

Classical Conditioning of Negative Attitudes

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ABSTRACT

Consumer researchers in recent years have displayed growing interest in the classical conditioning paradigm. Published efforts to this point, however, have focused exclusively on testing positive attitudinal conditioning. The present research program departs from this pattern by examining the possibility of conditioning negative attitudes toward consumer goods. Results from five experiments--all utilizing multiple trials with forward conditioning and random control groups--provide consistent albeit modest support demonstrating the conditionability of consumer goods to negative stimuli.

WHY STUDY NEGATIVE CONDITIONING?

While marketing communications efforts typically are aimed at persuading consumers to purchase a particular brand and thus seek to generate more positive attitudes toward the brand, there also are a number of situations in which marketing activities may be classified as attempts at demarketing. For instance, advertising is frequently used in public service campaigns to dissuade consumers from participating in a variety of activities that are harmful to their health including the use of tobacco, illegal drugs, and the excessive use of alcohol, especially when driving.

In addition to these proactive demarketing campaigns, negative conditioning, or some other form of associative learning, may occur unintentionally in the marketplace when a consumption object (product, brand, or store) finds itself in a contiguous relation with an undesirable stimulus. For example, random advertising placements on television or in a magazine may result in a food product being advertised beside a noncomplimentary item. Or specific brands may be shown in conjunction with revolting, gruesome, or grotesque scenes in movies or television programs. Another form of negative conditioning may occur when the consumer spots an especially unappealing person wearing a particular brand of apparel or using some other product. Rumors represent still another form of negative-like unconditioned stimulus that can wreak untold damage on a brand's reputation and image.

Happenstances in the marketplace are not always kind to the images marketers most prefer for their brands. It is for this reason that negative conditioning--along with negative information in

general (cf. Scott and Tybout 1981; Weinberger, Allen, and Dillon 1981)--is worthy of serious consumer scholarship.

PRIOR RESEARCH

There is ample evidence of negative conditioning in the basic classical conditioning literature. Most notable is the rich line of research into aversive conditioning, especially to taste, through the use of such negative USs as electric shock and nausea induced through chemical injection or radiation. Many may remember the classic film "A Clockwork Orange" in which the conditioned aversion to violence, women, and accidentally to Beethoven's "Ninth Symphony" was so strong that the subject Alex subsequently attempted to end his life rather than listen to the "Ninth."

Studies have supported negative conditioning of attitudes either through the use of electric shock (e.g., Zanna, Kiesler, and Pilkonis 1970) or through pairing with negatively valenced words (e.g., Moore, Moore, and Hauck 1982). Gorn's (1982) seminal conditioning experiments in the marketing literature included one experimental group that was exposed to positively evaluated music from "Grease" and a second group where the CS, a pen, was paired with what amounted to a negative US, i.e., classical Eastern Indian music. Gorn's results, although the research was not designed for this purpose, evidenced negative conditioning: subjects in the undesirable music group selected the color pen shown in the experiments only 30 percent of the time, somewhat less than might be expected by chance.

The current research program includes five experiments that attempt to demonstrate a downward change in attitude through the multiple-trial presentation of negatively valenced unconditioned stimuli. These stimuli are either systematically paired with consumer goods (in a forward conditioning pattern) or, for comparison purposes, are presented the same numbers of times but in random order with respect to the consumer goods that serve as conditioned stimuli. The research paradigm in all five experiments follows successful procedures established previously in our series of positive conditioning experiments, especially the previous Experiment 4 (Stuart, Shimp, and Engle 1987).

EXPERIMENT 1

In adapting Stuart et al.'s (1987) positive conditioning procedures, this initial negative conditioning experiment sought to condition negative attitudes toward fictitious Brand L toothpaste using four distasteful, unpleasant scenes that served as a negatively valenced US composite.

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Method

Brand L toothpaste, the conditioned stimulus (CS), was operationalized by the visual presentation of a green and yellow tube presented via a color slide presentation. The unconditioned stimulus (US) was operationalized similarly through the slide presentation of four unpleasant scenes. These four scenes, selected through pretesting as eliciting strong negative responses included (1) a trash dump with rusty cans, (2) a trash dump with old cardboard boxes, (3) leaking chemical storage drums, and (4) a large black mound of decomposing vegetation.

The experiment included forward-conditioning and random-control groups. The forward-conditioning group received 10 conditioning trials in which a 7.5-second presentation of Brand L toothpaste, the CS, was always followed by a 7.5-second presentation of one of the four unpleasant US scenes. Two seconds of down time (a darkened screen) followed each trial, the purpose of which was to alert subjects to the subsequent trial rather than having each trial merge into the next. Strict timing of all presentations was accomplished through the use of a programmable dissolve unit, a sync-pulse recorder and multiple projectors. Also included in the presentation were filler trials that paired products other than Brand L toothpaste with affectively neutral scenes, the purpose of which was to reduce hypothesis guessing (see Stuart et al. 1987 for further explanation). In comparison to the forward-conditioning group, the random-control group received the same number of presentations of the CS, the US, the down times, and the filler material but in random order with respect to each other. In other words, the relationship between CS and US in the random control group was entirely nonsystematic, hence preventing the formation of a predictiveness relationship between CS and US (Rescorla 1967).

In order to prevent excessive boredom and to maintain attention during all ten conditioning trials, the presentation was broken into three intervals. Following each of the first two intervals subjects completed attitudinal measures pertaining to two filler products (although these results are not of interest). Following the third and final portion of the slide presentation, subjects rated Brand L toothpaste on various attitudinal scale items. Subjects were then advised that a written statement explaining the study would be mailed at a later date, cautioned not to discuss the study, and thanked for their participation.

Measures

Four measures of attitude toward the Brand L toothpaste served as indicators of a conditioned attitudinal response: (1) a summated score of seven 7-point semantic differential items (good-bad, high quality-poor quality, like very much-dislike very much, superior-inferior, attractive-unattractive, pleasant-unpleasant, and interesting-boring); (2) a 7-point global evaluative item ("Overall my feeling about Brand L toothpaste is favorable-unfavorable");

(3) an 11-point measure of purchase intentions ("All things considered, if you were to purchase toothpaste on one of your next several trips to the supermarket, what are the chances in 10 that you would purchase Brand L toothpaste if it were available?"); and (4) a graphic rating scale consisting of a 120-millimeter line on which subjects placed an "X" to indicate their feelings toward Brand L toothpaste from very positive to very negative.

Results

Forty-seven subjects participated in Experiment 1, 24 in the conditioning group and 23 in the random-control group. The Table presents means, standard deviations, and *t*-values. While the behavioral intentions item is the only one to reach statistical significance ($t = -1.84$; $p < .05$, one-tailed), expected directional differences were evidenced for the other scales as well. That is, for all measures the means of the forward-conditioning group were predictably lower (less positive) than for the random-control group.

It is informative to compare the mean scores in this experiment with scores obtained in our earlier positive conditioning experiments using Brand L toothpaste as the conditioned stimulus (Stuart et al. 1987). The best comparison with the present experiment, due to the use of identical procedures, is the "forward 7.5/7.5" group in Stuart et al.'s Experiment 4. On the semantic differential, overall, behavioral intentions, and graphic rating scales, the positive conditioning (random control) groups in the prior experiment had means of 38.8 (24.3), 5.6 (3.33), 6.76 (2.33), and 94.28 (45.74). These averages compare with the present means (see Table) in the negative conditioning (random control) groups of 18.33 (20.13), 2.29 (2.87), 1.08 (2.13), and 26.83 (32.0). It is apparent that the negatively valenced USs in the present forward conditioning trials had a dramatic impact in reducing attitudes toward Brand L toothpaste in comparison to the positive USs in the earlier experiment. However, as to be expected, the differences in the two experiments between the positive and negative random control groups' mean scores are relatively trivial.

EXPERIMENT 2

A number of different negative scenes were pretested and four of these were selected for inclusion in Experiment 1. However, two of the scenes that had ranked very low (lower, in fact, than three that were included in the first experiment) were not used in Experiment 1 because of their rather gruesome nature. One included a large number of human skulls stacked on a shelf (reminiscent of a scene from the Cambodian killing fields) and the other was of a shrunken human head. Because Experiment 1 exhibited directional effects but did not reach statistical significance for three of the four attitudinal measures, it was felt that the use of these more negative USs might elicit stronger negative results. Thus the US in Experiment 2 included these

TABLE
EXPERIMENTS 1-5: MEANS, STANDARD DEVIATIONS, AND T-VALUES

	Semantic differential ^a	Overall rating ^b	Behavioral intentions ^c	Graphic rating ^d
<i>Experiment 1</i>				
Conditioning group (n=24)	18.33 (7.13)	2.29 (1.30)	1.08 (1.66)	26.83 (31.23)
Random-control group (n=23)	20.13 (7.90)	2.87 (1.55)	2.13 (2.22)	32.00 (26.89)
t-values	-0.82	-1.39	-1.84*	-0.61
<i>Experiment 2</i>				
Conditioning group (n=23)	17.67 (7.57)	2.33 (1.46)	1.50 (1.77)	27.25 (27.85)
Random-control group (n=22)	21.14 (6.74)	2.90 (1.30)	2.05 (1.86)	41.95 (24.71)
t-values	-1.62	-1.38	-1.01	-1.86*
<i>Experiment 3</i>				
Conditioning group (n=18)	18.43 (9.26)	2.64 (1.60)	1.29 (2.09)	30.36 (31.38)
Random-control group (n=18)	22.09 (8.49)	3.00 (1.38)	1.45 (1.63)	41.41 (26.99)
t-values	-1.22	-0.71	-0.27	-1.12
<i>Experiment 4</i>				
Conditioning group (n=38)	25.93 (10.97)	3.67 (1.79)	3.61 (2.91)	59.45 (40.42)
Random-control group (n=31)	27.63 (11.69)	3.89 (1.71)	3.53 (3.07)	68.97 (39.79)
t-values	<1	<1	<1	<1
<i>Experiment 5</i>				
Conditioning group (n=24)	27.41 (10.72)	3.79 (1.97)	3.18 (2.87)	66.36 (42.04)
Random-control group (n=23)	31.35 (12.04)	4.69 (1.85)	4.15 (3.40)	78.35 (45.46)
t-values	-1.32	-1.80*	-1.19	-1.05

^aPossible range of scores from 7-49; higher scores indicate more positive attitudes.

^bPossible range of scores from 1-7; higher scores indicate more positive attitudes.

^cPossible range of scores from 0-10; higher scores indicate more positive attitudes.

^dPossible range of scores from 0-120; higher scores indicate more positive attitudes.

*p < .05, one-tailed.

two scenes plus the scenes of the trash dump with rusted cans and the trash dump with boxes. Brand L toothpaste again was the CS.

Method

Forty-five subjects participated in Experiment 2, 23 and 22 respectively in the forward-conditioning and random-control groups. As in Experiment 1, the conditioning group was exposed to 10 pairings of CS followed by US, while the random-control group viewed 10 separate showings of CS and US not systematically paired with one another. The same four measures of conditioned attitude were again obtained in the same three-part fashion.

Results

The Table shows the means, standard deviations, and t-test results for the two groups included in Experiment 2. Again, for all measures the differences between the forward conditioning and random control groups were in the right direction but only the graphic rating scale revealed the conditioning group to have a significantly less favorable attitude toward Brand L toothpaste than did the random-control group ($t = -1.86$; $p < .05$, one-tailed).

EXPERIMENT 3

While the largest amount of conditioning typically occurs during the first few conditioning trials, bringing the conditioned response to asymptote may require a substantial number of trials (Domjan and Burkhard 1985). Therefore, Experiment 3 was designed to replicate Experiment 2 but with 20 instead of 10 conditioning trials. Brand L toothpaste again was paired with the same four affectively negative scenes used in Experiment 2. Experimental conditions and procedures are otherwise identical to those in Experiment 2.

Results

Thirty-six student subjects, 18 per group, participated in Experiment 3. The Table again shows the means, standard deviations, and t-test results for the forward-conditioning and random-control groups. Results present the expected directional differences but none of the four measures of attitude toward the brand reached levels of statistical significance.

EXPERIMENTS 4 AND 5

The first three experiments offered modest demonstration that systematic pairing of a fictitious brand of toothpaste with negatively valenced visual scenes leads to less favorable attitudes toward that brand. However, the inability to obtain stronger effects was possibly due to two aspects of our experimental procedures. First, it may be that the US scenes and the CS object, Brand L toothpaste, may not have been sufficiently similar to engender stronger negative conditioning. There is evidence in the basic conditioning literature (e.g., Schwartz

1989) that CS and US similarity, or belongingness, is a requisite for strong conditioning effects.

Conditioned and unconditioned stimuli are said to be similar to one another when they share common physical features or sensory properties. For example, in conditioning experiments with animals, it is fairly simple to condition aversive behavior to taste but more difficult to condition such a response to odor alone (Holder and Garcia 1987). A second possible problem with Experiments 1-3 was the possibility of floor effects. That is, an already unfavorable attitude toward Brand L toothpaste (as evidenced by the random-control groups' low mean scores) would have made it difficult for the conditioning procedure to further attenuate the forward-conditioning group's mean attitude.

Therefore, Experiments 4 and 5 sought to examine negative conditioning using a different CS. It was thought that a cola brand might be more sensitive than toothpaste to the negative visual scenes employed previously as USs. Cragmont Cola, a red and white can of cola possessing no distinctive features other than the somewhat sophisticated-sounding brand name, was selected. Cragmont is a real regional brand of cola that was unknown to our subjects due to its unavailability in the study region. However, in some of our other conditioning experiments (unrelated to the present experiments), we had found that Cragmont is rated very favorably by similar student subjects. Hence, the use of Cragmont Cola prevented the floor-effect problem and also was thought to provide a better "fit" with the unpleasant US scenes. This possibility is purely speculative and remained an empirical issue until the experiments were performed.

The US included in Experiment 4 included the four negatively valenced scenes included in Experiments 2 and 3, that is the shrunken head, shelf with human skulls, trash dump with rusty cans, and trash dump with old cardboard boxes. Experiment 5 was identical to Experiment 4 with the exception that leaking chemical storage drums and a large black mound of decomposing vegetation were substituted for the shrunken human head and shelf with human skulls. To enhance the possibility of obtaining significant results, subjects were exposed to 20 conditioning trials. Again, all experimental sessions included small groups of student subjects and measurement was divided into three separate administrations.

Results

The Table presents means, standard deviations and t-test results for the forward-conditioning and random-control groups included in Experiments 4 and 5. Experiment 4 again reveals the expected directional differences between the two groups but an absence of significant effects for any of the four measures. The differences between the two groups are more pronounced in Experiment 5, but only the overall rating scale obtained statistical significance ($t = -1.80$; $p < .04$, one-tailed).

DISCUSSION

Although statistically significant differences between the conditioning and random-control groups were isolated, the consistent replication of directional results in five separate experiments provides plausible support that attitudes toward consumer goods are susceptible to negative conditioning. Indeed, the replication of results in five separate experiments may suggest far stronger support for theory in general than significant differences found in a single empirical test.

Why our experiments did not evidence stronger results remains problematic. One possibility may lie in the measures used. It has been suggested that positive and negative affect are essentially two separate dimensions (Abelson, Kinder, Peters, and Fiske 1982; Allen and Madden 1985). The use of single adjective scales such as those employed by Abelson et al. (1982) and Allen and Madden (1985) may have provided better measures of negative affect and allowed differences between the conditioning and control groups to reach levels of significance.

A second possible explanation lies in the belongingness between the CS brands and US scenes. As described previously, an important requirement for classical conditioning is that conditioned and unconditioned stimuli be similar or share a belongingness relation (Domjan and Burkhard 1985). This suggests that a variety of appropriate CS-US relationships must be present for an associative mechanism to be activated and thus permit learning to occur (Testa 1974). This is not to say that conditioning is not possible with less related CS-US combinations but that some are learned more easily. Unfortunately, little is known about requirements for CS-US belongingness, only that certain combinations are better. Stronger effects may have obtained had other types of pictures or possibly semantic stimuli, i.e., negatively valenced words, been utilized.

Quite obviously, these modest results warrant caution in concluding that classical conditioning of negative attitudes occurs in actual marketing communications situations. Still, these results suggest that organizations seeking to engage in demarketing activities may consider including the sort of stimuli in their messages which would provide some approximation of negative US-CS pairings. Likewise, advertisers and other marketing communicators must be cautious and avoid, where possible, having their brands shown in conjunction with undesirable objects, events, or people.

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