Evaluative Conditioning Procedures and the Resilience of Conditioned Brand Attitudes

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Changing brand attitudes by pairing a brand with affectively laden stimuli such as celebrity endorsers or pleasant pictures is called evaluative conditioning. We show that this attitude change can occur in two ways, depending on how brands and affective stimuli are presented. Attitude change can result from establishing a memory link between brand and affective stimulus (indirect attitude change) or from direct "affect transfer" from affective stimulus to brand (direct attitude change). Direct attitude change is significantly more robust than indirect attitude change, for example, to changes in the valence of affective stimuli (unconditioned stimulus revaluation: e.g., endorsers falling from grace), to interference by subsequent information (e.g., advertising clutter), and to persuasion knowledge activation (e.g., consumer suspicion about being influenced). Indirect evaluative conditioning requires repeated presentations of a brand with the same affective stimulus. Direct evaluative conditioning requires simultaneous presentation of a brand with different affective stimuli.

A common approach to building brand equity is to create favorable brand attitudes (Keller 1993, 2003). One popular technique for building favorable brand attitudes is to use advertising, event sponsorship, product placement, or other forms of promotion to pair a brand with positive affective stimuli (Gibson 2008; Gorn 1982; Kim, Allen, and Kardes 1996; Stuart, Shimp, and Engle 1987). These pairings can be performed in several different ways, collectively known as evaluative conditioning procedures (for reviews, see De Houwer 2008, forthcoming; De Houwer, Baeyens, and Field 2005; De Houwer, Thomas, and Baeyens 2001; Walther, Nagengast, and Trasselli 2005). For example, a brand and a positive stimulus can be presented simultaneously or sequentially (Lascelles and Davey 2006). In addition, a brand can be presented with the same or with a different positive stimulus on each occasion (Stahl and Unkelbach 2009).

One might argue that exploring the differences in evaluative conditioning procedures is not of substantive importance. After all, evaluative conditioning has been documented with both sequential and simultaneous pairings as well as with pairings involving the same versus different positive stimuli (De Houwer 2008). It is possible, however, that the resilience of conditioned attitudes depends on the conditioning procedure. Different conditioning procedures might encourage different learning processes. First, some evaluative conditioning procedures may encourage the formation of associations between a brand name and affect-inducing concepts (De Houwer et al. 2001; Gawronski and Bodenhausen 2006). Subsequent affective responses to the brand name are indirect in that they rely on the activation of the affective concept upon perception of the brand. Second, other evaluative conditioning procedures may result in the brand name generating the affective response directly (i.e., not mediated by a brand-concept association; Jones, Fazio, and Olson 2009). We propose that indirect affective responses should be susceptible to any activity (e.g., retroactive interference, counterarguing, memory decay) that weakens the brand-concept association.

Three experiments explore these ideas. Experiment 1 uses an affective stimulus revaluation procedure (i.e., changing the valence of associated affective stimuli postconditioning)
to identify conditioning procedures that promote indirect versus direct affective responses. Experiment 2 explores resilience to retroactive interference, and experiment 3 explores the influence of a persuasion knowledge prime (i.e., warning of the persuasion attempt) on the evaluative conditioning of affective responses. Together, the three studies highlight the importance of exploring how conditioning procedures might influence learning and subsequent feelings toward brands.

**EVALUATIVE CONDITIONING**

Evaluative conditioning is evidenced by an affective response to an initially neutral conditioned stimulus (CS) subsequent to its pairing with a valenced unconditioned stimulus (US; Levey and Martin 1975). Evaluative conditioning has been shown to influence affect for words (Staats and Staats 1957), political slogans (Razran 1954), art (Levey and Martin 1975), brand names (Stuart et al. 1987), beverages (Zellner et al. 1983), products (Gorn 1982), and everyday objects (Hammerl and Grabitz 2000). In consumer research, evaluative conditioning typically consists of pairing brand names (CSs) with stimuli that evoke favorable affective responses (USs: e.g., celebrity endorsers, pleasant images, popular music; Allen and Janiszewski 1989; Bierley, McSweeney, and Vannieuwkerk 1985; Gibson 2008; Gorn 1982; Janiszewski and Warlop 1993; Kim et al. 1996; Shimp, Stuart, and Engle 1991; Stuart et al. 1987).

Evaluative conditioning effects have been attributed to the operation of different mental processes (De Houwer, forthcoming; De Houwer et al. 2009) provide initial evidence for the existence of direct affective responses in evaluative conditioning. However, as pointed out by De Houwer (forthcoming), the majority of the findings in Jones et al.’s article are also consistent with indirect affective responses. Support for direct affective responses comes from other literatures. For example, Bower (1981) invokes stimulus-response learning to explain a large body of findings in the literature on mood and memory.

Differentiating Direct and Indirect Affective Responses to Brands

An important reason why there is so much uncertainty regarding the learning mechanisms underlying evaluative conditioning effects is that the learning process cannot be directly observed. The learning process can only be inferred from outcomes by using appropriate manipulations or measures. We propose a number of manipulations and measures that may help to distinguish direct versus indirect affective responses to brands. All of these differentiators rely on the mediating role of the unconditioned stimulus in the affective response to the brand (CS). First, and most important, indirect affective responses should be sensitive to US revaluation (Baeyens et al. 1992; Walther et al. 2009). US revaluation occurs when there is a postconditioning change in the valence of the US (e.g., famous golf player Tiger Woods admitting to marital infidelity). If affective responses to the US change, indirect affective responses to the CS (e.g., brand) should track this change. Direct affective responses to the CS should be unaffected by US revaluation, because the affective response to the CS is independent of the US at the time of revaluation.

Second, because direct affective responses do not rely on specific CS-US associations, direct evaluative conditioning should not necessitate conscious awareness of the CS-US relation (Thordike 1911; Watson 1913). In contrast, indirect affective responses should be sensitive to contingency awareness (Shanks and St. John 1994). Awareness of the contingency between the CS and US signals elaboration of the association. More elaboration leads to a stronger association between the CS and US and a stronger indirect affective response. Third, indirect but not direct affective responses should be sensitive to memory decay of the specific CS-US associations involved (Wixted 2004). Weakening the strength of the association between the CS and US should reduce the indirect affective response. Fourth, indirect affective responses should be more susceptible to persuasion knowledge activation than direct affective responses (Friestad and Wright 1994). Indirect affective responses rely on brand-affective stimulus associations, whereas direct affective responses do not. Hence, critical assessments of the brand-affective stimulus association’s relevance for brand quality should affect indirect but not direct affective responses (Gawronski and Bodenhausen 2006).
Conditioning Procedures Promoting Direct versus Indirect Affective Responses to Brands

We hypothesize that the establishment of direct versus indirect affective responses to brands depends on critical procedural boundary conditions that can be traced to the learning procedure (see table 1). Indirect affective responses critically depend on the strength of the association between a brand (CS) and a specific affective stimulus (US). Repeatedly pairing a CS with the same affective stimulus should strengthen the association between the two and, thus, promote indirect affective responses. The more often a brand (CS) occurs with a certain affective concept (US), the more likely it becomes that future encounters with the brand will activate the representation of the US in memory. In contrast, repeatedly pairing a CS with different affective stimuli should not promote indirect affective responses. Varying the affective concepts (USs) that are paired with the CS should make it unlikely that the CS will activate the representation of a particular US. Thus, an affective stimulus should remain the same across conditioning trials in order to establish indirect affective responses to the brand.

The creation of direct affective responses should depend on the opportunity for affective confusion; positive affect must be experienced in a way that makes it difficult to “determine” whether the US or CS was responsible. This process has most recently been referred to as an implicit misattribution process of affect (Jones et al. 2009). This confusion or misattribution can only occur when the US and CS appear simultaneously. Simultaneous presentation allows the CS to be present during the initial fast, nonspecific time demonstrate that the different CS-US presentations may further promote the establishment of direct affective responses to the brand (CS), because the different pairings should lead to more affective confusion. Note that this should still only happen when CS and US are perceived simultaneously.

Whereas the effect of pairing a brand with the same or different USs on indirect evaluative conditioning should be independent of simultaneous versus sequential presentation, direct evaluative conditioning may be influenced by the number of unconditioned stimuli a brand is paired with. Pairing a brand with different unconditioned stimuli using always different CS-US presentations may further promote the establishment of direct affective responses to the brand (CS), because the different pairings should lead to more affective confusion. Note that this should still only happen when CS and US are perceived simultaneously.

The combination of predictions derived from simultaneous versus sequential CS-US presentations, and from same versus different CS-US pairings, is presented in table 1.

### Hypotheses

The discussion of factors that differentiate indirect from direct affective responses, and the procedural constraints that bound each type of learning, lead to the following predictions:

**H1:** Indirect affective responses to brands will occur when an evaluative conditioning procedure entails the repeated pairing of a brand with the same affective stimuli (independent of whether they are sequentially or simultaneously presented). Indirect affective responses are indicated by:

- a) An evaluative conditioning effect.
- b) Sensitivity to unconditioned stimulus revaluation.
- c) Sensitivity to contingency awareness.
- d) Sensitivity to retroactive interference.
- e) Sensitivity to persuasion knowledge activation.

**H2:** Direct affective responses to brands will occur when an evaluative conditioning procedure entails the repeated simultaneous pairing of a brand with different affective stimuli. Direct affective responses are indicated by:

- a) An evaluative conditioning effect.
- b) Insensitivity to unconditioned stimulus revaluation.
- c) Insensitivity to contingency awareness.
- d) Insensitivity to retroactive interference.
- e) Insensitivity to persuasion knowledge activation.

These predictions are structured to reflect the order in which they will be explored empirically. US revaluation is the most commonly accepted indicator of indirect versus direct affective responses (Baeyens et al. 1992; de Houwer et al. 2001; Walther et al. 2009); thus, experiment 1 will focus on unconditioned stimulus revaluation and contingency learning (hypotheses 1a–1c and 2a–2c). Experiment 2 will focus on memory decay induced by retroactive interference. Experiment 3 will assess the effects of persuasion knowledge activation on explicit versus implicit brand attitudes.

Our reasoning above also implies that a sequential different pairings conditioning procedure should result in little
or no evaluative conditioning because it should not be conducive to direct or indirect affective responses. This hypothesis will also be explored in experiment 1.

**EXPERIMENT 1: AFFECTIVE STIMULUS REVALUATION**

The most common method of distinguishing direct from indirect affective responses to brands involves changing the valence of the affective stimulus (US) after evaluative conditioning (the so-called US-revaluation effect; Baeyens et al. 1992; Rescorla 1974, 1988; Walther et al. 2009). On the one hand, if an evaluative conditioning procedure establishes an indirect affective response to the brand, then any post-conditioning change in the affective response to the US should yield corresponding changes in the affective response to the brand (i.e., CS). On the other hand, direct affective responses to the brand are independent of memory traces to the US. When evaluative conditioning results in a direct affective response, postconditioning changes in affective responses to the US should not affect the attitude toward the brand.

The influence of US revaluation was tested in the context of the four evaluative conditioning procedures illustrated in table 1. We anticipated that basic evaluative conditioning effects would be obtained for all procedures except the sequential-different US pairings procedure. The sequential-different US pairings procedure should generate neither direct nor indirect affective responses to the brand. We also anticipated that US revaluation effects would be obtained in the same pairing procedures because these procedures should generate indirect affective responses, but not in the simultaneous-different US pairings condition that should support direct affective responses. Finally, we expected the evaluative conditioning effect to depend on contingency awareness in the same pairings procedure, but not in the simultaneous-different US pairings procedure. The predictions are consistent with hypotheses 1a–1c and 2a–2c.

**Method**

**Participants and Design.** Two hundred and ninety-four undergraduate business students (166 female, 128 male) at the University of Florida participated in the experiment in exchange for extra course credit. The experiment employed a 2 (US heterogeneity: same pairings, different pairings) × 2 (presentation format: sequential presentation, simultaneous presentation) × 3 (US valence: neutral, standard positive, positive to-be-revaluated) mixed design with the first two factors manipulated between subjects and the latter factor manipulated within subject. The experiment was administered in two fall semesters, separated by 1 year. The experimental sessions were procedurally identical, except that the second run included contingency awareness measures at the end of the experiment. The sessions were run on computers in a behavioral lab.

**Conditioned Brands.** Belgian beers unknown to the participant population were chosen to serve as to-be-con-
times with the same US. For participants in the different pairings condition, each brand appeared once with five unique USs. In the sequential conditioning procedure, the brand was presented in the center of the screen for 1.5 seconds, followed by a 0.5 seconds (blank screen), followed by the US presented for 1.5 seconds. The intertrial interval was 1.5 seconds. In simultaneous conditioning, the picture of the US (which covered the entire screen) was shown with the brand superimposed on the bottom center of the screen for 3 seconds. Next, there was a 2 second intertrial interval. Note that this procedure guarantees equal slide show duration as well as equal total presentation duration of each brand plus USs across conditions. Two illustrative rounds for each of the four conditions are presented in figure 1.

**Affective Stimulus (US) Revaluation Phase.** Participants saw the USs from the conditioning phase a second time after a short introduction that stated that inconspicuous-looking people can commit serious crimes. In this second phase, all USs were shown three more times. Felonies (e.g., murderer, rapist, arsonist) were consistently displayed at the bottom of the to-be-revaluated positive USs. The neutral and standard positive USs were shown equally often (thrice), but without accompanying felony information. The conditioned beer brands did not appear in any of the pictures.

**Brand Attitude Assessment.** After the affective stimulus revaluation phase was complete, participants’ attitudes toward all nine conditioned brands were assessed. For every brand, participants were asked to provide their global attitude toward the beer on a 9-point scale (scale endpoints “extremely negative,” “extremely positive”). Next, participants indicated how appealing they found the beer (scale endpoints “totally unappealing,” “very appealing”) and their likelihood of buying the beer if it were available at a reasonable price (scale endpoints “extremely unlikely,” “extremely likely”) using 7-point scales.

**Demand Assessment.** First, we asked participants to indicate all the factors that had contributed significantly to their ratings of the beers. They could place check marks next to eight answer categories, one of which was “Experimental demand: You rated the beers in the way you thought the experimenter wanted you to rate them.” Second, we used a funneled debriefing technique in which participants responded to four progressively revealing questions regarding the nature of the experiment. The questions were “Sum-
marize below what you believe was the purpose of this study,” “What do you think are the hypotheses being tested in this study?” “During the study, did you ever have a thought that its purpose might be something other than you were told? If so, when did this occur to you, and what were you thinking?” and, finally, “Did you notice any regularities in the presentation of the beers and the human pictures? If so, please describe what struck you as remarkable.”

Affective Stimulus (US) Attitude Assessment (Manipulation Check). We assessed participants’ attitudes toward all the USs that were presented over the course of the experiment on a 9-point scale with endpoints labeled “extremely negative” and “extremely positive.”

Contingency Awareness. This part of the procedure was only administered to the 197 participants in the second wave of data collection. In order to assess participants’ awareness of the CS-US relationship, we asked them to indicate for every beer brand a picture that it had occurred with at least once. On nine consecutive screens, each beer was presented on the left side of the screen, and the 15 USs were presented on the right side of the screen. Finally, after responding to demographic questions, the participants were fully debriefed.

Results

The attitudes toward the beer brands in this and all subsequent experiments were computed by transforming the global attitude ratings from a 9-point to a 7-point scale and averaging them with the appealingness ratings (Cronbach’s alphas were higher when likelihood to buy measures were not included).

Affective Stimulus (US) Revaluation Manipulation Check. As intended, after the US revaluation phase, the participants liked the standard positive USs better ($M_{p} = 6.84$) than the positive to-be-revaluated USs ($M_{p} = 5.93$), ($F(1, 290) = 83.65, p < .001$). This was not moderated by any of the between-subjects factors (all $p > .20$).

Brand (CS) Attitudes. The mean attitudes and standard errors toward all the classes of conditioned brands are shown in figure 2. The three-way interaction between presentation format, US heterogeneity, and US valence was significant ($F(2, 580) = 3.75, p < .03$). To assess support for hypotheses 1a and 1b, three tests were performed. First, consistent with hypotheses 1a and 1b, there was a significant main effect of US valence in the same US pairing conditions ($F(2, 580) = 39.07, p < .001$). Second, consistent with hypothesis 1a, pairing the beer brands with the standard positive USs ($M = 4.67$) resulted in higher brand evaluations than pairing the beer brands with the neutral USs ($M = 4.02; F(1, 290) = 54.82, p < .001$). This relationship held in the sequential same pairings ($M_{neut} = 4.12, M_{pos} = 4.70; F(1, 290) = 22.38, p < .001$) and simultaneous same pairings ($M_{neut} = 3.92, M_{pos} = 4.65; F(1, 290) = 33.21, p < .001$) conditions. Third, consistent with hypothesis 1b, the beer brands that were paired with positive to-be-revaluated USs resulted in lower brand evaluations ($M = 3.94$) than the beer brands
paired with the standard positive USs ($M = 4.67; F(1, 290) = 70.66, p < .001$). This relationship held in the sequential same pairings ($M_{\text{std pos}} = 4.70, M_{\text{eval pos}} = 3.94; F(1, 290) = 37.17, p < .001$) and simultaneous same pairings ($M_{\text{std pos}} = 4.65, M_{\text{eval pos}} = 3.93; F(1, 290) = 31.03, p < .001$) conditions. We further note that the beer brands paired with positive to-be-revaluated USs were not liked more than the control brands paired with neutral stimuli in the same pairings conditions (both $p > .20$). These results show that US revaluation reduced and effectively removed the evaluative conditioning effect in the same US pairings conditions.

To assess support for hypotheses 2a and 2b, three tests were performed. First, consistent with hypotheses 2a and 2b, there was a significant interaction between presentation format and US valence in the different US pairing conditions ($F(2, 580) = 12.12, p < .001$). Second, consistent with hypothesis 2a, pairing the beer brands with the standard positive USs ($M = 4.31$) resulted in higher brand evaluations than pairing the beer brands with the neutral USs ($M = 3.54$) in the simultaneous condition ($F(1, 290) = 35.20, p < .001$), but not in the sequential condition ($M_{\text{out}} = 3.99, M_{\text{pos}} = 4.02; F(1, 290) = 0.04, p > .80$). Third, consistent with hypothesis 2b, pairing the beer brands with positive to-be-revaluated USs ($M = 4.28$) resulted in higher brand evaluations than pairing the beer brands with the neutral stimuli ($M = 3.54$) in the simultaneous condition ($F(1, 290) = 27.18, p < .001$), but not in the sequential condition ($M_{\text{out}} = 3.99, M_{\text{eval pos}} = 3.89; F(1, 290) = 0.60, p > .40$). This last set of tests shows that US revaluation did not remove the evaluative conditioning effect in the simultaneous different US pairings condition. Furthermore, US revaluation did not even reduce the evaluative conditioning effect in this condition, as brands paired with positive to-be-revaluated USs were not liked less than brands paired with standard positive USs ($F(1, 290) = 0.05, p > .80$).

**Contingency Awareness.** First, we analyzed participants’ levels of awareness by comparing the percentage of correct identifications in the awareness test with the performance expected from random guessing. Consistent with hypothesis 1c, we find relatively high levels of awareness in the same pairings conditions. Random responses in these conditions would yield 66.6% correct identifications, as for each brand, only one in 15 pictures in the awareness test was correct. In the sequential same pairings condition, participants indicated the correct US for 46% of the brands, significantly higher than the chance level ($\pi(77) = 8.95, p < .001$). In the simultaneous same pairings condition, participants also picked the correct US for 46% of brands, again much higher than chance level ($\pi(71) = 8.49, p < .001$). In the different pairings conditions, there was a five times higher probability for correct guesses (33% chance level), as five of the 15 pictures were correct responses in the awareness test. Corroborating the claim that direct affective responses can be established without contingency awareness (hypothesis 2c), there were only 38% correct responses in the simultaneous different pairings condition, not significantly different from chance level ($\pi(69) = 1.47, p > .14$). In the sequential different pairings condition, there were only 30% correct responses, also not significantly different from chance level ($\pi(73) = -0.86, p > .35$).

Most informative is an item-based contingency awareness analysis as recommended by Pleyers et al. (2007). Pleyers et al. recommend looking separately at brands of which the correct US was indicated (we call these “aware brands”) versus those thought associated with an incorrect US (“unaware brands”). We first explore the attitudes toward the aware and unaware standard positively conditioned brands and compare them with the control brands. Means and standard errors are represented in figure 3. Both direct and indirect evaluative conditioning should lead to “aware positively conditioned brands” being liked better than the control brands. This is indeed the case (in the sequential same pairings condition: $M_{\text{aware}} = 4.94, M_{\text{control}} = 4.18; F(1, 510) = 13.79, p < .001$; in the simultaneous same pairings condition: $M_{\text{aware}} = 4.89, M_{\text{control}} = 3.94; F(1, 510) = 18.69, p < .001$; in the simultaneous different pairings condition: $M_{\text{aware}} = 4.46, M_{\text{control}} = 3.56; F(1, 510) = 16.57, p < .001$; but not in the sequential different pairings condition where there was no conditioning to start with: $M_{\text{aware}} = 4.03, M_{\text{control}} = 3.94; F(1, 510) = 0.17, p > .65$). However, only direct evaluative conditioning should lead to “unaware positively conditioned brands” being liked better than neutral control brands. That is, an evaluative conditioning effect should even be found for brands that participants indicated had been paired with a neutral or revaluated picture but that had in reality been paired with a positive picture. This should be the case because the direct evaluative conditioning effect should not depend on CS-US associations stored in memory (in the simultaneous different US pairings condition: $M_{\text{unaware}} = 3.98, M_{\text{control}} = 3.56; F(1, 510) = 3.72, p = .05$). In the other conditions, “unaware positively conditioned brands” were not liked more than neutral control brands (all $p > .50$). In the sequential-different USs condition, there was no evaluative conditioning regardless of awareness. For the same US conditions, “unaware positively conditioned brands” should not be liked better than neutral control brands because (1) under indirect evaluative conditioning, evaluations of a brand should depend on the evaluation of the USs with which a brand is believed to be associated, and (2) those USs for the “unaware positively conditioned brands” were most often neutral or revaluated pictures. Thus, these data provide another confirmation of hypotheses 1c and 2c.

Next, we performed the same analysis on the brands that were paired with positive to-be-revaluated USs. Means and standard errors for the attitudes toward aware and unaware brands paired with positive to-be-revaluated USs are presented in figure 4. Only in the condition generating direct affective responses (simultaneous different US pairings) were the brands paired with positive to-be-revaluated USs liked better than control brands. This was true irrespective of whether the correct US was indicated, as the difference is significant for “unaware brands” ($M_{\text{unaware}} = 4.25, M_{\text{control}} = 3.56; F(1, 497) = 8.29, p < .01$) and even for “aware brands” ($M_{\text{aware}} = 4.16, M_{\text{control}} = 3.56; F(1, 497) = 6.58,$
FIGURE 3

ATTITUDES FOR BRANDS (CSs) PAIRED WITH STANDARD POSITIVE STIMULI (USs) (COMPARED WITH CONTROL BRANDS) AS A FUNCTION OF THE CONDITIONING PROCEDURE AND CONTINGENCY AWARENESS

The latter finding indicates that even when consumers indicate the correct (now devaluated) US as being paired with the brand, the devaluation did not affect their positively conditioned brand attitudes. Hence, the affective response is direct even when the correct US is indicated. In no other condition were revaluated CSs (aware or unaware) liked better than control brands (all $p > .10$).

Mediation by Objectively versus Subjectively Paired US Evaluations. We define the basic evaluative conditioning effect as the difference in attitudes toward brands paired with standard positive stimuli and brands paired with neutral stimuli. This basic evaluative conditioning effect depended, of course, on the valence of the unconditioned stimuli, as pairing a brand with standard positive stimuli results in more positive brand attitudes than pairing it with neutral stimuli. Thus, it would not be surprising if attitudes toward the objectively paired unconditioned stimuli mediated the basic evaluative conditioning effect. What is less obvious is the extent to which indirect and direct affective responses should be sensitive to the participants’ perceptions of whether or not a US was paired with a CS. To appreciate this distinction, recall that indirect affective responses rely on the valence of the US that is activated in memory. Thus, indirect evaluative conditioning effects should be fully mediated by the valence of the US that participants subjectively remember to have been paired with a brand. In contrast, direct evaluative conditioning is not dependent on memories of USs, but on the valence of the USs the brand was actually, objectively, paired with at the time of the learning phase. Thus, whereas the evaluative conditioning effect in the same US conditions should be mediated more fully by the rated valence of the subjectively paired USs than by the rated valence of the objectively paired USs, the opposite pattern should obtain for the simultaneous different pairings condition. Analyses of mediation of the basic evaluative conditioning effect by the attitudes toward the USs that were actually paired with the CS (objectively paired US) and the attitudes toward the US that the participant thought was paired with the US (subjectively paired US; derived from the contingency awareness instrument), confirmed these predictions. In the same pairings conditions, we found that the effect of CS condition (as paired with standard positive versus neutral US) on CS attitudes was completely mediated by the subjectively paired US (and only partially mediated by the objectively paired US). In the simultaneous different pairings condition, however, the effect of CS condition on CS attitudes was fully mediated by the objectively paired US (and only partially mediated by the subjectively paired US). Further details of this analysis are available from the first author.

Demand Awareness. Two analyses were performed to assess whether demand awareness was responsible for the
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Discussion

Experiment 1 provides some preliminary evidence that both indirect and direct affective responses can result from evaluative conditioning procedures. The results show that a procedure consisting of the repeated pairing of a brand name and the same valenced stimulus was sensitive to postconditioning affective stimulus revaluation. Brands paired with devaluated positive stimuli were liked less than brands paired with normal positive stimuli and not liked better than control brands that had never been paired with positive stimuli. The inference is that this procedure promoted indirect affective responses to the brand name. The results also show that a procedure consisting of the repeated simultaneous presentation of a brand name and different valenced stimuli was insensitive to postconditioning affective stimulus devaluation. Brands paired with devaluated positive stimuli were liked as much as brands paired with normal positive stimuli and continued to be liked more than control brands. The inference is that the procedure promoted direct affective responses to the brand name.

The results of a contingency awareness analysis supported our inferences about the conditions under which indirect or direct affective responses occur. First, the same affective stimulus pairings conditions, which should be conducive to indirect affective responses, showed higher levels of contingency awareness, and this contingency awareness was associated with the strength of the evaluative conditioning results. For the “indicate factors that contributed to your ratings” check mark question, only 18 out of 294 participants indicated that they had tried to provide evaluative ratings that matched experimenter expectations. Omitting these participants from the analysis did not influence the statistical significance of any reported tests. For the open-ended questions, two independent coders, who were blind to the experimental conditions, sorted the participants into four different categories of hypothesis awareness (84% agreement, conflicting assignments resolved through discussion). One hundred and forty-eight participants were classified as “hypothesis unaware,” as they expressed no hypothesis-threatening beliefs. Twenty-one participants claimed that some brands were systematically paired with more positive images than others and were classified in a second category. Eighty-nine participants expressed the belief that affective stimuli paired with felons might reduce liking of associated brands and were classified in a third category. Finally, 36 participants expressed both of the previous beliefs and were classified in the fourth and highest category of hypothesis awareness. Incorporating the level of hypothesis awareness as a covariate in the attitude analyses left the significance for the three-way interaction unchanged ($F(2, 578) = 3.76, p < .03$). Furthermore, the same overall pattern of results was observed at every level of hypothesis awareness. In other words, expressed demand awareness was uncorrelated with participants’ responses.
effect. Second, in the simultaneous different pairings condition, the awareness of CS-US associations was not above chance level, consistent with the idea that direct affective responses are not dependent on contingency awareness. This finding, along with the insensitivity of the evaluative conditioning effect to affective stimulus revaluation, provides further evidence for the existence of direct affective responses in human evaluative conditioning as well as for their fundamental distinctness from indirect affective responses. The finding is also consistent with early behaviorists’ claims that stimulus-response learning can occur without awareness of CS-US relationships (Thorndike 1911; Watson 1913). Particularly interesting is that in the simultaneous different pairings condition, brands paired with positive to-be-devaluated stimuli remain positively liked even when participants knew they had been paired with devaluated USs. Hence, in this condition, the brand attitudes are not derived from memory associations to the affective stimuli, a hallmark property of direct affective responses.

Finally, our interpretation in terms of indirect versus direct affective responses was further supported by mediation analyses of the basic evaluative conditioning effect (i.e., the diverging attitudes toward standard positively versus neutrally conditioned brands). We found that when the affective response was hypothesized to be indirect, conditioned brand attitudes were fully mediated by the attitude toward the affective stimulus that is subjectively associated with the brand (i.e., which comes to mind in the awareness test when the brand is presented). However, when the affective response was hypothesized to be direct, the brand attitudes were fully mediated by the attitudes toward the affective stimuli that were objectively paired with the brand.

**EXPERIMENT 2: RETROACTIVE INTERFERENCE**

A second way in which direct affective responses may be distinguished from indirect affective responses is by the property of retroactive interference (hypotheses 1d and 2d). Retroactive interference is a major source of forgetting and occurs when the learning of new information makes previously learned associations less accessible (Wixted 2004, 2005). Indirect affective responses should be particularly susceptible to retroactive interference because they depend on the brand-affective stimulus association. In contrast, direct affective responses should be insensitive to retroactive interference because the brand name directly evokes the affective response, independent of any brand associations to specific affective stimuli. These predictions were tested with two evaluative conditioning procedures that are hypothesized to uniquely generate indirect affective responses (sequential same pairings) versus direct affective responses (simultaneous different pairings; the simultaneous same pairings procedure is somewhat more ambiguous because the simultaneous presentations could allow for some direct affect transfer in addition to the indirect effect in this condition).

**Method**

**Participants and Design.** Forty undergraduate business students (13 female, 27 male) at Erasmus University Rotterdam participated in the experiment in exchange for course credit. The experiment employed a 2 (conditioning procedure: sequential same pairings, simultaneous different pairings) × 2 (interference: no, yes) × 2 (US valence: neutral, positive) mixed design with the first two factors manipulated between subjects and the latter factor manipulated within subject.

**Conditioning Phase.** The conditioning procedure was analogous to sequential same US pairings and simultaneous different US pairings conditions of experiment 1, with the exception that there were no brands paired with positive to-be-revaluated USs. Four Belgian beer brands (CSs) were paired with positive USs, and four Belgian beer brands were paired with neutral USs.

**Interference by Subsequent Learning.** After the conditioning phase, participants in the interference condition entered a second learning phase in which they were asked to learn the brewers of a new set of eight Belgian beer brands. Thus, we created interference by learning information about new brands rather than about the brands from the conditioning phase. The former is much more common in daily life (Wixted 2005) and perhaps also more representative of interference in advertising. In the interference phase, there were four Belgian breweries (e.g., “Van Honsebrouck”) that each brewed two of the new beers. This learning phase consisted of three presentation rounds, during which a picture of every beer was presented with a brewery name for 3 seconds, with 1 second between the pairs. After three presentation rounds, participants were asked to indicate the brewery that produced each beer.

**Dependent Measures.** Only attitudes toward the beers that appeared in the conditioning phase were assessed, analogous to experiment 1. Familiarity with the eight conditioning phase beers and demographic measures completed the measurement instrument.

**Results**

An initial analysis confirmed that the participants’ familiarity with the beer brands was a low 6.25%. Means and standard errors for the attitudinal index are presented in figure 5. The three-way US valence by conditioning procedure by interference condition interaction was significant ($F(1, 36) = 7.40, p = .01$). Consistent with hypotheses 1a and 1d, the sequential same pairings condition revealed a US valence by interference interaction ($F(1, 36) = 14.88, p < .001$). Analyses of the simple effects revealed successful evaluative conditioning without interference ($M_{\text{neut}} = 2.99, M_{\text{pos}} = 4.64; F(1, 36) = 28.09, p < .001$), but not with interference ($M_{\text{neut}} = 4.03, M_{\text{pos}} = 3.94; F(1, 36) = 0.08, p > .75$). Consistent with hypotheses 2a and 2d, the simultaneous different US pairings condition revealed a significant main effect of US valence ($F(1, 36) = 16.46, p < .001$).
that was not moderated by interference ($F(1, 36) = 0.01, p > .01$). The evaluative conditioning effect was significant without ($M_{\text{neut}} = 3.34, M_{\text{pos}} = 4.29; F(1, 36) = 7.49, p < .01$) and with ($M_{\text{neut}} = 3.28, M_{\text{pos}} = 4.26; F(1, 36) = 9.06, p < .01$) interference.

Discussion

This experiment explores the consequences of retroactive interference for evaluative conditioning. The results show that presumably indirect affective responses, in the sequential same pairings procedure, are critically susceptible to retroactive interference. Presumably direct affective responses, in the simultaneous different pairings procedure, are insensitive to retroactive interference. These results suggest that the direct affective responses in the simultaneous different US pairings condition are indeed fundamentally different from the indirect affective responses in the sequential same US pairings condition. These results also rule out the alternative explanation that affective responses in the simultaneous different US pairings condition are indeed fundamentally different from the indirect affective responses in the sequential same US pairings condition. These results also rule out the alternative explanation that affective responses in the simultaneous different US pairings condition are indeed fundamentally different from the indirect affective responses in the sequential same US pairings condition.

EXPERIMENT 3: PERSUASION CORRECTION

Experiment 3 primed persuasion knowledge (Friestad and Wright 1994), the knowledge consumers use to resist advertisers’ attempts to persuade them, to provide two insights. First, we hypothesized that direct affective responses (which are independent of awareness) will be less susceptible to consumers’ counterarguing strategies than indirect affective responses that depend on associations between brands and positive stimuli (of which consumers are often aware; see the results from experiment 1). This different susceptibility to correction would be consistent with hypotheses 1e and 2e.

Second, persuasion knowledge activation can provide insight in the associative versus propositional nature of the indirect affective response. Recently, Gawronski and Bodenhausen (2006) claimed that there are two indirect, association-based processes active in evaluations (they did not consider direct affective responses). The first process is the simple association between two stimuli (CS and US). The second process is the first process plus propositional reasoning about the validity of the association for one’s evaluative judgment. The question is whether the indirect affective response is reflective of purely propositional reasoning or whether there is also a more basic associative process that contributes to the indirect affective response or a combination of both. Using
a persuasion knowledge prime, we provided participants with a warning that the images contain no valuable information about the taste or quality of the beer brand and thus should not influence their evaluative judgments. This manipulation should correct for evaluative conditioning driven by a propositional process and allow us to assess if there is (also) a more basic associative process at work.

This experiment will, in addition, assess implicit attitudes toward the conditioned brands. This measure should be much less sensitive to propositional correction processes and more reflective of the simple association between the stimuli (case 3 in Gawronski and Bodenhausen 2006).

Method

Participants and Design. The participants in this experiment were 214 undergraduate students (149 male, 65 female) at Erasmus University Rotterdam who were rewarded with partial course credit. The design was a 2 (US valence: positive, neutral) × 2 (conditioning procedure: sequential same pairings, simultaneous different pairings) × 2 (persuasion knowledge activation: control, active) design, with the first factor manipulated within subject.

Stimuli and Procedure. The evaluative conditioning part of the experimental procedure was analogous to experiment 2. After the evaluative conditioning procedure, participants in the persuasion knowledge activation condition read the following: “WARNING: You just saw these beers in combination with pictures. It’s important to realize that these pictures contain no valuable information about the taste or quality of the beer. Therefore, it might be advisable not to rely on the pictures the beers were shown with when you determine your attitudes toward the beers.” Participants in the control condition received no such warning. The manipulation followed rather than preceded the persuasion attempt (as is more common in persuasion knowledge research; Campbell and Kirmani 2000) because we did not want participants to ignore the CS-US presentations. This would likely interfere with the formation of both direct and indirect affective responses and thus compromise the experiment’s ability to distinguish direct from indirect affective responses.

Immediately afterward, we assessed participants’ explicit and implicit attitudes toward the beers. The order of explicit versus implicit attitude measures was counterbalanced across participants. The explicit attitude assessment was identical to experiments 1 and 2. The implicit attitude assessment relied on an affective priming task (Fazio et al. 1986; Wittenbrink 2007). In an affective priming procedure, primes (here the conditioned brands) are followed by target words of polarized valence. The participants’ task is to categorize the target words according to their evaluative connotation (positive versus negative). Six positive words and six negative words were used as target words in the implicit test. The beer brands from the conditioning phase were used as primes. To the extent the conditioning procedure created an implicitly positive brand attitude, the brand prime should facilitate correct classification of positive words and inhibit the correct classification of negative words (Klinger, Burton, and Pitts 2000). A trial in the affective priming task consisted of (1) a presentation of the prime (i.e., a conditioned beer brand) for 0.5 seconds, (2) a short time interval of blank screen (50 milliseconds), and (3) presentation of the target word until response (“P” for positive and “N” for negative). Twelve practice trials were followed by 96 test trials: each of the eight conditioned brands was presented with every positive and negative word.

The procedure ended with a demand awareness assessment, familiarity ratings of the eight brands, and demographic measures. Demand awareness analyses paralleled the results of experiment 1.

Results

Explicit Attitudes. The counterbalancing factor of attitude assessment (explicit versus implicit attitudes first assessed) did not affect the results, so the data were collapsed over its levels. An initial analysis confirmed that the participants’ familiarity with the beer brands was a low 3.68%. Means and standard errors for the explicit attitude measure are presented in figure 6. As predicted by hypothesis 1e, in the sequential same US condition, the main effect of US valence ($F(1, 210) = 35.44, p < .001$) was qualified by a significant interaction with persuasion knowledge activation ($F(1, 210) = 5.94, p < .02$). This interaction means that the explicit evaluative conditioning effect was larger in the control condition ($M_{pos} = 3.71, M_{neg} = 4.63, M_{diff} = 0.92$) than in the persuasion knowledge active condition ($M_{pos} = 3.96, M_{neg} = 4.34, M_{diff} = 0.38$). Persuasion knowledge reduced, but did not eliminate, the evaluative conditioning effect as positively conditioned brands remained more well liked than control brands ($F(1, 210) = 6.12, p = .01$). This suggests that propositional and “simple” associative learning both contributed to the evaluative conditioning effect in the sequential same US pairings condition. Thus, we found evidence for both of Gawronski and Bodenhausen’s (2006) association-based processes.

As predicted by hypothesis 2e, in the simultaneous different US pairings procedure, there was only a main effect of US valence ($F(1, 210) = 37.24, p < .001$), which was not moderated by the persuasion knowledge activation ($F(1, 210) = 1.42, p > .20$). These results imply that the evaluative conditioning effect did not differ significantly between the control ($M_{pos} = 3.54, M_{neg} = 4.35, M_{diff} = 0.81$) and the persuasion knowledge active ($M_{pos} = 3.85, M_{neg} = 4.40, M_{diff} = 0.55$) conditions. This is again consistent with the hypothesis that simultaneous different US pairings generate direct affective responses to brands. Although not statistically significant, there is a directional correction process in the simultaneous different US pairings condition as well. This is not completely unexpected because, in the extreme case, anyone can correct for evaluative conditioning’s influence on explicit brand evaluations by simply rating all brands neutrally. This has, however, the unfortunate con-
sequence that the overall three-way interaction between US valence, conditioning procedure, and persuasion knowledge activation was not statistically significant ($p < .40$). An auxiliary, more powerful analysis was conducted in which the 5% fastest responders on the explicit attitude questions were removed, and the counterbalancing factor (implicit versus explicit attitudes first assessed) and the level of hypothesis awareness were included as full factors to reduce error variance. The 5% fastest respondents were most likely not to have taken the experiment seriously or to have used a strategy that disregarded their attitudes toward the brands (e.g., rating brands randomly), and this left us with 203 respondents for the analysis. In this analysis, the three-way interaction between affective stimulus valence, the conditioning procedure, and the persuasion knowledge factor was significant ($F(1, 187) = 4.17, p = .04$). This three-way interaction was itself not further qualified by the hypothesis awareness or counterbalancing factors (all $p > .10$).

**Implicit Attitudes.** Implicit attitudes were analyzed following the recommendations by Fazio (1990). First, incorrect responses were eliminated (2.8%). Second, outlier latencies were truncated at 200 and 1,500 milliseconds (1.8%; Gawronski, Bodenhausen, and Becker 2007). Third, response latencies were log transformed to achieve a normal distribution. Fourth, a positivity index was computed for each brand by subtracting the average response latency to positive words from the average response latency to negative words. Finally, the appropriate indices were averaged to obtain an index for the positively conditioned brands and an index for the neutrally conditioned brands.

As with the explicit attitudes, the counterbalancing factor had no significant effects and was dropped. The implicit attitude index was analyzed as a function of US valence, the conditioning procedure, and the persuasion knowledge factor as a mixed model with the first factor within subject and the latter two between subjects. In the sequential same US pairings condition, there was a main effect of US valence only ($F(1, 210) = 4.00, p < .05$), indicating that positively conditioned brands had a higher implicit positivity index ($M = 0.04$) than neutrally conditioned brands ($M = 0.02$). Contrary to the explicit attitude analysis, this main effect was not moderated by persuasion knowledge activation ($p > .40$). In the simultaneous different US pairings condition, there also was a main effect of US valence only ($F(1, 210) = 4.07, p < .05$), indicating that positively conditioned brands again had a higher implicit positivity index ($M = 0.06$) than neutrally conditioned brands ($M = 0.04$). Analogous to the explicit attitudes in this procedure, there was no moderation by persuasion knowledge activation ($p > .90$).

**Discussion**

In this experiment, participants were asked to correct for evaluative conditioning’s effect on their brand attitudes. The results suggest an important difference between indirect and direct affective responses. Participants who receive a warning about the irrelevance of the images for their brand attitudes were able to correct their explicit attitudes in the sequential same US pairings condition. This suggests that the indirect affective response involved propositional rea-
soning, consistent with our findings in experiment 1. However, the results also revealed that persuasion knowledge activation could not eliminate the evaluative conditioning effect on the explicit attitude measure. In the sequential same US pairings condition, an evaluative conditioning effect remained even after correction. This suggests that evaluative conditioning procedures can persuade because of simple but still indirect associative learning that is devoid of propositional reasoning. The results also show that persuasion knowledge activation did not significantly reduce the evaluative conditioning effect in the simultaneous different pairings condition. This provides further support for direct affective responses to brands in this condition. Finally, the existence of an evaluative conditioning effect for both evaluative learning procedures when an implicit attitude measure is used provides further evidence that the attitudinal changes cannot simply be dismissed as demand artifacts. The implicit attitudes also show that—at a more unconscious level—the conditioning effects on brand attitudes are resistant to persuasion correction, irrespective of whether the affective response to the brand is direct or indirect.

**GENERAL DISCUSSION**

Three experiments suggest that different ways of pairing brands and affective stimuli lead to brand attitudes that differ in their strength and resilience. Reliable evaluative conditioning effects were found when a brand was consistently paired with a single positive stimulus or when a brand was simultaneously paired with different positive stimuli. In experiment 1, we also found that the latter conditioning procedure yielded brand attitudes that were more resistant to a postconditioning decline in the valence of the affective stimulus. In contrast, the evaluative conditioning procedures that consistently paired a brand with the same affective stimulus were seriously affected by such “US revaluation.” Finally, experiment 1 showed that evaluative conditioning in the simultaneous procedure with multiple different affective stimuli was less dependent on consumers’ awareness of the pairings than evaluative conditioning using the consistent, same positive stimulus, procedures.

In experiment 2, we assessed the resilience of conditioned brand attitudes to retroactive interference. We found that exposing participants to new but related information after the initial evaluative conditioning led to a decline in brand evaluation when the brand had been consistently followed, after a brief delay, by the same positive stimulus during initial learning. However, such retroactive interference was not found when we used the simultaneous procedure with multiple affective stimuli.

In experiment 3, we explored resilience to participants’ attempt to correct for evaluative conditioning’s effect on their brand attitudes. Results indicated again that the simultaneous procedure pairing a brand with multiple affective stimuli yielded explicit brand evaluations that were more resilient than the sequential procedure consistently pairing a brand with the same affective stimulus. Results also indicated that the evaluative conditioning effect was largely unaffected by our manipulation of persuasion knowledge activation when using an implicit brand attitude measure. This result obtained for both pairing procedures.

In sum, our results suggest that simultaneous pairing of a brand with a different affective stimulus on each occasion yields much more resilient effects on brand evaluations than consistently pairing the brand with a single affective stimulus. Although our findings provide only preliminary evidence, these findings are consistent with our hypothesis that the conditioning procedures promote different learning processes. We hypothesized that pairing brands with positive affective concepts can make brands more well liked by establishing direct or indirect affective responses. Indirect affective responses to brands depend on memory associations between the brands and the valenced stimuli with which they have been paired. In the case of direct affective responses, positive affect becomes directly associated with the brand, independent of memory associations to the positive event that initially generated the affect.

Our findings suggest that the type of learning depends strongly on the way marketing stimuli are presented. Indirect affective responses should be highly sensitive to the consistency of the affective stimuli with which a brand is paired. Because indirect affective responses require that specific associations be retrieved (consciously or unconsciously), they will be weak or absent unless a brand is consistently paired with the same affective stimulus on multiple occasions. Direct affective responses, in contrast, do not require consistent pairing because what becomes attached to the brand is the affect itself, not a link to a specific affective stimulus. However, because establishing direct affective responses relies on an affect misattribution process (Jones et al. 2009), it does require that the brand and affective stimulus are presented simultaneously—which in turn is not required for establishing indirect affective responses. Failing to consider these necessary conditions limits the effectiveness of evaluative conditioning. For example, advertising consisting of the sequential presentation of a brand with many different affective concepts will result in little to no evaluative conditioning because the sequential presentation prevents the establishment of a direct affective response, and the diverse brand-concept pairings do not support the establishment of indirect affective responses (experiment 1).

**Branding Implications**

Brand leveraging is used to refer to the effects of linking a brand to another person, place, thing, or brand. As pointed out by Keller (2003, 595), “marketers often attempt to increase their brand equity by, in effect, borrowing equity from others.” From a brand-leveraging perspective, our findings point to a distinction between borrowing equity from others and actually acquiring equity directly. Indirect affective responses correspond to borrowed equity, as conceptualized by Keller. They are obtained, for example, in advertising, by pairing a visual of a brand or product with the same or similar visual of a positive affective stimulus across multiple occasions, employing either sequential or simultaneous pair-
ing. Direct affective responses imply that the brand can actually acquire the equity. They are obtained by pairing a visual of a brand or product with visuals of a different positive affective stimulus on each occasion, employing simultaneous presentation of brand and positive stimulus visuals. Our studies demonstrated in multiple ways why acquiring equity is much more robust and thus, from the marketer’s perspective, more desirable than borrowing it.

Companies spend hundreds of millions of dollars annually on celebrity endorsers, sponsorships, product placements, and so on. This strategy to promote positive affective responses to the brand can increase the value of the brand. The danger is when these once positive concepts turn negative. For example, celebrity endorsers who have fallen from grace include Kobe Bryant, Floyd Landis, Michael Jackson, Michael Phelps, O. J. Simpson, Britney Spears, Michael Vick, and Tiger Woods. If a brand derives a large part of its value by establishing an association with a celebrity endorser (e.g., Accenture and Tiger Woods), devaluation of the celebrity can reduce the value of the brand. An obvious strategy to minimize this risk is using many endorsers, thus reducing the negative impact of any one celebrity’s downfall. In addition to this basic risk-spreading benefit, our findings evoke the possibility of another benefit of using many endorsers. If many endorsers are used who are each paired with the brand infrequently, and if brand and endorser are presented simultaneously, direct evaluative conditioning may obtain. That is, the brand directly acquires the equity and is insulated from negative revaluations of the affective stimuli (i.e., the endorsers). Of course, several caveats are in order here. We did not use celebrity endorsers in our experiments, and using many endorsers may be expensive and impractical, although examples of brands using many endorsers do exist (e.g., Nike, l’Oréal).

A second important difference between borrowed equity (indirect affective responses) and acquired equity (direct affective responses) is borrowed equity’s dependence on the preservation of a memory link between the brand and its endorser. When brands acquire equity, for example, by pairing them with many different positive visual stimuli using simultaneous presentation of brand and positive stimulus links to the source become unimportant. Memory associations are most vulnerable immediately after they have been learned (Wixted 2004, 2005). This implies that advertising strategies leading to borrowed equity may be highly susceptible to interference by advertising clutter. Our second experiment suggests that commercials that lead to acquired equity may yield brand equity that is uniquely robust to competitors’ advertising clutter.

A final important difference between borrowed versus acquired equity applies to consumers’ ability to use their persuasion knowledge to withstand brand-leveraging techniques. Overall, our findings may justify a warning from a consumer protection point of view. When the brand leveraging process results in borrowed equity, consumers are at least partially (but not completely) able to correct for advertising effects on their brand attitudes, but only when they are explicitly asked about their product opinions. Consumers’ implicit product attitudes, however, showed no evidence of correction at all. This is noteworthy because implicit product attitudes are predictive of product choice when consumers are mentally preoccupied (Gibson 2008). When the brand-leveraging process results in acquired equity, the potential implications from a consumer protection point of view are even more worrisome. We found no significant effect of persuasion knowledge activation on either implicit or explicit brand attitudes when the conditioning procedure attached affect directly to the brand.

Limitations

There are some anomalies in the data that deserve discussion. In experiment 1 (see fig. 2), brands paired with neutral and positive stimuli were evaluated lower in the simultaneous different US condition than in the same US conditions. The lower evaluation of brands in the simultaneous different US condition is at odds with the claimed resilience advantage for this conditioning procedure. Two pieces of data address this concern. First, the simultaneous different condition does not consistently produce lower ratings. In experiment 2, brands paired with neutral US were evaluated somewhat more positively in the simultaneous different condition than in the sequential same condition. Second, an unreported experiment (made redundant by experiment 1) showed no substantial differences between the positively conditioned brand attitudes in the simultaneous different and sequential same or simultaneous same conditions. Nevertheless, it is possible that some participants may have been frustrated by the more complex presentation setup in the simultaneous different US condition. This suggests that simultaneous different conditioning procedures may yield more resilient but smaller or slower-to-build brand attitude effects than the same US procedures.

Another potential concern is that ratings close to the midpoint of our scale may not reflect neutral attitudes, but more of a “don’t know” response. To some extent, this is consistent with the hypothesized process. For example, responses near the middle of the scale for both positive and neutral US types in interference conditions using the sequential same US procedure (experiment 2) should reflect a “don’t know” response. However, “don’t know” responses cannot be responsible for all responses close to the middle of the scale. A case in point might be the positive and positive-to-be-re-evaluated stimuli in the simultaneous different US condition of experiment 1. If responses in these conditions represented “don’t know,” then the lower ratings in the neutral condition could not have been a “more extreme don’t know.” Thus, the whole pattern of data seems more consistent with an interpretation in terms of somewhat depressed brand evaluations for the simultaneous different US condition regardless of type of US (neutral, positive, positive-to-be-revaluated). Nevertheless, further research involving, for example, negative instead of neutral US or more strongly positive US would provide insight into this issue.
Summary

Evaluative conditioning is a crucial determinant of consumers’ likes and dislikes (Gawronski and Bodenhausen 2006). Despite its importance, research only recently started to unravel the different processes involved (Jones et al. 2009). In their review of the available evidence, De Houwer et al. (2001) concluded that attitude formation through evaluative conditioning is indirect in nature, thus always mediated by establishing brand-affective stimulus associations in memory. Gawronski and Bodenhausen (2006) argued the evaluative conditioning effect on brand attitudes can occur through establishing new positive associations with a brand, through alteration of the set of momentarily active associations (in the case of brands with rich networks of preexisting associations, see also Gibson 2008), and through propositional reasoning about the positive stimuli linked to a brand. These processes have in common that the evaluative response to the brand depends on intermediating brand-affective concept associations and thus were grouped in this article as indirect affective responses. We hope to contribute to the nascent literature on the processes underlying evaluative conditioning by providing initial evidence for the empirical ability of different conditioning methods to forge direct as well as indirect connections between brands and affective responses.

REFERENCES


EVALUATIVE CONDITIONING 2.0


