AFFECT AND THE INHIBITION OF COMPETING BRANDS

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This research examines the role played by affect in the recall inhibition of competing brands in a product category. The results indicate that the affective component of overall brand attitudes has a greater ability to inhibit the recall of competing brands in a category than the evaluative component. This suggests that the affective component may play a greater role in brand accessibility than the evaluative component. From a methodological viewpoint, the recall inhibition effect is proposed as a useful method to study brand affect without forcing subjects into cognitive memory processes.

INTRODUCTION

Memory cues are often used to enhance recall (Bettman 1979, Unnava et al. 1994). If a person is presented with a category name, for example, it serves as a cue to recall members of the category (Tulving and Pearlstone 1966). Additional cues may heighten recall for otherwise previously inaccessible members of the category (Lewis 1971, Wood 1969).

A curious phenomenen has, however, been noted by some researchers (e.g., Alba and Chattopadhyay 1985, 1986). When a category member or instance is presented as a cue, research has shown that it inhibits the recall of other members in the category (Rundus 1973). This phenomenen has commonly been referred to as the "recall inhibition effect." For example, a person asked to recall as many brands of shampoo as possible may recall about ten brands of shampoo. If however, before asking the person to recall brands of shampoo, the person is cued with a brand or a subset of brands from the shampoo category, the person would recall significantly fewer brands of shampoo. This effect has been found to be quite robust, and has been demonstrated across various categories and situations in both psychology and marketing literature (e.g., Slamecka 1968, Rundus 1973, Roediger 1973, 1974, Nickerson 1984, Alba and Chattopadhyay 1985, 1986).

Most studies on the recall inhibition effect have used a subset of cues, such as words or brands to inhibit the recall of other members in the category. No research has examined how attitude towards a cue (e.g., a brand) may affect inhibition of other members in the category (Erevelles 1998). More specifically, no research has examined how the components of attitudes (affect and evaluation) may influence the inhibition of other members in the category. In addition to being important from several theoretical perspectives, the managerial implications of such research could be considerable, as it may allow marketers more control in formulating a strategy to inhibit the recall of competing brands.

RESEARCH OBJECTIVES

The objectives of this research are (i) to test the relative ability of the affective and evaluative components of overall brand attitudes to inhibit other brands in the product category, (ii) to examine the recall inhibition effect as a new method to study brand affect without forcing subjects to go through a cognitive memory process, and (iii) to shed some light on the issue of whether the affective component of overall brand attitudes

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plays a relatively more important role in brand accessibility than the evaluative component.

LITERATURE REVIEW

Several theoretical explanations have been suggested to account for the recall inhibition effect (See Nickerson 1984). The most accepted explanation is one proposed by Rundus (1973), sometimes called the "competition-at-retrieval" hypothesis. The intuition behind this hypothesis is that the presentation (cueing) of an item (instance) of a category or set, strengthens the associations in memory between the item and the category. It thus increases the accessibility of that item relative to the other items in the category. During the recall process, the high accessibility of the cued item decreases the accessibility of other items in the category, and blocks their recall. In simple words, a person gets "fixated" on the cued item or items (Alba and Chattopadyay 1985), and thus fails to recall other items in the category.

A formulation of this hypothesis has been attempted, using what is known as the "ratio rule." According to the ratio rule (Rundus 1973), the probability of retrieving an item from a category is equal to the associative strength between the item and the category, divided by the sum of the associative strengths between all items and the category. When a person is cued with an item from a category, the associative strength between that item and the category increases, thereby reducing the probability of the retrieval of other items in the category (Miniard et al. 1989). In operationalizing this hypothesis, at least three assumptions are made: (i) the retrieval of items from a category is assumed to be made with replacement, (ii) the retrieval of an item increases the associative strength between that item and the category, and (iii) attempts to retrieve items in the category may end once a certain number of attempts yield no new items (c.f. Alba and Chattopadyay 1985).

The generalizability and robustness of the recall inhibition effect has been well documented in psychology and marketing literature. This effect was first documented by Slamecka in 1968. Thirty-item word lists were used and, depending on the experimental condition, some subjects were cued with a subset of these words ranging in number from five to twenty-nine. It was found that subjects who were cued with these words recalled a significantly lower proportion of the non-cued items than subjects in a control group did. Similar results using word lists were obtained by Roediger, Stellon and Tulving (1977). Subjects who were cued with a subset of words from the original list were found to recall fewer of the non-cued words than subjects in a control group.

Tulving and Pearlstone (1966), Parker and Warren (1974), and Roediger (1978) extended these studies using lists of cues from various different categories. Generally, cued subjects were found to recall words from fewer non-cued categories than did control subjects. It was also found that the presentation of a subset of category names enhanced recall of the items in that category, but inhibited the recall of items from other categories. Several other studies in various contexts have provided support for the recall inhibition effect. (See Nickerson 1984 for an excellent review of these studies).

In marketing literature, Alba and Chattopadyay (1985) conducted three studies to demonstrate the recall inhibition in a product category-brand context. They studied the effects of cueing subjects with a subset of brands from a category, on the recall of other competing brands in the category. In the first two studies, they found that depending on the knowledge level of consumers, a subset of brands can either inhibit or enhance recall of brands in a product category. When the category is undifferentiated (i.e., the various brands in the category are very similar to one another), or is perceived as undifferentiated because of the knowledge structure of subjects, presenting a subset of brands from the category was found to inhibit recall of competing brands. On the other hand, when the category is well differentiated (i.e., has well defined within-category structures), or is perceived to be differentiated because of the knowledge structure of subjects, they may either inhibit or enhance recall. When cued brands act as

intra-category cues, the brands inhibit recall, and when they act as inter-category cues they sometimes enhance recall. Further, Alba and Chattopadyay showed that even the presentation of only two brands as cues can significantly inhibit the recall of entire categories of competing brands.

The robustness of the recall inhibition effect in different marketing contexts and for various product categories was further demonstrated in a series of experiments by the same authors (Alba and Chattopadyay 1986). In addition, these experiments investigated an alternative route to inhibiting recall of competing brands in a category. The authors studied the effects of an increase in "salience" of a single brand on the recall of other competing brands in the category. (Salience refers to the "prominence" or "level of activation" of an item brand in memory, e.g., Alba and Chattopadyay 1986.) They found that by increasing the salience of a single "cue" brand, the recall of other competing brands in the category is significantly hindered.

They demonstrated this effect for several product categories (shampoo, coffee, cereal, nasal decongestants and multisymptom cold remedies) and in different marketing contexts (categories with many members vs. categories with a few members, categories often used by subjects vs. categories rarely used by subjects, print advertisement cues vs. television advertisement cues, and instantaneous vs. delayed measurement of recall inhibition effects). For all these categories, and in all these situations, the recall inhibition effect proved to be remarkably consistent and robust. Alba and Chattopadyay attribute these interesting results to the inability of a person to suppress the recall of salient information during memory search. When a brand is made more salient, it repeatedly "comes to mind" and is retrieved during memory search, thus inhibiting the recall of other competing brands in the category.

The recall inhibition effect appears to be an excellent tool to access subjects' affective responses without having them go through a cognitive process, and to determine the effect of affect on memory retrieval processes. In addition, from a methodological viewpoint, it helps in reducing cognitive bias during the retrieval process.

HYPOTHESES

To summarize, research has shown that when a category member or instance is presented as a cue, it inhibits the recall of other members in the category (e.g., Rundus 1973, Roediger 1973, 1974, Nickerson 1984). The salience of a member (brand) has also been shown to affect recall inhibition of other members in the category (e.g., Alba and Chattopadyay 1986). The salience of a brand refers to its "level of activation" in memory. If a brand is made more salient in memory, it inhibits the recall of other brands in the category. This occurs because it is difficult to suppress the recall of salient information in memory.

The theoretical explanation (see Rundus 1973) behind the recall inhibition effect relates to the strength of associations in memory between a category and a cued member of the category (in this case, the brand). The stronger this association, the more accessible the brand is, relative to other brands in the category. During the retrieval process, the high accessibility of the cued brand decreases the accessibility of other brands in the category. Therefore, any factor that enhances the associative strength between an item and a category reduces the probability of retrieval of other items in the category.

The recall inhibition effect is an effective way to elicit subjects' affective responses, without forcing them to go through a cognitive retrieval process. If the affective component of a brand is more accessible (i.e., salient) in memory than the evaluative component, it should have a greater recall inhibition effect than the evaluative component on other brands in the product category. If, on the other hand, the evaluative component is more accessible, the recall inhibition effect for brands with strong evaluative components will be greater.

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Since, in addition to the product proposition node, the emotion nodes also contribute to the increase of the salience of brands with strong affective components, these brands would tend to create a larger recall inhibition effect than brands with relatively weaker affective components. Moreover, the retrieval of brands with dominant evaluative components involves a unit integrative process, with serial activation and several nodes involved. Such brands, therefore, are less likely to be as readily prominent or as easily activated as brands with a dominant affective component that involves fewer nodes, or even direct associations between product category proposition nodes, emotion nodes, and brand proposition nodes. The difference in this level of activation or salience will cause different inhibitory effects.

Also, during initial periods of free recall of brands in a category, little conscious effort is expended by the subject. Brands with dominant affective components represented by highly salient emotion nodes, and the direct associations between the emotion nodes and related product and brand proposition nodes, will cause substantial recall inhibition of brands represented by relatively less accessible nodes. During later periods of recall however, considerable conscious effort is expended by the subject, and some brands represented even by the relatively less accessible nodes are retrieved. In other words, recall inhibition effects are likely to be more pronounced during initial periods of recall than during later periods.

Based on the above discussion, the following hypotheses are proposed:

H_1: Brands with a predominant affective component will produce a larger recall inhibition effect for other brands in the product category than brands with a predominant evaluative component.

H_2: Brands with a more dominant affective component will produce a larger recall inhibition effect than brands with a less dominant affective component.

H_3: The recall inhibition effect will be stronger for initial periods of recall than for later periods.

In addition (while this is not a major focus of this study), the results may provide some insight on the accessibility of brands. If these hypotheses are supported, it may suggest that the affective component of overall brand attitudes, rather than the evaluative component, is more instrumental in the free recall of common repeat purchase brands.

METHODOLOGY

Pre-studies

Since a major purpose of this study is to compare the relative accessibility of a predominantly affective brand with that of a predominantly evaluative brand, a "balanced" common repeat purchase product category (toothpaste) was used. (A "balanced" product category is one that was determined from pretests, to be a category where consumers consider both affective and evaluative cues in their purchase decisions.) An unfamiliar brand name was used in the manipulation, and the affective and evaluative components of overall attitudes towards the brand were manipulated.

The product category (toothpaste) was selected from among ten product categories elicited from subjects in focus groups as being common products repeatedly purchased by the group. The product category chosen was considered a "balanced product category." This was done in order to make the manipulations (affective and evaluative) in the study more realistic.

In the second stage of pretesting, ten different hypothetical or unknown brand names were tested on the same pool of subjects as used in the study. These were considered to be potential brand names for the treatment conditions, and were selected so that they appeared suitable for the product category specified. Some of these brand names were hypothetical, and some were names of brands not used in the United States, or from product categories different from those to be used in the

study. Subjects were asked three questions. On the first page, subjects were asked if they had previously heard of any of the ten brand names listed. The response could be either a "yes" or a "no." On the second page, subjects were asked if, in their opinion, each of the brand names was suitable for a new brand of toothpaste. The response for the question could again, be either a "yes" or a "no." This was done in order to make the manipulation both realistic and plausible. The prestudy showed that familiarity for the name "Jade" was nonexistent. Moreover, subjects felt that this brand name would be suitable for the toothpaste category. A decision was thus made to use the name "Jade" in the treatment conditions.

The third stage of pretesting was to determine strong functional attributes to be used in preparing stimulus material for the evaluative treatment condition. In this phase subjects were asked to list the " top three criteria" they used when purchasing a brand of toothpaste. The most often cited functional attributes for toothpaste were selected as arguments for the evaluative treatment conditions. For toothpaste, these were "prevents cavities," "fights tartar" and "protects against gum disease." These attributes were incorporated into the stimulus material for the evaluative treatment condition.

In the fourth stage of pretesting the experimental manipulations were tested. Three different conditions were planned for the study: (i) the affective condition (ii) the evaluative condition and (iii) the control condition. The affective and evaluative conditions were manipulated with specially prepared 8 1/2" X 11" color print advertisements. There were three advertisements for each condition. Each advertisement contained a headline, a color picture approximately 5" x 7 1/2" in size and a professionally developed image of the brand. The headline contained the same number of words in both affective and evaluative conditions. The experimenter, with the help of five subjects from the same subject pool as used in the study, selected pictures for the treatment conditions. (A manipulation check was also performed.)

Stimuli

In the affective condition, the headline read: "The Incredibly Exhilarating Feeling of Jade." This was followed by a picture in each ad, each of which was highly emotional in nature. It consisted of three variations of a "happy couple" situation, with the couples embracing, or close to each other. Strong emotion was very apparent in all pictures. Each picture was also chosen to be relevant to the product category, so as not to draw irrelevant attention. At the bottom of each ad, a professionally developed illustration of the brand was included. In the evaluative condition, three non-emotional pictures of shopping situations were used, one for each ad. The headline read: "Jade: Now Available in Local Stores." The three strong attributes (used as the manipulation tool) were prominently printed close to the center of the ad. At the bottom of each ad, a professionally developed image of the brand was included. In the control condition, instead of being exposed to ads from the target product category subjects were exposed to ads for an unrelated product category (investments).

Nine other different filler ads for three different brands (three for each brand) were also included in each manipulation condition. The brands in these ads were also relatively unfamiliar brands, so as not to draw special attention to the target brands. Moreover, their quality and style were similar to the target ads, and were color copied on paper similar to the target ads. Inquiries made after the pretests revealed that the target ads did not draw any more attention than the filler ads. Subjects generally perceived all brands to be relatively unfamiliar real brands. The filler and target ads (twelve in all) were placed in a folder. The target ads were the seventh, eighth and ninth ads in each folder (i.e., the third brand) for the affective and evaluative conditions. For the control condition, the unrelated ads were placed in the same relative place. In the pretests, subjects were given 30 seconds to view each ad. They were told that their opinion on some ads may be solicited later, and they were instructed not to turn to the following ad until they were prompted to do so.

Sixty-six subjects participated in the pretest. A 3 (condition) x 2 (gender) between subjects-design was used. After the six minutes it took to go through all the ads, subjects were given a questionnaire that contained Batra and Ahtola's (1990) scale (described earlier) and were asked to rate the "Jade" brand on the scale. (This is similar to the procedure followed by Stayman and Batra 1991.) An analysis of variance of the data revealed that manipulation was successful. The results of the prestudy for the toothpaste category are summarized in Table 1.

Study

Since the manipulation checks confirmed that the planned manipulations were successful, the main study was conducted. The study used a 3 (condition) x 2 (gender) between-subjects design consisting of two treatment conditions (affective, evaluative) and one control condition. In addition to this, gender was also included as a factor. This was done to compare the results of this study with those of Alba and Chattopadyay (1985, 1986). Alba and Chattopadyay had hypothesized that in some product categories, women had a more highly differentiated knowledge than men, and this facilitated their recall of otherwise inaccessible brands (See Alba and Chattopadyay 1986). While knowledge structures are not a focus of this study, it would nonetheless be interesting to check if there was a main effect for gender.

The study took place in a room where all drapes had been drawn to minimize distraction and to facilitate recall inhibition effects. The importance of these efforts has been well noted in past studies (e.g., Alba and Chattopadyay 1986, Miniard et al. 1989). Processing subjects individually is a cumbersome and time consuming procedure, but is essential if subjects are to conscientiously undertake the induction task. (See Miniard et al. 1989, Alba and Chattopadhyay 1986. Miniard et al. note that subjects may be less likely to conscientiously undertake the induction task when experimental sessions consist of multiple participants.) Subjects signed up for a session of their choice. The treatment conditions were rotated from session to session. Stimulus material was exactly the same as described for the prestudy.

After each subject had gone through all the ads, he or she was given "questionnaire 1." The purpose of "questionnaire 1" was to clear the ads and the brands that the subjects had just seen from their short-term memory. This was done so that the relative differences in salience (accessibility) for the affective and cognitive conditions would be accentuated, and measurable. Past studies had tested the effects of pre-experimental salience of the cue item (e.g., Alba and Chattopadyay 1986, Karchmer and Winograd 1971) on the recall inhibition effect. In these studies, the experimenters had heightened the salience of the cued brands to such a great extent during the cueing procedure that it obscured any effects of pre-existing salience. Care was taken in this study to avoid such a drastic salience increase just before the recall task. In order to achieve this goal, "questionnaire 1" contained questions about general habits of the subject when exposed to a magazine ad. The subject was then asked to recall the brand names seen in the ads. After this, he or she was asked to read a passage about the Yellowstone National Park, and later to answer questions about the passage.

After this task, "questionnaire l" was collected, and the subject was given "questionnaire 2." The cover page of the questionnaire contained instructions similar to those used by Alba and Chattopadyay (1985, 1986) in their studies. After the experimenter made sure that the subject had understood the brand listing task, the subject was told to turn to the next page. The next page contained the product category (toothpaste). As instructed, the subject listed names of brands from the category. The experimenter rang a bell at the end of 30 seconds, 1 minute, 2 minutes, 3 minutes and 4 minutes. At the end of four minutes, subjects were asked to stop listing brands. Past studies (e.g., Alba and Chattopadyay 1985, 1986) had indicated that this was more than adequate time for the subject to list all accessible brands. (This study further supported the fact that very little listing takes place after the third minute.)

Subjects were then asked to answer three questions: the first was about their gender, the second question verified if they had heard about the "Jade" brand name in the past, and the final question again asked them to recall the brand names in the ads they had seen earlier. After this, they were debriefed, asked not to discuss the study with others, and were dismissed.

The dependent variable was the number of brands recalled. As stated in the hypotheses, it was expected that recall inhibition of other brands in the category would be more in the affective condition than in the evaluative condition. Moreover, this effect was expected to be greater in the earlier phases of recall than in the later phases.

RESULTS

Manipulation Check: As discussed earlier, a manipulation check was conducted for the treatment conditions. The three treatment conditions were: Treatment 1: Affective Manipulation, Treatment 2: Evaluative Manipulation, Treatment 3: Control Condition. The dependent variables were the means of the affective component (A) and the means of the evaluative component (E) for each treatment condition. The data were analyzed using a 3 (condition) x 2 (gender) ANOVA. The manipulation appeared to be successful. As expected, a strong main effect for condition was obtained for both the affective component ($F=7.52$, $p<.001$) and the evaluative component ($F=9.70$, $p<.0002$). However, no main effect for gender for the affective component ($F=.09$, $p<.7638$) or the evaluative component ($F=.05$, $p<.8312$) was observed. Similarly the interaction for the affective component ($F=.04$, $p<.9635$) or the evaluative component ($F=.12$, $p<.8859$) was not significant. (See Table 1 for a summary of these results.)

The affective means for treatments 1, 2 and 3 are 2.3864, 1.3409 and 1.0341 respectively. Preplanned comparisons indicate that the affective mean for treatment 1 is significantly different than the affective mean for treatment 2 ($p<.005$), and the affective mean for the control condition ($p<.0005$). The affective mean for treatment 2 did not significantly differ from the affective mean for the control condition ($p<.43$). The evaluative means for treatments 1, 2 and 3 are 1.6136, 2.4205 and 1.0909 respectively. Preplanned comparisons indicate that the evaluative mean for treatment 2 is significantly different than the evaluative mean for treatment 1 ($p<.01$), and the evaluative mean for the control condition ($p<.0001$). The evaluative mean for treatment 1 did not significantly differ from the evaluative mean for the control condition ($p<.07$). No significant pre-planned comparisons were obtained for gender or for the condition-gender interaction. These results are summarized in Table 2.

TABLE 1
Manipulation Check Summary
Main Effects and Interactions

Treatment Conditions:
Treatment 1: Affective Manipulation
Treatment 2: Evaluative Manipulation
Treatment 3: Control Condition
Dependent Variables:
Means of Affective (A) and Evaluative Component (E) for each treatment condition.
ANALYSIS:
3 (condition) x 2 (gender) ANOVA
Main Effects:
A strong main effect for condition was obtained for
both the affective component: $F=7.52$, $p<.001$
and the evaluative component: $F=9.70$, $p<.002$
No main effect for gender for
the affective condition: $F=.09$, $p<.763$ or
the evaluative condition: $F=.05$, $p<.8312$
Interactions:
No significant interactions for
the affective component: $F=.04$, $p<.963$ or
the evaluative component: $F=.12$, $p<.885$

Main Study: The dependent variable used is the number of non-cued brands recalled. As discussed earlier, the three treatment conditions were:

Treatment 1: Affective Manipulation,
Treatment 2: Evaluative Manipulation
Treatment 3: Control Condition.

The data were analyzed using a 3 (condition) x 2 (gender) ANOVA. This was carried for non-cued brands recalled at the end of 30 seconds, 1 minute and 4 minutes. A significant main effect for condition was obtained for the 30 second interval ($F=5.89$, $p<.004$), the one minute interval ($F=5.25$, $p<.007$) and the 4 minute interval ($F=4.67$, $p<.01$). No main effect for gender was observed for the 30 second interval ($F=.14$, $p<.7058$), the one minute interval ($F=.07$, $p<.7922$) or the 4 minute interval ($F=.04$, $p<.8363$). Similarly no interaction effects for the 30 second ($F=1.59$, $p<.2104$), 1 minute ($F=3.09$, $p<.052$) or 4 minute ($F=1.61$, $p<.2073$) intervals attained significance. Table 3 summarizes the main effects and interactions for the toothpaste category.

TABLE 2
Manipulation Check Summary
Preplanned Comparisons

Treatment	Affective Means	Evaluative Means
1 (Affective)	2.3864	1.6136
2 (Evaluative)	1.3409	2.4205
3 (Control)	1.0341	1.0909

Affective Means:
Treatments 1 and 2: Significantly different ($p<.005$)
Treatments 1 and 3: Significantly different ($p<.0005$)
Treatments 2 and 3: Not significantly different ($p<.43$)
Evaluative Means:
Treatments 1 and 2: Significantly different ($p<.01$)
Treatments 1 and 3: Not significantly different ($p<.07$)
Treatments 2 and 3: Significantly different ($p<.0001$)

There were no significant preplanned comparisons for sex or interaction.

The mean number of brands recalled during the 30 second interval for treatments 1, 2 and 3 were 3.9615, 4.6923 and 4.9615 respectively. Preplanned comparisons indicate that the number of brands recalled in the affective manipulation condition (3.9615) and the number of brands recalled in the evaluative manipulation condition (4.6923) significantly different from each other ($p<.01$) in the expected direction. The number of brands recalled in the affective manipulation condition (3.9615) and the number of brands recalled in the control condition (4.9615) were also significantly different from each other ($p<.001$). No significant difference ($p<.40$) was obtained for the number of brands recalled in the evaluative manipulation condition (4.6923) and the number of brands recalled in the control condition (4.9615).

The mean number of brands recalled during the 1 minute interval for treatments 1, 2 and 3 were 4.9615, 5.6538 and 6.0769 respectively. Preplanned comparisons indicate that the number of brands recalled in the affective manipulation condition (4.9615) and the number of brands recalled in the evaluative manipulation condition (5.6538) are significantly different from each other ($p<.03$). The number of brands recalled in the affective manipulation condition (4.9615) and the number of brands recalled in the control condition (6.0769) were also significantly different from each other ($p<.002$). No significant difference ($p<.31$) was obtained for the number of brands recalled in the evaluative manipulation condition (5.6538) and the number of brands recalled in the control condition (6.0769).

TABLE 3
Recall Inhibition Results
Main Effects and Interactions

Treatment Conditions:
Treatment 1: Affective Manipulation
Treatment 2: Evaluative Manipulation
Treatment 3: Control Condition
Dependent Variables:
Number of uncued brands recalled
Analysis:
3 (condition) x 2 (gender) ANOVA
Main Effects:
Significant Main Effects for Condition:
30 second interval: $F=5.89$, $p<.004$
1 minute interval: $F=5.25$, $p<.007$
4 minute interval: $F=4.67$, $p<.01$
No main effect for gender for
30 second interval: $F=0.14$, $p<.705$
1 minute interval: $F=0.07$, $p<.792$
4 minute interval: $F=0.04$, $p<.836$
Interactions:
No significant interactions for
30 second interval: $F=1.59$, $p<.210$
1 minute interval: $F=3.09$, $p<.052$
4 minute interval: $F=1.61$, $p<.207$

The mean number of brands recalled during the 4 minute interval for treatments 1, 2 and 3 were 6.0769, 7.2308 and 7.3846 respectively. Preplanned comparisons indicate that the number of brands recalled in the affective manipulation condition (6.0769) and the number of brands recalled in the evaluative manipulation condition (7.2308) are significantly different from each other ($p < .01$) . The number of brands recalled in the affective manipulation condition (6.0769) and the number of brands recalled in the control condition (7.3846) were also significantly different from each other ($p<.006$). No significant difference ($p<.80$) was obtained for the number of brands recalled in the evaluative manipulation condition (7.2308) and the number of brands recalled in the control condition (7.3846). No significant gender effects were obtained. These results are summarized in Tables 3 and 4.

TABLE 4
Recall Inhibition Results
Preplanned Comparisons

	Mean Number of Brands Recalled		
Treatment	**30 Sec.**	**1 Min.**	**4 Min.**
1 (Affective)	3.961	4.961	6.076
2 (Evaluative)	4.692	5.653	7.230
3 (Control)	4.961	6.076	7.384
30 Second Interval:			
Treatments 1 and 2:	Significantly different ($p<.01$)		
Treatments 1 and 3:	Significantly different ($p<.001$)		
Treatments 2 and 3:	Not significantly different ($p<.40$)		
1 Minute Interval:			
Treatments 1 and 2:	Significantly different ($p<.03$)		
Treatments 1 and 3:	Not significantly different ($p<.002$)		
Treatments 2 and 3:	Significantly different ($p<.31$)		
4 Minute Interval:			
Treatments 1 and 2:	Significantly different ($p<.01$)		
Treatments 1 and 3:	Not significantly different ($p<.006$)		
Treatments 2 and 3:	Significantly different ($p<.80$)		

In summary, the results indicate that the affective component of overall brand attitudes creates greater recall inhibition of other brands in the category than the evaluative component. For the toothpaste category, this was found for all three time intervals. Overall however, it appears that the affective component of overall brand attitudes is more accessible than the evaluative component for the product category (toothpaste) tested.

DISCUSSION

The results obtained support the hypotheses proposed. The number of uncued brands recalled was significantly lower in the affective condition than in the evaluative condition. This leads us to conclude that the affective component of overall brand attitudes is more instrumental in inhibiting the recall of competitive brands in the category than the evaluative component. Since inhibition is related to the salience and accessibility of a brand, the results may also imply that brands with dominant affective components are more accessible than brands with dominant evaluative components.

The results also indicate that brands with a more dominant affective component produce a larger recall inhibition effect than brands with a less dominant affective component. This suggests that the "lengths of association" between the emotion node and the product category and brand proposition nodes influence the strength of the recall inhibition effect, and the accessibility of the brand.

Overall the objectives set at the beginning of the study were fulfilled. The recall inhibition effect appears to be a valid and unobtrusive method to retrieve affective traces, and compare the relative accessibility of the affective and evaluative components of overall brand attitudes. One of the weaknesses of past studies on affect has been that subjects were forced to use a cognitive retrieval process to access affective traces. The recall inhibition effect provides an indirect way to test the relative accessibility of inputs in memory without having subjects go through a cognitive retrieval process. This may be useful in similar studies in the future. Its application may thus provide insight into issues that were difficult to investigate in the past.

Theoretical Contributions

This research contributes to the existing body of knowledge on brands, and how affect and memory processes influence their retrieval, and consequently brand equity. The direct theoretical

contribution, of course, is the fact that the affective component of overall brand attitudes results in greater inhibitory effects on other brands in the category than does the evaluative component.

In addition, the findings in this study indicate that affect is retrieved from memory prior to evaluation. Salience, which refers to the "level of activation" or prominence of a brand in memory, is responsible for inhibiting the recall of other brands in the category because it is difficult to suppress the recall of salient information during memory search. It follows that if the affective component is primarily responsible for the recall inhibition effect, then affect must be more readily retrievable from memory.

By a similar line of argument, this research raises some serious reservations about past beliefs that evaluative information is more readily accessible from memory because of the increased elaboration that takes place during the encoding process. Part of the reason for past conclusions may be because of the lack of suitable methodologies for retrieving affect. These methodologies may have biased the results of those studies in favor of the evaluative component. This research presents a better methodology for assessing affective memory retrieval processes.

The methodology used in this research would almost completely eliminate bias associated with accessing affect using a cognitive retrieval process. It could be used in furthering research similar to that carried out by Friestad and Thorson (1986), who have obtained some results that have demonstrated favorable long-term memory effects for emotional stimuli. This research provides stronger support to this contention, and directly compares the evaluative and affective components of overall attitude.

Finally, this research appears to support the associative network model of Bower (1981). The results provide indications on how affect is stored in relation to brand names and product categories in memory. The results shed some light on past conceptualizations regarding emotion nodes, product proposition nodes and brand proposition nodes.

Managerial Implications

From a managerial perspective, this paper provides several insights for the management of brands. Research on how consumers choose common repeat purchase products has consistently indicated that the set of brands recalled by consumers directly affects final purchase decisions. Inhibiting the recall of competing brands would therefore directly be instrumental in influencing choice behavior.

The results obtained could also indicate what advertising strategies may be used when entering highly competitive markets with a number of similar brands, and which brands are most susceptible to competitive attack. The findings of this study also suggest that it may be useful to develop a brand's affective component, even for a primarily utilitarian category.

The relationship between the affective component of a brand, and the recall inhibition of other brands in the category has a number of important pragmatic implications. Past research has demonstrated the recall inhibition effect when multiple cues are present (Alba and Chattopadyay 1985), or when the salience of the brand is increased through extended brand exposure or forced elaboration (Alba and Chattopadyay 1986). This research adds to these findings, by demonstrating that enhancing the affective component of a brand may also result in significant inhibition of other brands in the category. If the affective component of a brand is so readily accessible that recall inhibition can be obtained through simple exposure for brands with strong affective components, the managerial implications are substantial. Simple exposure (sight or sound), or even recall of a particular brand could inhibit the recall of other brands in the category. Brand managers should thus pay greater attention to the affective component when developing equity for a new brand, or when reviving a dying brand.

CONCLUSION

Despite the results discussed above, the usefulness of the recall inhibition effect in affect accessibility studies should not be overstated. It is unclear, for example, how this effect can be adapted to distinguish among various dimensions of emotion (see Westbrook and Oliver 1991), or for studies in which absolute rather than relative measures of accessibility are needed. Further research undoubtedly is needed to better study inhibitory effects caused by various external stimuli. It seems to be a fair conclusion, however, to say that the support of the hypotheses proposed and the successful testing of this methodology is a reasonable and important contribution towards a better understanding of affective retrieval processes, and its role in the inhibition of competing brands.

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