ($M = 2.58$, $SD = 1.61$; $F(1, 236) = 1000.07$, $p < .001$, $\eta_p^2 = .81$), and this effect was independent of target ($F(1, 236) = 1.66$, $p = .20$).

Brand Attachment. Analyses revealed a marginally significant effect of target ($F(1, 236) = 3.35$, $p = .068$, $\eta_p^2 = .01$), a significant effect of crowdedness ($F(1, 236) = 9.30$, $p = .003$, $\eta_p^2 = .04$), and a significant interaction of these variables ($F(1, 236) = 4.33$, $p = .039$, $\eta_p^2 = .02$). Participants reported greater attachment to brands if they had imagined a crowded situation ($M = 6.57$, $SD = 2.04$)

than if they had imagined an uncrowded one ($M = 5.23$, $SD = 2.27$; $t(236) = 3.61$, $p < .001$, $d = .66$). However, their attachment to unbranded products did not differ in crowded ($M = 5.55$, $SD = 1.90$) and uncrowded conditions ($M = 5.30$, $SD = 1.88$; $t < 1$, NS).

Discussion. Consumers are generally more likely to be attached to brands than to types of products in general. Thus, as the results of study 10 suggest, the effects of crowdedness on attachment are restricted to specific brands and do not generalize to unbranded products. When crowded consumers are motivated to fulfill their unsatisfied need for belongingness, their attachment to specific brands can accomplish this, but products without brands do not serve this function.

STUDY 11

To evaluate the generality of our findings to real market settings, we conducted a field study. Specifically, we examined whether feelings of crowdedness predict brand attachment in a shopping mall.

Method

One hundred fifty consumers (131 females, $M_{\text{age}} = 24.64$) in a large shopping mall in Asia were invited by a research assistant to complete a short survey that was allegedly a student project on cell phone consumption. Respondents who agreed to participate were asked to report the brand of cell phone they were using. Participants were asked to indicate their feelings toward the brand of cell phone they used by responding to the same brand attachment scale used in study 1 (Thomson et al. 2005; $\alpha = .98$).

After that, they rated how crowded the shopping mall was along a scale from 1 (not at all) to 9 (very). In addition, they indicated the number of other persons with whom they were shopping at the time.

Results and Discussion

Brand Attachment. Participants' attachment to their brand of cell phone brand was positively correlated with their perception of crowdedness ($r(148) = .22$, $p = .007$). This correlation persisted even when the number of persons with whom participants were shopping was controlled ($r(147) = .21$, $p = .010$).

Discussion. Results of this study in the field provided further support for the external validity of the effects observed in previous studies. Brand attachment can be influenced by perceptions of crowdedness in an actual shopping environment.

GENERAL DISCUSSION

People have a fundamental need to belong. Therefore, when their exposure to a crowded environment motivates them to avoid social interaction, thereby leaving their basic need to belong unsatisfied, they become more attached to nonhuman targets such as brands. The studies we report confirm this process and circumscribe the conditions in which it occurs. Study 1 showed that when consumers imagine being in a store that sells a brand of product they typically use, they become more attached to the brand when the store is crowded. Study 2 showed that participating in an experiment under crowded conditions can enhance consumers' attachment to brands they frequently use. Moreover, study 2 confirmed our assumptions that this effect was mediated by consumers' desire to reconcile their heightened motivation to avoid social interaction and the unfulfilled need to belong that would result from doing so. This effect was not driven by exposure to negative stimulation per se (e.g., noise; study 3).

The remaining studies circumscribed the conditions in which these effects occur and shed further light on the underlying process. For example, the effect of crowdedness on brand attachment decreases when the crowded environment seems less aversive; that is, when the crowd is composed of familiar persons rather than strangers (study 4) or when consumers have an interdependent self-construal and are thus more tolerant of close social distances (study 5).

Our conceptualization implies that when the need for belongingness is satisfied via other means, the impact of crowdedness on brand attachment is weakened. This implication was verified in study 6, which shows that the effect of social crowdedness decreases if consumers can fulfill the need for belongingness by interacting with friends.

Whether brands can satisfy consumers' need to belong when they are motivated to avoid social interaction is determined partly by the characteristics of the brands themselves. If a brand reminds consumers of its use in a social context (study 7), crowdedness does not boost attachment to it; in fact, it may have the opposite effect. Moreover, if the brand is unknown and consumers have never used it, there is no basis for forming an attachment to it, and so crowdedness does not increase this attachment (studies 8 and 9).

The effect of social crowding on brand attachment is also quite unique. Brands have the merit of making products identifiable and facilitating relationship building with consumers. In study 10, we found that crowdedness does not appreciably increase attachment to products that are described generally without any brand names. Finally, study 11 extended the findings to a field setting (i.e., a shopping mall), showing that people's perceived crowdedness significantly predicted their attachment to the brand of cell phone they were using.

Theoretical Contributions

Past research has largely demonstrated negative effects of crowding. A crowded environment, which restricts one's personal space, can elicit feelings of stress (Collette and Webb 1976) and lack of control (Hui and Bateson 1991). Thus, it can shorten the time consumers spend shopping, lead them to avoid interacting with salespersons (Harrell et al. 1980), and negatively impact their attitude toward both the store (Hui and Bateson 1991) and the products sold in it (O'Guinn et al. 2015). In contrast, we find that exposure to a crowded environment can also have a positive effect on consumer-brand relationship. Specifically, although crowding motivates consumers to avoid interacting with people, it can increase consumers' attachment to brands and potentially strengthen consumer-brand relationships.

Our findings extend previous conceptualizations of the conditions in which brand attachment occurs. Prior literature assumes enhancing attachment to a brand takes time and requires repeated contact with a brand (Park et al. 2010). Several studies have found that when people chronically lack social resources in their social world (e.g., elderly or lonely consumers), they compensate by forming attachments to brands (Jahn et al. 2012; Pieters 2013). More recent findings have qualified this assumption, indicating that even incidental factors can strengthen brand attachment by intensifying the need to belong (Dunn and Hoegg 2014). However, our research suggests a different underlying mechanism. That is, the overall desire for affiliation is not activated by a *lack* of social connections. Rather, attachment to a familiar brand can serve as an alternative means of satisfying people's need to belong when they feel reluctant to interact with other people. Thus, an increase in brand attachment can result not only from an increased desire for affiliation but also from exposure to a situation in which social interaction is *unwanted* and consumers have to address their need for belongingness in other ways.

In addition, the impact of social crowdedness on brand attachment does not seem to be transitory or confined to self-reported preferences. Even brief exposure to a crowded situation can affect consumption decisions with lasting consequences. For example, exposure to crowdedness for just a short period of time can lead consumers to choose a more familiar brand over a less familiar one (study 9). Interestingly, just as people may turn to close friends to satisfy their need to belong if those persons are present in the crowded scene (study 6), consumers are likely to become more attached to the brand that is brought to mind when they feel crowded. A brief experience of using a brand in a crowded situation can make it salient in the minds of consumers and increase their attachment to it, consequently increasing their likelihood of choosing it over another brand, even if the two brands may be equally

familiar to the consumers before they have the crowded experience (study 3).

Managerial Implications

Our research could have important marketing implications. Crowding is an inherent part of everyday life (e.g., subways, shopping malls, and restaurants). If crowded places can lead to greater brand attachment, marketers might capitalize on this possibility in their efforts to strengthen consumer-brand relationships. Loyalty programs, for example, might be more effective if consumers are exposed to them in a crowded shopping environment. In addition, with the advancement of mobile technology, consumers' real-time geolocations can be easily tracked, which allows companies to know where their customers are located. In such cases, companies may push notifications promoting their brands when the customers are likely to be in a crowded location.

According to the results of study 9, consumers in a crowded environment are more likely to prefer familiar brands to unfamiliar ones. Such findings can be applied by marketers as they decide the content of in-store displays. For example, when stores are crowded, marketers should place less emphasis on new brands in in-store digital displays and promote familiar brands rather than unfamiliar ones.

Limitations and Future Directions

Several qualifications relating to our conclusions should be mentioned. In the conditions we investigated, consumers had no choice over their exposure to crowded environments. If people's exposure to such an environment is under their control (e.g., if they voluntarily choose to enter a crowded shopping environment), it is likely that they will expect crowdedness, and hence the aversive feelings induced by the invasion of personal space might not occur (Xu et al. 2012). For example, consumers might sometimes decide voluntarily to eat in a crowded restaurant because they infer that the restaurant is very popular. In other cases, people may actually enjoy being crowded. For instance, people may find it more fun to have many people around while watching a football game, walking in a parade, or dancing in a club. Under such circumstances, crowdedness is less likely to be aversive and so the positive effects of social crowdedness on brand attachment may not occur.

Our research indicates that a brand with social attributes does not serve as a surrogate for people who want to avoid social interactions (study 7). The extent to which a brand can be viewed as a human might be another boundary condition on the effects we identified. In general, the effects we report should be more likely to be evident for non-anthropomorphized brands. We also suspect that when a familiar brand—one that is just like an old friend to customers—is anthropomorphized, people in a crowded setting will be more likely to form a strong attachment to

it. When an unfamiliar brand is anthropomorphized, however, people in a crowded setting will try to avoid forming an attachment to it due to the heightened social avoidance of unfamiliar others in a crowded environment. These possibilities may also be worth examining.

DATA COLLECTION INFORMATION

The second author managed the data collection of study 1 (April 2016), study 4 (June 2016), study 5 (May 2016), study 6 (April 2017), study 7 (July 2016), study 8 (May 2016), and study 10 (May 2017) on Amazon's Mechanical Turk. The second author conducted study 2 (April 2017), study 3 (November 2016), and study 9 (March 2017) at Hong Kong Polytechnic University. The first author supervised the data collection for study 11 (June 2016) by research assistants at the Jem Shopping Mall, Jurong East, Singapore. The first and second authors jointly analyzed these data.

APPENDIX

Measure of Social Interaction Avoidance (Burger 1995)

Instruction: For each of the following pairs of statements, select the one that best describes you at this moment. In some cases neither statement may describe you well or both may describe you somewhat. In those cases, please select the statement that best describes you or that describes you more often.

1. "I enjoy being around people" vs. "I enjoy being by myself."
2. "I would try to structure my day so that I always am doing something with someone" vs. "I would try to structure my day so that I always have some time to myself."
3. "One feature I look for in a job is the opportunity to interact with interesting people" vs. "One feature I look for in a job is the opportunity to spend time by myself."
4. "If I have spent a few hours surrounded by a lot of people, I would find myself stimulated and energetic" vs. "If I have spent a few hours surrounded by a lot of people, I would be eager to get away by myself."
5. "Time spent alone would be time wasted for me" vs. "Time spent alone would be productive for me."
6. "Right now I do not have a strong desire to get away by myself" vs. "Right now I have a strong desire to get away by myself."
7. "I would like to vacation in places where there are a lot of people around and a lot of activities going on" vs. "I would like to vacation in places

where there are few people around and a lot of serenity and quiet.”

8. “If I have to spend several hours alone, I would find the time boring and unpleasant” vs. “If I have to spend several hours alone, I would find the time productive and pleasant.”
9. “If I were to take a several-hour plane trip, I would like to sit next to someone who was pleasant to talk with” vs. “If I were to take a several-hour plane trip, I would like to spend the time quietly.”
10. “Time spent alone is boring and uninteresting” vs. “Time spent with other people is boring and uninteresting.”
11. “Right now I have a strong need to be around other people” vs. “Right now I do not have a strong need to be around other people”
12. “I feel there would rarely be times when I just have to get away and be by myself” vs. “I feel there would be many times when I just have to get away and be by myself.”

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