Automatic Effects of Brand Exposure on Motivated Behavior: How Apple Makes You "Think Different"

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This article first examines whether brand exposure elicits automatic behavioral effects as does exposure to social primes. Results support the translation of these effects: participants primed with Apple logos behave more creatively than IBM primed and controls; Disney-primed participants behave more honestly than E!-primed participants and controls. Second, this article investigates the hypothesis that exposure to goal-relevant brands (i.e., those that represent a positively valenced characteristic) elicits behavior that is goal directed in nature. Three experiments demonstrate that the primed behavior showed typical goal-directed qualities, including increased performance postdelay, decreased performance postprogress, and moderation by motivation.

People see thousands of brand images in an average day. Given how ubiquitous brands have become in people's everyday lives, it is important that research uncovers the ways in which brand exposure can affect behavior. Although brands are of significant interest to consumer researchers, scant empirical work has addressed the potential behavioral consequences of brand exposure, inside or outside of the consumer decision-making context. And yet, given that consumers encounter many more brands than people in an average day, brands have surely become more psychologically meaningful than the existing empirical work would suggest.

Our first objective is to investigate whether behavioral priming effects translate from the social to consumer domain. Can brand primes elicit effects on behavior in the same fashion as can person primes? Our second objective is to understand underlying mechanisms. If brand primes can shape behavior, what is the process by which they elicit their effects? On the one hand, because brands are thought to be linked to personality traits, they may elicit cognitively based behavioral effects, as do person representations. On the other hand, brands are symbols of aspirations, representing desired self-qualities, such as sophistication or power. Thus, brand priming may well activate goals linked with these desired outcomes and thus elicit goal-directed behavior. This article seeks evidence for brand priming effects and uses novel methods to a priori predict the conditions under which each type of process pathway should be expected.

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Behavioral Priming in the Social Domain

Research in social psychology has emphasized the important effects that can stem from the "priming" or situational activation of mental constructs, demonstrating that environmental cues, even subtly presented, can have powerful effects on behavior (Bargh, Chen, and Burrows 1996; Bargh et al. 2001). Although most behavioral priming research has focused on the direct activation of a mental construct via exposure to related words (e.g., priming participants with words related to rudeness leads them to behave rudely; Bargh et al. 1996), a burgeoning set of research has examined the effects of environmental cues encountered in

everyday life, such as stereotyped group members and significant others. For example, exposure to a stereotyped other can guide complex behavior in line with information embedded in the stereotype: people primed with the elderly walked more slowly (Bargh et al. 1996) and displayed poorer memory (Dijksterhuis, Bargh, and Miedema 2000). Familiar others can also elicit these automatic effects, in line with relational information embedded in the significant other representation (Andersen, Reznik, and Manzella 1996; Fitzsimons and Bargh 2003; Shah 2003). For example, students subliminally primed with their father outperformed control participants on an achievement test if they believed their fathers would be interested in their success (Shah 2003). Importantly, these behavioral priming effects are known to result from automatic processes requiring no effort, intentionality, or awareness. Participants possess no awareness of the effect of the prime on their behavior or of the activation of the primed construct. Primes are often presented subliminally, showing that such effects can result even when participants are unaware of the primes themselves (Shah 2003).

A number of underlying mechanisms have been proposed to account for behavioral priming effects, including purely passive, cognitive accounts (Bargh et al. 1996; Dijksterhuis and Bargh 2001); purely goal-driven, motivational accounts (Bargh et al. 2001; Chartrand and Bargh 1996); and accounts that integrate cognitive and motivational processes (Kay and Ross 2003; Smeesters et al. 2003; Wheeler and Petty 2001). The most prominent account of behavioral priming effects has emphasized the role of activated cognitive constructs (Dijksterhuis and Bargh 2001). According to this account, constructs associated with the primed representation guide behavior through a direct perception-behavior link, when people's behavior mirrors a perceived construct (Dijksterhuis and Bargh 2001). For example, because people's mental representation of the elderly is linked to the construct "slow," when people are primed with the elderly, "slow" is also activated and, because of links to behavioral representations, leads to an increased likelihood that the corresponding behavior will result (i.e., people will walk more slowly; Dijksterhuis and Bargh 2001).

In addition to this cognitively based account, recent research has emphasized the role of activated motivational constructs in producing these effects. Because goals are theorized to be represented mentally as are other cognitive constructs (Bargh 1990; Hull 1931; Kruglanski 1996; Tolman 1932), they can be activated by situational cues and then operate automatically to shape behavior. For example, for students who hope to please their mothers by achieving, mother priming causes the goal "to achieve" to become active, leading them to perform better on a test (Fitzsimons and Bargh 2003). As for the process through which a primed goal causes increased performance, research has suggested that activated goals cause goal means (ways to achieve the goal) to become more accessible (Shah, Kruglanski, and Friedman 2002). That is, when a goal becomes active, means to achieving that goal also become active, which then go on to shape behavior. In an achievement context, for example, means that may become active are "to concentrate" and "to ignore distractions." Goal-based accounts of behavioral priming effects are novel and have received empirical support in a small but growing number of recent papers (Aarts et al. 2005; Bargh et al. 2001; Chartrand and Bargh 1996; Custers and Aarts 2005b).

Translation of Behavioral Priming from the Social to the Consumer Domain

Thus, a body of research has compellingly demonstrated the effects of exposure to social primes on behavior and has outlined the main types of processes that underlie these effects. In this article, we investigate whether the same kinds of behavioral priming phenomena can result from exposure to consumer brands. It is well known that exposure to brands can shape decision making within the consumer setting. For instance, Chartrand et al. (forthcoming) found that consumers exposed to low-end brand names (e.g., Wal-Mart) chose products of higher value and lower prestige, relative to those exposed to high-end brand names (e.g., Nordstrom). Ferraro, Bettman, and Chartrand (2006) found that as the frequency of exposure to a brand increases, so too does a consumer's tendency to choose that brand. Yet, this previous research has been limited to exploring the consequences of brand exposure for subsequent brand or product choice. What about the rest of our lives? Does the impact of brand exposure end with purchasing decisions, or can it extend to behaviors unrelated to the products the brand represents? In other words, can brands cause people to behave rudely (Bargh et al. 1996) or win more points at Trivial Pursuit (Dijksterhuis and van Knippenberg 1998)? In addition, can brands evoke both cognitive (trait-based) and motivational (goal-based) effects? In this section, we will outline reasons for and against the likelihood of obtaining behavioral priming effects from exposure to everyday consumer brands.

Arguments for Brands as Behavioral Primes. There is a set of good reasons to expect the translation of behavioral priming effects to the consumer domain. First, researchers have found good evidence that consumers perceive brands as being linked to human characteristics (Aaker 1997; Bem and Funder 1978; Gardner and Levy 1955; Keller 1993; Sentis and Markus 1986). For example, survey research has shown remarkable consistency among members of a given culture about the personality of popular brands (Aaker, Benet-Martínez, and Garolera 2001). Given the existence of a trait-brand link, brand exposure could shape nonconsumer behavior via cognitive mechanisms: spreading activation is a basic principle of most associative and connectionist models (Anderson 1983; Rumelhart, Widrow, and Lehr 1994) and should be seen with brand representations as well as other kinds of mental representations. Thus, brands may shape behavior via cognitively based processes such as the perception-behavior link.

It is also possible that brands may elicit goal-based priming effects, which are of particular interest because—unlike

cognitively based effects—their activation is thought to last over time, and thus they have the potential for greater impact. Although no empirical work has yet addressed the role of goal constructs in brand representations, goals and motives are essential parts of both social and consumer behavior and are known to play an important role in brand-behavior relationships (Shiv and Huber 2000; Zhang and Mitchell 2005). Indeed, much of the psychological value consumers obtain from brands appears to come from brands' ability to fulfill their personality and identity motivations. In representing desired qualities of self such as sophistication or manliness, brands such as Tiffany or Hummer are goal relevant in nature, symbolizing aspirations or unattained goals. In particular, some brands may represent "be" or ideal-self goals (e.g., to be sophisticated), which describe people's aims to improve themselves (Carver and Scheier 1998; Gollwitzer and Moskowitz 1996.) Just as exposure to role models—people who represent success—can inspire goal-directed action (Lockwood and Kunda 1997), so too should exposure to brands that symbolize success at a given goal. Thus, via associations with desired human qualities, goal-relevant brands may acquire the ability to trigger these ideal-self goals and shape behavior. For example, the athletic brand Nike is associated with traits such as "active" and "confident." These characteristics are generally seen as positive in American culture, so Nike likely plays a motivational role for many people, symbolizing desirable future or alternative selves. In the case of Nike, then, we would expect that brand exposure could lead people to pursue goals to be confident and active.

Arguments against Brands as Behavioral Primes. There are reasons to expect that behavioral priming effects may translate into the brand domain via both cognition- and goal-based mechanisms. However, there are also reasons to doubt the translation of social priming effects to brand priming. After all, researchers have failed to find some basic social perception effects when dealing with objects such as brands (Lingle, Altom, and Medin 1984). As noted by Sujan and Bettman (1989, 455), these failures to replicate likely reflect differences between person- and brand-representations in memory, which may affect the ability of brands to automatically prime behavior. One such difference lies in the behavioral-response components of these representations: brand representations are likely to be far less practiced and well established than those of social schemas for several reasons. For one, brands play a less central role in life than do people and one of less affective value (Sujan and Bettman 1989).

Furthermore, it is thought that automatic behavioral priming responses develop only under highly specific conditions, resulting from pairings of construct and behavior that are frequent, consistent, and positively rewarded (Logan 1979; Schneider and Shiffrin 1977). The pairing of a behavioral response to a given person often meets these conditions (Cesario, Plaks, and Higgins 2006; Jonas and Sassenberg 2006) and allows for the effortless enactment of common and rewarded behaviors. In contrast, automatic responses to a brand possess very little functional value—when does acting "like" or "toward" a brand produce reward? Given this lack of functionality, it is likely that brand-behavior pairings may be weaker, and, thus, brands may be less likely to elicit automatic behavioral responses. Even the association of a trait with a brand representation itself may be weaker, as people rarely witness brands engaged in trait-consistent "action" that strengthens the link, as they do with people (e.g., a rude person behaving rudely). Perhaps most important, consumers are known to be concerned about the effects of advertising on their behavior (Friestad and Wright 1995), and this caution may well lead them to exert greater efforts to control their responses to brand exposure (Wilson and Brekke 1994).

Certainly there are compelling reasons why brand priming may fail to elicit the same kinds of behavioral effects as does person priming. However, because of the omnipresence of brands in consumers' everyday lives, we believe that they are likely to possess more power to shape and guide behavior than may seem initially plausible. Furthermore, we believe consumers are unlikely to have the ability to successfully guard against brand influence, given the capacity such efforts would require and the fact that much of brand influence likely flies under the radar of consumer attention. Billboards, product placements, and celebrity endorsements all contribute to the relatively implicit construction of brand representations over time and to the automatic association of brands with desirable human qualities. Given people's lack of success at understanding of and correcting for external influence (Nisbett and Wilson 1977; Wilson and Brekke 1994), we predict that these brand-trait associations—shaped over time and outside of conscious awareness—will affect behavior in a nonconscious fashion.

As we have discussed, it is conceivable that brand priming could shape behavior via both cognitive- and goal-based pathways. Next, we discuss variables that can influence when cognitive- or goal-based pathways will play the primary role in directing primed behavior and begin to lay out our hypothesis that under certain conditions, brand exposure can elicit goal-directed action.

Does Brand Exposure Motivate?

The second objective of the current article (in addition to testing the translation of social priming effects into the brand domain) is to investigate whether such brand priming effects are driven by goal-based or cognition-based processes. As Bargh (2006) recently noted, now that a large body of social psychological evidence exists in support of behavioral priming effects, it is time to turn to "second-generation" questions (Zanna and Fazio 1982) regarding how to disentangle goal-based and cognition-based underlying processes. This is a complex and difficult task: it is well known that one prime can activate both trait-based and goal-based constructs, each of which could then play a role in shaping behavior (Bargh et al. 2001). Furthermore, cognitive priming effects are likely to be triggered anytime the prime and the behavior being measured share associations (Custers and

Aarts 2005a; Förster, Liberman, and Friedman 2007): for example, if a prime activates cooperation, and willingness to cooperate with a confederate is measured, cognitive priming effects on behavior should emerge (if measured promptly). Given the ubiquity of cognitively based effects, how can researchers distinguish between the presence of cognitive and motivational mechanisms?

Thankfully, goal-based priming effects follow additional principles that distinguish them from non-goal-based effects. A recent theoretical review paper by Förster and colleagues lays out seven principles that allow researchers to distinguish between goal-based priming effects and all other types of priming effects (Förster et al. 2007). Goal-directed behavior is known to "look" different than other kinds of behavior: it increases following a delay, persists through obstacles, and decreases when the goal is satisfied (Atkinson and Birch 1970; Bargh et al. 2001; Förster, Liberman, and Higgins 2005; Förster et al. 2007). Using these principles, researchers can determine post hoc whether goal-based processes are at work by examining behavior for these qualities.

Recently, Custers and Aarts (2005a, 2005b) presented a novel framework designed to utilize established principles to predict a priori when primes will elicit goal-directed action. First, goals are thought to shape behavior only when the individual perceives a discrepancy between his or her current and desired end states (Carver and Scheier 1998). According to Custers and Aarts (2005a, 2005b), for a prime to elicit goal-directed action, individuals thus must perceive a discrepancy with respect to the goal of interest. That is, if a woman's desired weight is 10 pounds lower than her current weight, she has a discrepancy with respect to her dieting goals; if primed with the concept "diet," then, she should engage in goal-directed action and try to eat less. If, however, she has just lost 10 pounds, then diet priming should have no effect on her goal-directed behavior, as she has no discrepancy between her current and desired states. Thus, if no discrepancy exists, no goal will shape behavior. If so, any behavioral effect that results from this priming would stem from a nonmotivational mechanism. In the case of our dieter, for example, it is possible she would eat less following the dieting prime simply because of cognitive links between the concept and behavioral representations of dieting. Importantly, this principle allows us to predict circumstances under which goal-based processes will versus will not result from brand priming: goal-based effects will result only when participants are primed with a brand associated with a goal dimension in which they perceive some discrepancy.

Second, for a prime to elicit goal-directed action, the end state must be associated with positive affect; end states that are negatively perceived by the individual will not motivate approach behavior (Carver and Scheier 1998; Custers and Aarts 2005a; Förster et al. 2007). Because individuals differ on whether a given end state is associated with positive affect, we can use this individual difference to predict whether goal-based behavior will result. For individuals who possess a goal to be sophisticated, for example, a brand prime associated with sophistication (e.g., Cartier) should trigger behavior directed by a "be sophisticated" goal. For individuals who are uninterested in being sophisticated, the Cartier prime should not trigger any goal-directed behavior. Thus, any behavioral effect of the Cartier prime on behavior for those individuals results only from cognitive mechanisms. If the Cartier prime only affects those who possess the goal, the effects of the prime can be described as solely goal-directed in nature.

Using these ideas as a framework, this article presents data related to two main objectives. As an initial step, we will investigate whether behavioral priming effects can be found with brand primes. Next, we will test the hypothesis that brand exposure will elicit goal-based behavior when the brand is goal relevant in nature, that is, when (*a*) the brand is linked to a human characteristic, (*b*) a discrepancy exists, and (*c*) the end state of possessing this characteristic is linked with positive affect. When these circumstances do not apply, we hypothesize that brands will elicit cognitively based processes only, if any. Our experiments will test this hypothesis by examining behavior for the presence of unique goal qualities (persistence after delay), by manipulating factors known to influence only goal-based processes (perceived progress), and by examining the role of chronic motives in moderating the effects of brand exposure.

EXPERIMENT 1

Experiment 1 first investigates whether behavioral priming effects can translate from the social to the consumer domain, testing the hypothesis that brands can elicit automatic effects on behavior by examining how people behave after subliminal exposure to consumer brand logos. For a consumer brand of interest, we chose the Apple computer company. Apple has labored to cultivate a strong brand personality based on the ideas of nonconformity, innovation, and creativity. Advertising and marketing strategy have highlighted these associated characteristics with advertisements like the "Think Different" campaign. Although consumer creativity is an underresearched topic, it is a variable that is growing in interest for consumer researchers (Burroughs and Mick 2004; Moreau and Dahl 2005). Indeed, in this age of consumer-generated content—when product personalization and idiosyncratic consumer expression are at an all-time high—creativity is becoming more central to many consumption behaviors.

As a comparison brand, we chose IBM computers. (These experiments were conducted prior to the emergence of Lenovo; we have not tested consumer perceptions of IBM following that change in the brand.) Both brands are highly familiar to consumers, although each is linked with different characteristics. In contrast to Apple's innovative and creative associations, IBM is linked to characteristics such as traditional, smart, and responsible (Aaker 1997). Importantly, both of these brands are evaluated positively, but only Apple is associated specifically with "creativity." (See pretest data in the methods section.)

Participants were subliminally exposed to images of either

Apple or IBM brand logos and then completed a standard creativity measure, the "unusual uses test" (Guilford, Merrifield, and Wilson 1958). The unusual uses task allows for two tests of behavioral priming effects. First, the total number of uses generated serves as a measure of participants' motivation to be creative: if a goal to be creative is active, participants should generate a higher number of total uses. Importantly, these uses need not all be creative—just the sheer act of attempting to generate as many uses as possible is often used as a metric of creativity on this test (Eisenberger, Armeli, and Pretz 1998; Glover and Gary 1976) and is an excellent measure of the motivation to be creative. Second, the rated creativity of each use serves as an additional measure of creativity.

Importantly, these behavioral priming effects should occur in the complete absence of conscious awareness. Participants should not recognize the primed images, nor believe there to be a connection between the tasks, nor recognize that they are behaving creatively. We included a thorough funneled debriefing task to measure awareness (Bargh and Chartrand 2000).

The second aim of experiment 1 is to investigate whether brand-driven behavioral priming effects are driven by goal-based or cognition-based constructs. As noted in the introduction, goal-directed behavior is thought to result from priming only under certain conditions (Custers and Aarts 2005a; Förster et al. 2007). We believe that those conditions are met when participants are primed with the Apple brand: Apple is a goal-relevant brand in that it is associated with creativity, a positively valenced trait for most Americans. Thus, we predict that Apple priming will evoke goal-directed creativity behavior. IBM, in contrast, is a goal-irrelevant brand in that it has no relation to creativity and should thus not affect behavior.

To test the hypothesis that goal-based mechanisms may drive the Apple priming effect on creativity, we partially adopted the paradigm used by Bargh et al. (2001, experiment 3) to distinguish between cognitive and motivational priming effects. Bargh and colleagues based their paradigm on the theory that goals tend to maintain and even build in strength until they are acted upon. Atkinson and Birch (1970) theorized that activated goals will continue to increase in strength, pressing the actor to act upon the goal tendency until attained. In contrast, nonmotivational constructs are known to decrease in activation over time (Anderson 1983; Higgins, Bargh, and Lombardi 1985; Srull and Wyer 1989). Indeed, cognitive priming effects have repeatedly been shown to dissipate after even a short delay (Bargh 1994; Higgins 1996). Thus, persistence and increases in strength after a delay are unique qualities of goal-driven behaviors. Taking advantage of this distinction, Bargh et al. (2001) examined performance on an academic test immediately after exposure to achievement primes versus after a 5-minute delay. Supporting the hypothesis that an achievement goal was activated, results showed that performance persisted and actually increased after the delay. For the current study, we added a similar manipulation—whether participants experienced a delay between the priming task and the creativity measure—to investigate the possible role of motivated processes. Because of our hypothesis that Apple is goal relevant, in that it is related to creativity (a positively valenced characteristic), we predicted that the brand priming effects would persist across the delay, rather than decrease, as cognitively based processes are known to do.

Method

Pilot Testing. Twenty-five participants completed this questionnaire. Half of the participants answered questions about IBM, and the other half answered questions about Apple. Participants were given a list of traits and asked to rate the extent to which they perceived Apple/IBM as possessing each of these traits (on a 1–9 scale, where 1 = not at all, and 9 = extremely). The list included the trait word of interest, "creative." The questionnaire also included two questions about participants' overall evaluations of IBM and Apple ("How much do you like the brand Apple/IBM?" and "How positive do you feel about Apple/IBM?"). As predicted, there was a significant difference in the extent to which Apple and IBM were perceived to be creative ($t(23) = -4.91$, $p < .001$), with Apple receiving higher ratings ($M = 7.62$; SD = 1.23) than IBM ($M = 4.17$; SD = 2.12). Thus, pilot tests confirmed that in our college sample Apple is believed to be more creative than is IBM. IBM, it is important to note, is not seen as particularly creative or uncreative; it is rated at approximately the midpoint of the scale.

Importantly, Apple was not reported to be liked more ($M = 6.92$) or perceived more positively ($M = 6.75$) than IBM ($M_{\text{liking}} = 6.77$, $M_{\text{pos}} = 7.15$; both F's < 1). Thus, any effects we obtain are unlikely to result from differential valence of the two primed brands.

Participants. Three hundred and forty-one students (190 men) completed the study as part of an in-class demonstration. Participants were students in two sections of the same class; one section (219 students) was assigned to the subliminal Apple prime condition; the other (122 students) was assigned to the subliminal IBM prime condition. The sections were 1 day apart at the same time; students are randomly assigned by the university to class section, and thus do not differ according to self-selection biases. Furthermore, students completed a questionnaire earlier in the course providing information on demographic variables; no differences emerged. Participants were randomly assigned (within priming condition) to experience a 5-minute delay versus no delay following the priming task, prior to beginning the creativity measure.

Materials and Procedure. The experimenter explained that interested students could participate in a study to facilitate learning on that day's (as yet unannounced) topic. After signing the consent form, participants viewed the priming task on the projected screen. On each trial, an asterisk appeared in the center of the screen, followed by a

number (between one and 13) that appeared for a random interval of between 1,000 and 2,500 milliseconds. During presentation of the number, the stimulus and mask flashed in the center of the screen. Each flash consisted of a pattern mask presented for 80 milliseconds, the prime stimulus for 13 milliseconds, and a pattern mask for 80 milliseconds. The stimulus was of one of four Apple (or IBM) logos, each exposed 12 times in a random order, to provide a total exposure of 48 Apple (or IBM) logos. The logos were digital typographic images taken from online advertisements and company Web sites. To control confounding influences, the logos were matched for color use, size, and level of detail. Each included only the word Apple or IBM. Participants were asked to total a running sum of the numbers presented.

After the priming task, participants were asked to complete the booklet tasks in order. Participants were randomly assigned to receive either the no-delay booklet, in which the unusual uses task was the first task, followed by a verbal task that consisted of crossing out the *e*'s in a passage of text taken from an engineering textbook, or the delay booklet, in which the verbal task came first. The verbal task was designed to be mindless: the text was uninteresting and filled with engineering jargon and took approximately 5 minutes to complete.

Instructions for the unusual uses test (Guilford et al. 1958) were provided on the handout, informing participants that their task was to generate as many unusual uses for a common object as possible. Participants were asked not to include ordinary or impossible uses for the object. They read some sample uses for a paper clip that were unusual (wear as an earring), usual (hold paper together), and impossible (fly around the world). On the next page, participants were asked to generate as many unusual uses as they could for a brick. Nowhere in this measure was the concept of creativity mentioned, to reduce the chance that the task itself would prime creativity.

Participants then completed a funneled debriefing questionnaire (Bargh and Chartrand 2000) that asked whether they had seen any images during the priming task, and, if so, what they believed the images to be and how they felt the images may have affected their performance on the creativity task (Bargh and Chartrand 2000). Finally, participants read a written debriefing form, and the experimenter explained the study in the course of the lecture.

Results

Preliminary Analyses. We computed two measures of creativity. First, we used the traditional measure of creativity in this task, which is the number of uses generated (Eisenberger et al. 1998; Glover and Gary 1976). The distribution of uses generated was normally distributed ($M = 7.11$; SD $= 3.30$). As a second measure, we used judges' evaluations of the creativity of each use (Silvia and Phillips 2004). A pair of judges, blind to condition, evaluated each of the uses, using a 1–10 scale where 1 = extremely creative and 10 = not at all creative (for clarity, we have subtracted the raw score from 10, meaning that higher numbers indicate greater creativity; alpha of judges' ratings = .84). Because the creativity of each use tends to decrease strongly with the number of uses generated (Guilford et al. 1958), we used an average of the first three uses generated. Effort will lead participants to list more uses; however, ability to create unique uses decreases with the number of uses listed. Thus, using the first three uses generated gives us a relatively "pure" measure of creative performance, without being contaminated by effort.

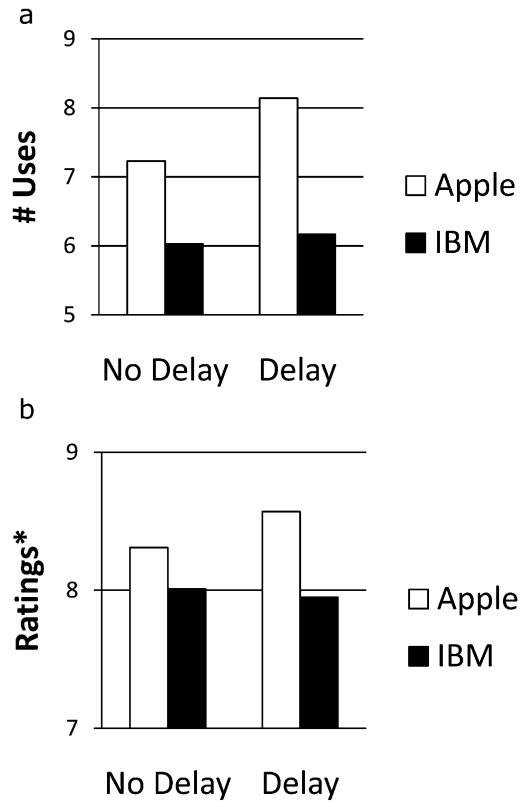
Hypotheses Testing. First, a two-way ANOVA of priming condition (Apple vs. IBM) by Delay (Delay vs. No Delay) was performed on the "number of uses" measure. A significant main effect of priming condition was found ($F(1, 337) = 20.07$, $p < .01$), indicating that, as predicted, Apple-primed participants generated a higher number of unusual uses ($M = 7.68$) than did those in the IBM prime condition ($M = 6.10$). There was no significant main effect of Delay ($F(1, 337) = 2.18$, $p = .14$; $M_{\text{Delay}} = 7.15$, $M_{\text{ND}} = 6.63$) nor an interaction between Delay and priming condition ($F(1, 337) = 1.16$, $p = .28$).

We next conducted three planned comparisons (see fig. 1*a*). First, we examined performance within the no-delay condition and found that Apple-primed participants generated more uses ($M = 7.23$) than did IBM-primed participants ($M = 6.03$; $F(1, 337) = 6.08$, $p < .02$). Next, to test for the effect's persistence, we examined performance within the delay condition. Again, Apple-primed participants generated more uses ($M = 8.14$) than did IBM-primed participants ($M = 6.17$; $F(1, 337) = 15.12$, $p < .01$). Finally, to see if the creative behavior of Apple-primed participants actually increased after a delay, we examined their performance across conditions, finding that Apple-primed participants were more creative after Delay ($M = 8.14$) than after No Delay ($M = 7.23$; $F(1, 337) = 3.94$, $p < .05$). The performance of IBM-primed participants was not affected by Delay ($F < 1$, NS; $M_{\text{Delay}} = 6.17$, $M_{\text{ND}} = 6.03$).

Using the judges' ratings of creativity, the pattern reported above was replicated (see fig. 1*b*). A two-way ANOVA of priming condition (Apple vs. IBM) by Delay (Delay vs. No Delay) produced a significant main effect for priming condition ($F(1, 337) = 24.84$, $p < .01$), indicating that judges evaluated uses generated by Apple-primed participants as more creative ($M = 8.44$) than those by IBM-primed participants ($M = 7.98$). There was no significant main effect of Delay on creativity ratings ($F(1, 337) = 1.24$, $p = .27$). A marginally significant two-way interaction emerged between priming condition (Apple, IBM) and delay condition (Delay, No Delay; $F(1, 337) = 2.93$, $p = .088$). Planned comparisons indicated that Apple-primed participants received higher ratings than IBM-primed participants in the no-delay condition ($F(1, 337) = 5.99$, $p = .01$) and even more so in the delay condition ($F(1, 337) = 20.27$, $p < .001$). Apple-primed participants received higher ratings after a delay ($M = 8.57$) than after no delay ($M = 8.31$; $F(1, 337) = 5.62$, $p = .02$). In contrast, the performance of IBM-primed

FIGURE 1

EXPERIMENT 1: CREATIVITY BEHAVIOR BY PRIMING CONDITION (IBM, APPLE) AND DELAY (IMMEDIATELY OR AFTER 5 MINUTE DELAY)



NOTE.—Figure 1*a* shows number of uses generated, and *b* shows judges' ratings of creativity. * Scores subtracted from 10 for graphic purposes.

participants was not affected by the introduction of a delay ($F < 1$, NS; $M_{\text{Delay}} = 7.95$, $M_{\text{ND}} = 8.01$).

Awareness Checks. In the funneled debriefing task, no participant reported seeing any images during the priming task. Of the 341 participants, zero guessed correctly that they had been exposed to brand logos. This provides confirmation that the subliminally presented primes remained outside of conscious awareness (Bargh and Chartrand 2000).

Discussion

This experiment addressed both of our two objectives. First, it provided support for the hypothesis that brand exposure elicits automatic effects on behavior. Participants subliminally exposed to the Apple brand outperformed IBM-primed participants on a creativity test. Second, it provided initial evidence for the role of goal-based processes in the effects of brand priming on behavior. According to our reasoning, because the Apple brand is goal relevant in that it shares associations with the positively valenced state of "being creative," exposure to the Apple brand should lead to goal-directed action. That is, when Apple is primed, the associated goal "to be creative" will become active, which will then shape behavior via the activation of linked means to that goal (Shah et al. 2002). Means for the goal of creativity are, for example, "seek unusual associates" and "inhibit usual associates" (Sassenberg and Moskowitz 2005). To test for goal activation, we looked for evidence that participants' responses to the subliminal brand primes would persist and possibly grow in strength over time. Unlike purely cognitively based priming effects, which decrease after a short delay (Bargh et al. 2001; Higgins 1996), our results show that the effect was actually magnified: while participants primed with IBM (a goal-irrelevant brand) were uninfluenced by delay, Apple-primed participants' creativity increased in strength over time, a hallmark of goal-directed behavior (Atkinson and Birch 1970).

Of course, in showing that motivational processes were involved in producing these effects, we do not mean to suggest that they were exclusively responsible. In the no-delay condition, both cognition- and goal-based processes could have been operating. However, the postdelay effects cannot be accounted for by cognitively based processes, as they would have dissipated by that time. Thus, the persistence of the priming effect postdelay provides definitive support for the hypothesis that Apple brand exposure leads to the operation of creativity goals.

It is important to note two limitations of the design of experiment 1. First, because of constraints imposed by the nature of the on-screen priming method, it was not possible to randomize assignment to the two priming conditions. Although we doubt that the pattern of data could be accounted for by differences inherent to the two samples (whose members were randomly assigned), the lack of random assignment to priming condition is far from ideal. Another limitation of the current design is that there is no "no brand" control condition, leaving the direction of the Apple vs. IBM effect unclear.

To address these problems, we ran a replication, in which we randomly assigned 117 participants to control, IBM, or Apple priming conditions. With the number of uses data, planned contrasts revealed that Apple-primed participants generated significantly more uses than IBM-primed participants ($F(1, 116) = 6.99$, $p < .01$) and marginally more than control participants ($F(1, 116) = 2.86$, $p = .09$), who did not differ from each other ($F < 1$, NS). Similarly, with the judges' ratings, planned contrasts revealed that Apple-primed participants were significantly more creative than IBM-primed participants ($F(1, 112) = 9.00$, $p < .01$) and marginally more than control participants ($F(1, 112) = 3.13$, $p = .08$), who did not differ from each other ($F < 1$, NS).

This additional study addresses some of the concerns raised by experiment 1. Experiments 2 and 3 utilize fully randomized designs and find results consistent with experiment 1. Most important, experiment 3 uses a control condition and finds significant differences between the Apple

and control conditions as well as the Apple and IBM conditions, supporting our hypothesis that the effect is caused by the Apple prime rather than erased by the IBM prime.

EXPERIMENT 2

Experiment 1 provided evidence for the involvement of goal-based processes in underlying the behavioral effects of exposure to goal-relevant brands. In experiment 2, we collected additional data to investigate the involvement of goal-based processes. To do so, we again took advantage of a unique quality of goal-driven processes: behavioral effects of active goals are known to be reduced immediately following goal satisfaction (Atkinson and Birch 1970; Carver and Scheier 1998; Förster et al. 2005). As theorized by Atkinson and Birch (1970), the activation of a goal-based construct reaches its lowest point once the goal has been acted upon successfully. Related issues have emerged in consumer behavior research. For example, Kivetz, Urminsky, and Zheng (2006) showed that goal-directed action immediately decreased after goal achievement. Fishbach and Dhar (2005) showed that the influence of goals decreases when people are led to believe they are making good goal progress.

If brand priming elicits goal-directed behavior, then success manipulations will "turn off" those effects. If brand priming effects solely result from cognitive processes, success or progress manipulations should not alter the effects. We tested this theorizing in the context of brand priming effects on honesty behavior. Consumer honesty, like consumer creativity, is not well understood and yet has great importance for many aspects of consumer behavior (Argo, White, and Dahl 2006). For example, the provision of truthful self-reports is essential to marketing research (Schwarz 2003). Similarly, consumer honesty affects the effects of information exchange among consumers (Argo et al. 2006; Sengupta, Dahl, and Gorn 2002).

To measure honesty, we used a classic social desirability measure (Crowne and Marlowe 1960) in which each item presents a conflict between the desire to respond honestly and the desire to present oneself in a socially desirable manner. We hypothesized that people motivated to be honest would respond in a less biased fashion; that is, they would admit to engaging in more undesirable behaviors and would claim to engage in fewer unrealistic desirable behaviors.

We chose the Disney Channel brand as the goal-relevant brand for honesty because pilot testing showed that participants associated the brand with honesty and sincerity. As a control or goal-irrelevant brand, we used the E! Channel, which was not rated highly on these traits but was liked to a similar degree by our sample (see pilot data in methods section). Participants were randomly assigned to one of three progress conditions that differed solely in what task (if any) separated the priming task and the dependent measure: one group of participants completed no intermediary task, while the other two groups responded to a one-item goal-progress manipulation that either highlighted participants' current successful progress or highlighted their lack of progress. Thus, this experiment is a 2 (priming condition: Disney Channel, E! Channel) × 3 (goal-progress condition: control, low progress, high progress) design.

Based on our belief that honesty is a positively valenced characteristic for our sample, and based on pretest data showing that our sample associates the Disney Channel brand with honesty, Disney should be a goal-relevant prime. Thus, we predict that goal-based processes will be elicited by brand priming. If so, the goal-progress manipulation should interact with the priming condition: specifically, we predict that Disney-primed participants in the control and low-progress conditions will behave more honestly than E!-primed participants, but Disney-primed participants in the high-progress condition will not show heightened honesty behavior. The behavior of E!-primed participants should not be affected by the goal-progress manipulation, as E! is not a goal-relevant prime (it is not strongly associated with the construct "honesty").

Method

Preliminary Questionnaires. Thirty-one participants completed a questionnaire before participating in an experiment for pay. The questionnaire asked participants to rate a series of brands on a number of personality dimensions on a 1–7 scale, where 1 = not at all and 7 = extremely. One dimension was "sincere," and one was "honest." Participants were also asked to give their brand evaluation on a 1–7 scale, where 1 = very negative and 7 = very positive.

The Disney Channel was rated more highly than the E! Channel on sincerity ($t(30) = 9.04, p < .001$) and on honesty ($t(30) = 9.39, p < .001$). Thus, pilot tests confirmed that, in our sample, Disney Channel is believed to be more sincere and honest than is the E! Channel. The pattern ($M_{\text{S-Dis}} = 5.03$, $M_{\text{S-E!}} = 2.40$, $M_{\text{H-Dis}} = 4.87$, $M_{\text{H-E!}} = 2.27$) indicates that E! is perceived negatively with respect to honesty and sincerity, while Disney is perceived positively. Importantly, participants gave the two brands equal overall evaluations ($M_{\text{E!}} = 4.72$, $M_{\text{Dis}} = 4.64$; $F < 1$, NS). Thus, any effects are unlikely to result from differential valence.

Participants. Sixty-three students completed this experiment as part of a larger set of studies. Participants received $10 as compensation for their time.

Materials and Procedure. Participants were seated in computer cubicles within a lab room and read instructions on-screen. This experiment was the first task completed. Priming and goal-progress conditions were randomly assigned by the experimenter at the start of the session.

First, participants completed a "consumer preference study" in which they rated typographic television channel logos (these were standard logos with altered colors and fonts). All rated an identical mix of 15 filler logos before rating either five Disney Channel logos or five E! Channel logos (depending on priming condition) taken from the companies' Web sites. This task was designed to prime partic-

ipants with the brand constructs of either Disney Channel or E! Channel.

After the priming task, participants received one of three manipulations. Participants in the control condition were instructed to click "continue" to begin the next questionnaire. Participants in both low- and high-progress conditions were informed that a graduate student needed to collect norms about people's perceptions of honesty to use for an upcoming study. Participants in the low-progress condition were asked, "Thinking about the aspects of your everyday behavior that you could change to become a more honest person, how honest do you believe that you are?" Participants in the high-progress condition were asked, "Thinking about the aspects of your everyday behavior that show you are an honest person, how honest do you believe that you are?" Participants responded on a scale from one (not at all) to seven (extremely).

These items were designed to evoke a feeling of good versus poor performance in the domain of honesty. As honesty is a positively valenced characteristic, most of our participants should be motivated to perceive themselves positively on this dimension (Myers 1980). Evaluating one's honesty through the lens of "what I have done that is honest" versus "what I could do to improve my honesty" should lead one to feel temporarily relatively successful versus unsuccessful at being an honest person. In other words, directing participants to think about past successes versus future efforts instills a temporary feeling of more or less progress (Fishbach and Dhar 2005). (Most progress manipulations are more explicit, asking directly how much progress participants feel they have made, but for the purposes of this experiment, we wanted to make the manipulation as subtle as possible, to avoid directing attention to goals or goal progress.)

Next, participants completed a "social desirability" measure (Crowne and Marlowe 1960), which consists of a series of 33 true/false items, each describing a socially desirable or undesirable behavior. Each item presents the average respondent with a conflict between responding honestly and responding in a socially desirable fashion. The undesirable items describe behaviors that most people (if being truthful) should admit to be true, such as "I can remember playing 'sick' to get out of something." The desirable items describe behaviors that most people (if being truthful) should admit to be false, such as "I do not find it difficult to get along with loud-mouthed, obnoxious people." For each item, we recorded participants' response as zero for an undesirable behavior and one for a desirable behavior. Participants' ratings were summed and then subtracted from the total number of items; thus, higher scores indicate more honesty (i.e., participants admitted a higher number of undesirable behaviors).

Results

Preliminary Analyses. The social desirability scale was normally distributed ($M = 22.51$).

Hypotheses Testing. A two-way ANOVA of priming condition (Disney vs. E!) by goal-progress condition (control, low progress, high progress) was performed on the social desirability measure. A significant main effect of priming condition was found ($F(1, 62) = 17.65$, $p < .001$), indicating that participants in the goal-relevant (Disney-prime) condition responded more honestly ($M = 23.44$) than did those in the goal-irrelevant (E!-prime) condition ($M = 21.3$). A main effect of progress condition also emerged ($F(2, 61) = 5.14$, $p < .01$): on average, participants responded less honestly in the high-progress condition ($M = 21.25$) than in the low-progress ($M = 23.19$) and control conditions ($M = 22.66$). As predicted, these effects were qualified by a significant two-way interaction ($F(2, 61) = 3.93$, $p = .025$), revealing that the honesty of Disney-primed participants was affected by the goal-progress manipulation ($F(2, 31) = 9.90$, $p < .001$), whereas the honesty of E!-primed participants was unaffected ($F < 1$, NS).

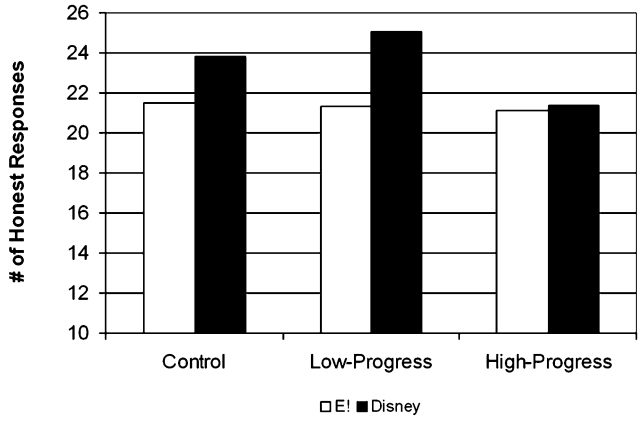
As shown in figure 2, the pattern of data follows our predictions. Disney-primed participants were more honest than E!-primed participants in the low-progress ($F(1, 21) = 16.10$, $p = .001$; $M_{Dis} = 25.08$, $M_{E!} = 21.3$) and control conditions ($F(1, 20) = 7.62$, $p = .01$; $M_{Dis} = 23.82$, $M_{E!} = 21.50$) but not in the high-progress condition ($F < 1$, NS; $M_{Dis} = 21.40$, $M_{E!} = 21.10$). Disney-primed participants in the high-progress condition were less honest than both those in the low-progress ($F(1, 20) = 19.14$, $p < .001$) and control conditions ($F(1, 19) = 8.08$, $p = .01$), while Disney-primed participants in the low-progress condition did not significantly differ from those in the control condition ($F(1, 21) = 2.52$, $p = .13$).

Discussion

Regarding our first objective, experiment 2 provided evidence that brand exposure can automatically influence be-

FIGURE 2

EXPERIMENT 2: MEAN HONESTY RESPONSES BY BRAND PRIME (E! CHANNEL VS. DISNEY CHANNEL) AND PROGRESS (CONTROL, LOW, HIGH)



havior just as can exposure to social primes. Participants primed with logos of the Disney Channel, a brand they associate with honesty, behaved more honestly than did participants primed with logos of the E! Channel. These data replicate the behavioral priming effects of brands in experiment 1 with a different brand and behavioral measure.

Regarding our second objective, experiment 2 contributed additional evidence that motivational processes are involved in producing these effects of brand priming on behavior. Goals are theorized to decrease in strength once people perceive they are successful in a given goal domain (Atkinson and Birch 1970; Fishbach and Dhar 2005). Using that principle of goal-directed action as a basis, we predicted that Disney-primed participants (who should have active constructs related to honesty) would behave more honestly than E!-primed participants only in the control and low-progress conditions. Indeed, we found that the main effect of priming condition on honesty behavior disappeared in the high-progress condition: Disney-primed participants satisfied their active goal to be honest, and thus the goal activation was immediately reduced, leaving no visible influence on behavior. Progress manipulations should, of course, have no effect on purely cognition-based processes—they only affect goal-based processes. Therefore, any differences that emerged can be attributed to goal-based processes. It is important to note that the lack of differences between the priming conditions in the high-progress condition suggests that purely cognitive processes were not influential and that motivated processes were thus the primary drivers of these particular brand priming effects.

As in experiment 1, we did not include a control condition that would permit us to ascertain the direction of the priming effect. To address this issue, we again ran a follow-up study that randomly assigned 43 participants to either Disney, E! Channel, or a no-brand control condition. Experimental participants were exposed to the same brand priming materials as in experiment 2, while control participants immediately began the social desirability task (Crowne and Marlowe 1960). As predicted, a one-way ANOVA of priming condition (Disney vs. E! vs. control) produced a significant main effect ($F(1, 40) = 4.60$, $p = .02$), indicating that participants in the Disney prime condition responded in a more honest fashion ($M = 23.93$) than did those in the control ($M = 22.0$; $F(1, 27) = 7.83$, $p < .01$) or E! prime condition ($M = 22.14$; $F(1, 26) = 6.55$, $p < .02$), who did not differ from each other ($F < 1$, NS). We also included a funneled debriefing measure: no participant mentioned the logo-rating task as having affected their responses to the social desirability measure, and when prompted, none guessed a relevant hypothesis.

EXPERIMENT 3

Experiments 1 and 2 established supportive evidence for the role of motivated processes in the behavioral effects of brand priming. The behavioral effects of brand priming increased with delay and decreased with goal satiation, both key markers of motivated behavior. In experiment 3, we seek further evidence that motivated processes can drive the effects of brand priming. Because primes should only elicit motivated behavior when the prime is goal relevant, primes should not affect the behavior of individuals who do not possess the goal in question (Custers and Aarts 2005b; Förster et al. 2007). Thus, if our hypothesis that Apple primes evoke creativity goals is to be supported, we should find that Apple primes will only increase the creativity of individuals who possess a chronic creativity goal; others will show no effect of the Apple prime. In the control and IBM conditions, the primes are goal irrelevant, and, as such, no differences should exist between reactions of those high and low in creativity motivation.

Method

Participants. Seventy-three participants completed these materials as part of a larger mass testing session. They received $20 as compensation for their participation. Twenty-six participants were randomly assigned to the Apple condition, 23 to the IBM condition, and 24 to the control condition.

Materials and Procedure. At the beginning of the session, the experimenter explained that participants would be given a variety of tasks for different researchers. The relevant materials for this experiment were counterbalanced in order within the larger set of materials. For this experiment, participants first completed a "spatial-temporal ordering task," which asked them to place sets of three photos in the order they thought the events in the photos occurred, by writing a number from one to three under each photo. Instructions indicated that the purpose was to pilot test the materials to determine if they were at the appropriate difficulty level. Participants were told that if any sets were easy to order, participants should place an asterisk next to the photos.

The ordering task served as a supraliminal priming task, designed to subtly expose participants to either the IBM brand, the Apple brand, or no brand. In the control condition, all five sets of photos featured radios, clocks, roadways, and statues. In the experimental condition, the final set of three photos featured a computer. All photos were black and white, and the logo (either IBM or Apple) on the computer was visible (it was the standard logo on the monitor). Next, participants completed the unusual uses test (Guilford et al. 1958). The two tasks were formatted differently to minimize the chance that participants would draw any connection.

Participants also completed a three-item measure of chronic creativity motivation. The order was counterbalanced such that this measure appeared prior to the other materials half the time; the measure was always separated from the priming task and unusual uses task by at least 20 minutes of other material. Items were as follows: "How much do you care about being a creative person?" "How important is it that others consider you a creative person?" "In your daily life, how often do you pursue the goal of being creative?" All were on nine-point scales.

Results and Discussion

As in experiment 1, we collected both the number of uses participants generated and ratings for each of the first three uses. Analyses examined the effect of brand priming and participants' reported chronic creativity motivation on both measures of creativity. Because chronic creativity motivation was a continuous variable, we analyzed the data using both continuous and dichotomized versions of the motivation variable and found no substantive differences in the results. We present the continuous analyses below.

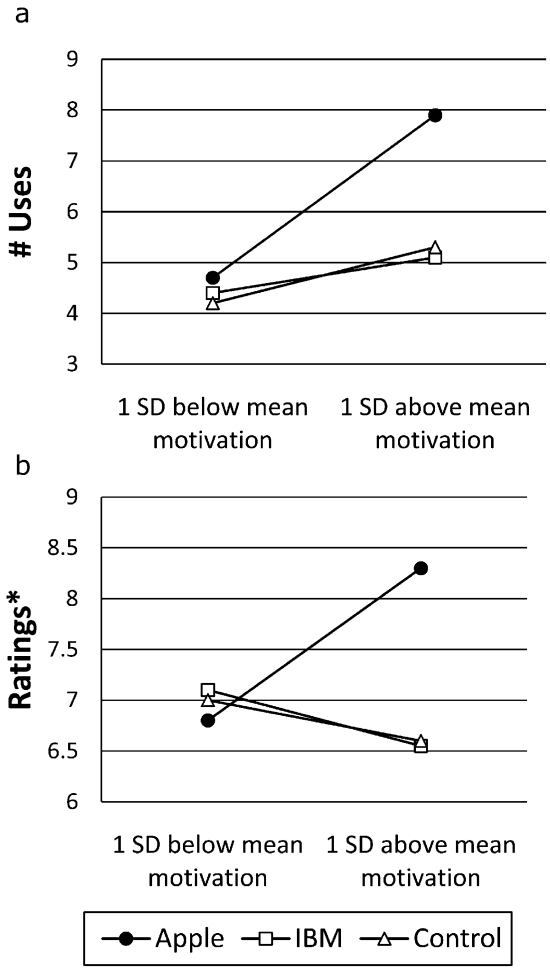
A main effect of motivation emerged ($F(1, 65) = 17.14$, $p < .01$), reflecting that people higher in chronic motivation generated more uses than people lower in motivation. As expected, a two-way interaction between priming condition and chronic motivation on number of uses generated was significant ($F(2, 65) = 3.94$, $p = .02$). Figure 3*a* illustrates this effect, plotted in accordance with Aiken and West's (1991) recommendations. To better understand this interaction, we performed two additional simple analyses, first comparing Apple-primed participants to control participants and then comparing Apple-primed to IBM-primed participants. In the first analysis, we find a significant difference between the number of uses generated by Apple-primed participants versus control participants, moderated by the level of motivation ($F(1, 65) = 4.10$, $p < .05$). Similarly, in the second analysis, we found a significant difference between the number of uses generated for Apple versus IBM-primed participants, again moderated by motivation ($F(1, 65) = 6.59$, $p = .01$). While at low levels of motivation there were no significant differences (Apple control, $t(65) = .09$, NS; Apple-IBM, $t(65) = .49$, NS), at high levels of motivation there were, as expected, significant differences. People high in motivation generated more uses if they were primed with Apple than if they were primed with the control prime ($t(65) = 3.57$, $p < .01$). Similarly, participants high in motivation generated more uses if they were primed with Apple than if primed with IBM ($t(65) = 3.92$, $p < .01$).

We then performed the same analyses using the judges' ratings. As expected, the two-way interaction between priming condition and chronic motivation on creativity ratings was significant ($F(2, 65) = 3.95$, $p = .02$). No main effects of motivation or priming condition emerged. Figure 3*b* illustrates this effect, plotted in accordance with Aiken and West's (1991) recommendations. Again, to better understand this interaction, we performed two additional simple analyses, comparing creativity ratings for Apple-primed participants to control participants and then comparing Apple to IBM-primed participants. In the first analysis, we find a significant difference between the creativity ratings for Apple-primed participants versus control participants, moderated by the level of motivation ($F(1, 65) = 3.98$, $p = .05$). Similarly, in the second analysis, we found a significant difference between the creativity ratings for Apple-primed versus IBM-primed participants, again moderated by motivation ($F(1, 65) = 6.72$, $p = .01$). As with the number of uses, at low levels of motivation there were no significant differences according to prime (Apple control, $t(65) = .38$, NS; Apple-IBM, $t(65) = .09$, NS). At high levels of motivation there were, as expected, significant differences. People high in motivation were judged as more creative if they were primed with Apple than with the control prime ($t(65) = 3.38$, $p < .01$). Similarly, participants high in motivation received higher creativity ratings if they were primed with Apple than if primed with IBM ($t(65) = 3.57$, $p < .01$).

Regarding our first objective, experiment 3 provides further evidence for the hypothesis that brand exposure can shape nonconscious behavior: participants primed with Apple behaved more creatively than did control or IBM-primed participants. Regarding our second objective, experiment 3 provides further evidence for the hypothesis that brand ex-

FIGURE 3

EXPERIMENT 3: CREATIVITY BEHAVIOR BY BRAND PRIME (APPLE, IBM, CONTROL) AND CHRONIC MOTIVATION



NOTE.—Figure 3*a* shows number of uses generated, and *b* shows judges' ratings of creativity. * Scores subtracted from 10 for graphic purposes; original scoring system had low numbers indicating higher creativity.

posure can elicit goal-directed behavior when the brand is goal relevant. Only when participants possessed a chronic goal to be creative did the brand primes have any effect on their behavior. Participants who do not value the goal "to be a creative person" were unaffected by the brand primes. Because the existence of a chronic motivation to be creative should have no effect on purely cognition-based processes, it is clear that goal-based processes drove the behavioral effects observed here.

GENERAL DISCUSSION

The present research examined the translation of social priming effects to the consumer brand context. Our first objective was to examine whether brand exposure can automatically shape behavior in the same fashion as can exposure to significant others and members of social categories. Experiments supported the existence of brand priming effects on behavior, finding that participants responded to brands by behaving in line with the brand's characteristics and did so with no conscious awareness of the influence. Participants exposed to the Apple brand outperformed IBM-primed and control participants on a standard measure of creativity, and participants primed with the Disney Channel reported more honest responses to a social desirability test than did those primed with E! Channel logos or control participants.

Our second objective was to explore possible underlying mechanisms. All experiments tested the hypothesis that when brands are goal relevant (i.e., they are associated with desired self-states such as "to be creative" or "to be honest"), exposure to those brands elicits goal-directed behavior, such as increased creativity or honesty. In contrast, exposure to goal-irrelevant brands should affect behavior only via cognitively based processes. This hypothesis was tested by examining behavior for the operation of unique principles relevant only to goal-based processing. In experiment 1, the introduction of a delay between the prime and behavior increased, rather than decreased, the strength of the brand priming effect. While IBM-primed participants were unaffected, Apple-primed participants became significantly more creative after a delay. Because prior research has shown that cognitively based priming effects decrease in strength with time (Higgins 1996), these results provide evidence for the involvement of motivational processes in underlying Apple priming effects on creativity.

Experiment 2 found additional support for the hypothesis that goal-relevant brands can automatically evoke goal-directed behavior. Another unique quality of motivational states is that they are known to shape behavior only when active: when they are "turned off" via goal progress or fulfillment, they no longer exert any influence (Fishbach and Dhar 2005; Förster et al. 2005). When our participants were led to feel like successfully honest individuals, the behavioral effects of the Disney Channel brand no longer emerged. If these effects were driven by cognition-based processes, the progress manipulation would have elicited no effect.

Experiment 3 provided further support for the involvement of goal-based processes in brand priming effects by relying upon another unique characteristic of goal-directed behavior. Because we predicted that brand primes should only elicit motivated behavior when the brand is goal relevant, primes should not affect the behavior of individuals who do not possess the goal in question (Custers and Aarts 2005b; Förster et al. 2007). That is, it is not thought to be possible to create a new motivated state simply via priming—rather, priming can only activate preexisting mental representations (Higgins 1996). Indeed, only participants who reported a preexisting goal "to be creative" were affected by the Apple prime. These experiments thus provide support for our hypothesis that under certain conditions—when the brand is goal relevant—brand exposure can shape behavior via nonconscious motivated processes. One question for future research is whether brand exposure can motivate behavior via avoidance pathways. Brands may be linked to end states that are not just neutral but actually negative for some consumers. For example, if Tiffany's is linked with femininity, a "macho" male may be motivated to behave more masculinely after exposure to Tiffany's as a way to avoid the negative end state of femininity.

Implications for Theories of Brand Personality: Brands as Mental Representations

Consumer researchers have long theorized that consumers perceive brands as possessing humanlike characteristics (e.g., Aaker 1997; Gardner and Levy 1955; Sentis and Markus 1986) and that these characteristics are represented as brand associations in memory (Keller 1993). Recent research has supported these ideas by showing the cross-cultural relevance of the construct (Aaker et al. 2001) and by showing effects of perceptions of brand personality on the consumer-brand relationship (Aaker et al. 2004; Johar, Sengupta, and Aaker 2005). By finding that brand primes lead automatically to behavioral effects matching consumer perceptions of the brand, the current results contribute social cognitive evidence for the idea that brand schemas include personality information. They provide supportive evidence via complementary methodology: past research has been questionnaire based, tapping into explicit beliefs about brands. The current findings show that even at a basic cognitive level, these associations exist and are strong enough to elicit automatic effects on behavior. Importantly, the effects of perceived brand personality in these experiments extended beyond the domains of product choice and consumption. Consumer brands elicited automatic effects that guided behavior completely outside of the consumer context, suggesting that the automatic effects of consumer brands on behavior may be broad and general in nature. Given the inherently social nature of experiment 2, in which brand primes affected honesty, we believe that exposure to brands may well have a profound influence on social behavior in everyday life. If so, these behavioral priming findings may have implications for consumer welfare issues. If a consumer drives past a FedEx logo, will he drive faster? If he drinks

from a can of Pepsi at a work meeting, will he behave more youthfully? The boundaries of these findings are as yet untested; however, the potential implications may raise concerns about consumer exposure to brands in everyday life.

Implications for Theories of Automatic Social Behavior

By demonstrating that brands have the power to automatically elicit changes in behavior, these findings contribute to our understanding of the breadth of environmental cues that can affect behavior in an automatic fashion. Thus far, research has uncovered several triggers of nonconscious behavior. First, behavior has been shown to be automatically guided by the presentation of semantic associates of the concept of interest (e.g., Bargh et al. 2001; Chartrand and Bargh 1996; Chartrand et al., forthcoming). Second, behavior can be automatically guided by situations in which that behavior is common, as well as by objects related to those situations (e.g., Aarts and Dijksterhuis 2003; Chen, Lee-Chai, and Bargh 2001; Kay and Ross 2003; Kay et al. 2004). Finally, behavior can be automatically guided by the presence of other people, whether they be members of stereotyped groups or significant others, such as friends and family members (e.g., Bargh et al. 1996; Fitzsimons and Bargh 2003; Shah 2003). The current findings extend this research by showing that consumer brands can also serve as sources of nonconscious construct activation in the same way that these other environmental stimuli have been shown to do. Discovering that brands share this ability to "prime" behavior significantly increases the generality of nonconsciously guided phenomena in everyday life.

Perhaps most important, the current findings move beyond the establishment of priming effects and study of the mechanisms that can produce such effects. In particular, it is important to understand not simply why or how priming effects occur but also to be able to predict when the various types of priming effects will occur. In the current experiments, we measured and manipulated qualities of the prime and the person that ultimately moderated the effects of brand priming on behavior. In accordance with recent theoretical frameworks introduced by Custers and Aarts (2005a) and Förster and colleagues (2007), we found that brand primes initiated goal-directed behavior only when the brands were associated with qualities desired by the individual. By outlining predictable conditions that can produce goal-based versus cognition-based effects, we are contributing to recent efforts to begin studying the "second-generation" issues in behavioral priming that researchers are now well placed to address (Bargh 2006).

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