The Influence of Print Advertisement Organization on Affect Toward a Brand Name

CHRIS JANISZEWSKI*

Three experiments demonstrate that the allocation of subconscious resources during the processing of ads can influence the evaluation of the brand names or logos included in the ads. The evaluation of a brand name is shown to depend on its placement relative to the ad’s focal information. Increases in brand name evaluation are attributed to matching activation—the elaborated processing of nonattended material in one hemisphere when the opposing hemisphere is the primary processor of the attended material. Implications for the design and layout of print ads and for the influence of advertising on purchase behavior are discussed.

There is mounting evidence that the organization of the advertising environment can influence the comprehension and evaluation of print advertising material. For example, nonattended verbal ads are liked more when placed to the right as opposed to the left of attended material, while the converse is true for nonattended pictorial print ads (Janiszewski 1988). Likewise, ads with verbal material placed on the right side of the ad and pictorial material on the left are preferred over counterparts that have verbal material on the left and pictorial material on the right (Ellis and Miller 1981). In each case, the preferences for certain organizations have been attributed to the more efficient subconscious analyses afforded by these particular organizations. Alternative organizations provide specialized hemispheric processors differential access to the information present within the ad.

Although these findings provide clear recommendations on how to enhance a consumer’s attitude toward an ad, they do not address the potential subconscious benefits that may accrue to individual elements within the ad. A consumer’s analysis of an ad consists of a number of fixations on the individual pieces of information within the ad. Decisions about attention are made at the preattentive stage of analysis, an ongoing, subconscious activity directed at assessing the significance of the information present within the environment. Janiszewski (1988) showed that the preattentive analysis of information can enhance a consumer’s liking for it. Similarly, the preattentive analysis a brand name or logo receives during the consumer’s attention to other portions of an ad can enhance the consumer’s liking for the name or logo. Given the importance of the attitude toward the brand name or logo in brand choice, it is important to investigate the potential influence of ad layout on preference for the brand name.

This article tests predictions derived from hemispheric processing theory that relate the content and organization of an ad to the level of subconscious processing of an accompanying brand name. The presentation begins by offering evidence for the premise that increasing the level of subconscious analysis that a stimulus receives also increases preference for the stimulus. Three experiments will illustrate how the subconscious processing of a brand name can be facilitated. Each experiment investigates the matching activation hypothesis, which predicts that the subconscious analysis of a stimulus is enhanced when its placement results in its engaging a single hemisphere while attended elements within the environment engage primarily the opposing hemisphere. To the extent that hemispheric processing of the brand name can be facilitated, affect toward the brand name should be enhanced.

SUBCONSCIOUS PROCESSING AND AFFECTIVE RESPONSE

There is ample evidence that preference for a stimulus can be influenced by the subconscious analysis it receives (e.g., Anand, Holbrook, and Stephens 1989; Bonanno and Stillings 1986; Bornstein, Leone, and Galley 1987; Janiszewski 1988; Mandler, Nakamura, and Van Zandt 1987; Seamon, Brody, and Kauff 1983a, 1983b; Seamon, Marsh, and Brody 1984; Wilson 1979; Zajonc 1980). As the amount of subconscious processing increases, an individual’s liking of

*Chris Janiszewski is Assistant Professor of Marketing, College of Business Administration, University of Florida, Gainesville, FL 32611. The author would like to acknowledge the helpful comments of Joseph Alba and John Lynch.
the material is enhanced because subconscious analyses (e.g., feature, semantic) often create a feeling of familiarity that is interpreted as affect or preference for the stimulus (Bonanno and Stillings 1986; Mandler 1980; Seamon et al. 1983a; for an exception, see Janiszewski 1988).

Several explanations have been offered to account for the subconscious affect formation associated with exposure to a stimulus. For example, Zajonc (1980) has commented that a partially independent network of the central nervous system, the locus coeruleus, is capable of generating affective responses without the contribution of the slower, consciously accessible autonomic nervous system. Alternative, psychologically based explanations of subconscious preference formation posit (1) a reduction in response competition (Harrison 1968), (2) a move toward optimum arousal (Berlyne 1971), and (3) an ease in access or perceptual fluency that results from the initial subconscious representation of a stimulus (Seamon et al. 1984).

Several methods of influencing the amount of subconscious processing a stimulus receives, and hence the degree of affect toward the stimulus, have been identified (Bornstein 1989a). The most established method—a manipulation of the number of subliminal exposures—utilizes the mere exposure effect, in which liking for a stimulus increases as the number of exposures increases (Zajonc 1968). In general, affect toward a stimulus seems to increase as the number of exposures approaches 10, with little benefit from further exposures (Bornstein 1989a).

A second method of influencing the level of subconscious processing a stimulus receives involves manipulating the length of the subliminal exposure. For example, Seamon et al. (1984) demonstrated that increasing the length of repeated subliminal exposure from two to eight to 12 milliseconds enhanced a subject’s ability to choose between the subliminally presented stimuli and novel alternatives on the basis of affect. Increasing the length of exposure increased the amount of time the stimuli were available to subconscious analyzers. As a consequence, access to the output of the subconscious analyzers was facilitated, and preference for the stimuli was enhanced.

A third method of influencing the amount of subconscious processing is to vary accessibility to specialized hemispheric resources (Anand et al. 1989; Janiszewski 1988; Seamon et al. 1983a). Using a newspaper format, Janiszewski (1988) found that pictorial ads were liked better when placed to the left of an attended article, whereas verbal ads were liked more when placed to the right of attended material. Material in the left visual field directly engages the right hemisphere, and material in the right visual field directly engages the left hemisphere (Curtis 1968, pp. 767–768; Young 1982; see Beaumont 1982 for a review of visual field effects). Therefore, a pictorial ad placed in the left visual field directly engages the right hemisphere. The right hemisphere is a more efficient processor of pictorial information and thus provides a more accessible subconscious trace when a conscious evaluation is performed. Similarly, a text ad placed to the right of attended material directly engages the left hemisphere. The left hemisphere is capable of performing an initial analysis of verbal information and provides a more accessible subconscious trace when a conscious evaluation is performed.

The amount of subconscious processing and affect formation that can be attributed to specialized hemispheric analyses depends on the complexity of the information being processed (Sergent 1983). For example, when letters, nonsense syllables, single words, or simple figures are used as stimuli, the benefits that accrue from being placed in the proper visual field are negligible (Beaumont 1982; Sergent 1983). Thus, there should be no visual field influence on evaluation of a brand name in these instances. As words become phrases and simple figures become complex scenes, the subconscious integration of the material becomes more taxing, the need for specialized hemispheric processing operations is increased, and the potential for differential hemispheric contribution is enhanced (Beaumont 1982).

MATCHING ACTIVATION

Hemispheric resource theory suggests a fourth method of influencing subconscious processing that is closely related to the resource accessibility hypothesis. The matching activation hypothesis predicts that when the hemispheres are differentially activated, the less activated of the two hemispheres is encouraged to elaborate upon secondary material represented within it (Friedman and Polson 1981). Differential activation occurs when an individual is processing complex information that relies primarily on the processing style of either the left or the right hemisphere (e.g., a pictorial scene processed by the right hemisphere, a verbal message processed by the left hemisphere). (See Janiszewski 1990 for discussion; Rothschild et al. 1988 for illustration.)

The matching activation hypothesis predicts that the greater activation of the right (left) hemisphere during the processing of attended pictorial (verbal) information could enhance the processing of additional material represented within the left (right) hemisphere, provided the material in the opposing hemisphere can be processed by that hemisphere. Brand names often consist of simple words that can be processed with equal efficiency by either hemisphere (Beaumont 1982; Sergent 1983). Therefore, placing a brand name to the right of attended pictorial

---

1See Janiszewski (1988) and Obermiller (1985) for a more detailed discussion.
information should send it to the less activated left hemisphere, where it will receive a greater degree of subconscious processing than if sent to the right hemisphere. Likewise, placing a brand name to the left of attended verbal information should send it to the less activated right hemisphere, where it will receive a greater degree of subconscious processing than if sent to the left hemisphere. In each case, increasing the amount of subconscious processing should increase affect toward the brand name. Thus, a brand name should be liked more when placed to the right of pictorial information or to the left of verbal information. These predictions were tested in Experiment 1.

Experiment 1

Stimulus. Four versions of a perfume ad located the brand name to the left or right of either pictorial or verbal material. In the original ad, a large picture of a woman’s face above the slogan “I AM SHALIMAR,” Gabrielle Lazure” occupied the leftmost 80 percent of the ad, with a picture of the product package and the brand name and symbol on the right. The experimental versions of the ad were created by placing the brand name to the right or left of the model’s face and to the right or left of the slogan (see Figure 1). The brand name was placed so that it would be in a peripheral visual field whether the viewer was focused on the model’s face or on the slogan. This would result in its being initially represented in a single hemisphere (see Young 1982), and it was expected that the brand name would be evaluated more positively when placed to the right of the model’s face or left of the slogan.

Procedure. Sixty-four booklets containing six ads targeted at women, including one of the four versions of the perfume ad, and two questionnaires were sent home with students enrolled in a marketing course. Women were asked to view the booklet themselves, but men were asked to have a female acquaintance view the ads. Reductions in cell sizes reflect unreturned booklets, incomplete data, or completion of the questionnaires by males.

To encourage subjects to attend to the ads, subjects were asked to analyze the ads during the initial viewing (Questionnaire 1). First, subjects were asked to complete a four-item $A_{ad}$ measure on a seven-point scale—bad/good, dislikeable/likable, unpleasant/pleasant, uninteresting/interesting. Next, subjects were asked to list any thoughts they had about each ad and its goals. Then, subjects were asked to complete a second $A_{ad}$ measure (same scale) and to indicate their familiarity with the ads and the products. It should be noted that this procedure not only encouraged attention to the ads, but also provided data that could assist in assessing the validity of alternative explanations for differences in brand name preference.

The second questionnaire was also self-administered and completed subsequent to viewing all the ads. It began by asking subjects to provide their impression of selected parts of the experimental ad. Using the four-item scale used to assess $A_{ad}$, subjects were asked to indicate their preference toward the product package, the brand name and symbol, the slogan, and the model. Each of the four ad parts appeared exactly as it had in the ad. Subjects were also asked to evaluate products shown in other ads in the booklet, to indicate their gender and handedness, and to list their hypotheses about the experiment.

Results. The four items measuring the subjects’ evaluative responses to the brand name were summed for each subject and used as an indicator of a subject’s evaluation of the name. A Bartlett-Box homogeneity test was not significant. A plot of the residuals supported the assumption of the independence of errors.

The matching activation hypothesis predicted the brand name would be evaluated more positively when placed to the right, as opposed to the left, of the model’s face and the left, as opposed to the right, of the product slogan. The following means suggest that this is the case.

<table>
<thead>
<tr>
<th>Brand name placement</th>
<th>Left visual field</th>
<th>Right visual field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent to model’s face</td>
<td>17.9 (4.7)</td>
<td>20.3 (5.5)</td>
</tr>
<tr>
<td>(n= 14)</td>
<td>(n = 16)</td>
<td></td>
</tr>
<tr>
<td>Adjacent to slogan</td>
<td>21.0 (3.7)</td>
<td>16.8 (4.6)</td>
</tr>
<tr>
<td>(n= 11)</td>
<td>(n = 13)</td>
<td></td>
</tr>
</tbody>
</table>

A test for an interaction between the peripheral field of placement and the type of information the brand name flanked was significant ($F(1,50) = 6.46, p < .05, \omega^2 = .09$). Simple main effects tests for the influence of the attended material showed the brand name was liked significantly more when placed to the left of the slogan, rather than left of the model’s face (one-tail $F = 2.67, p < .05, \omega^2 = .03$). Likewise, the brand name was evaluated significantly more favorably when placed to the right of the model’s face rather than right of the slogan (one-tail $F = 3.93, p < .05, \omega^2 = .05$). Simple main effect tests also showed the brand name was liked more when placed to the left, as opposed to the right, of the slogan (one-tail $F = 4.66, p < .05, \omega^2 = .06$), but a test for the influence of placement relative to the model’s face was only marginally significant (one-tail $F = 1.96, p = .08, \omega^2 = .02$). Familiarity with the brand name and product did not interact with any of the manipulations (all $Fs < 1.0$). There was no influence of handedness (all $Fs < 1.0$). None of the subjects hypothesized that the experiment was concerned with altering preference for the brand name.

Discussion and Rival Hypotheses. The results are consistent with the predictions of the matching acti-
FIGURE 1
STIMULI USED IN EXPERIMENT 1

Note.—Reproduced with permission from Guerlain, Inc.
viation hypothesis that the brand name would be more preferred when placed to the right of the pictorial information (model’s face) or to the left of the verbal information (slogan). The matching activation hypothesis would offer the following explanation for the results. When the brand name was placed to the right of the model’s face, it was sent to the left hemisphere for analysis. Attentive analysis of the model’s face activated the right hemisphere to a greater extent and encouraged the left hemisphere to elaborate upon the brand name. This increase in subconscious processing enhanced preference toward the brand name. Likewise, when the brand name was placed to the left of the slogan, it was sent to the right hemisphere for analysis. Attentive analysis of the slogan activated the left hemisphere to a greater extent and encouraged the right hemisphere to elaborate upon the brand name. This increase in subconscious processing resulted in a more positive evaluation of the brand name.

It is possible that processes other than the proposed matching activation effect could be responsible for the observed influence of advertising layout on brand name evaluation. For example, the two layouts that resulted in a more positive brand name evaluation (i.e., the brand name in either the upper right- or lower left-hand corner) could have encouraged greater attention to the brand name, which encouraged a greater degree of familiarity and liking. There is some evidence that this was not the case.

First, a well-known rule of thumb in advertising is that of the four corners of the page, the top left-hand corner has the most communication value as the most probable entry point, the bottom right-hand corner has the least communication value, and the remaining two quadrants receive a moderate amount of attention (see Moriarty 1986, p. 196; Turnbull and Baird 1975, p. 168). Hence, the layouts in which the brand name was liked better (e.g., lower left- and upper right-hand corners) are not the layouts that encourage attention to the brand name. Second, Bornstein’s (1989a) metaanalysis of the mere exposure effect shows that the size of the mere exposure effect is reduced when people are allowed to consider the stimulus consciously. In other words, attending to and thinking about the brand name should inhibit, not enhance, the observation of the subconsciously based affect formation effect. Third, the data from the experiment itself suggest that differential attention was not responsible for the observed differences in brand name evaluation. The cognitive response measures collected during the viewing of the ad were categorized as relating to the model, slogan, brand name, product package, ad, or other (intercoder agreement = .83). Only two of the 211 thoughts listed by the subjects were related to the brand name. This may imply that the brand name was not a focal part of the ad in any experimental condition, although it could be that subjects simply did not perceive the brand name as worthy of mention. The incidence of the other categories of statements also did not differ by condition. In sum, the data do not suggest that differential attention is a likely explanation for the results.

A second rival hypothesis is that the experimental procedure (i.e., completion of the $A_{ad}$ and cognitive response measures during the viewing of the ad) may have encouraged repeated short exposures to the brand name, with the number of these exposures depending on the layout of the ad. To check this possibility, the experiment was run a second time. Subjects were invited into a laboratory setting and asked to look through a booklet full of ads (the same booklets used in Experiment 1). Subjects were not asked to complete $A_{ad}$ or cognitive response measures during the viewing of the ads, which should have decreased the number of times they had to reorient themselves with the ads. It was expected that the change in procedure would discourage the repeated short exposures to the brand name that might accompany the repeated viewing of an ad.

The results were identical. There was an interaction between the peripheral field of placement and the form of the adjacent material on the evaluation of the brand name ($F(1,42) = 9.13, p < .05, \omega^2 = .13$). Again, the brand name was liked more when placed to the right ($\bar{X} = 21.5$) as opposed to the left ($\bar{X} = 19.0$) of the model’s face (one-tail $F = 2.56, p = .06, \omega^2 = .03$), and to the left ($\bar{X} = 20.1$) as opposed to the right ($\bar{X} = 16.0$) of the slogan (one-tail $F = 7.08, p < .05, \omega^2 = .10$).

A third rival hypothesis is that the two layouts that resulted in a more positive brand name evaluation may have had more visual balance (see Moriarty 1986, chap. 5) and, hence, generated more affect toward the ad. If balance influences attitude toward the ad, this attitude may generalize to the evaluation of the brand name. To assess this possibility, an analysis of the two $A_{ad}$ measures collected during the viewing of the ad was conducted. The four items assessing attitude toward the ad were summed. Both $A_{ad}$ measures showed a pattern of means similar to that for the evaluation of the brand name. The analysis of the data revealed a marginally significant interaction for the initial $A_{ad}$ measure ($F = 3.35, p = .07, \omega^2 = .04$) and a significant interaction on the second $A_{ad}$ measure collected after the listing of the thoughts ($F = 4.39, p < .05, \omega^2 = .06$). Thus, a plausible rival explanation for the results of Experiment 1 is that the different layouts may have influenced attitude toward the ad, and this effect may have generalized to the brand name.

A final possibility is that the subconscious hemispheric process has been poorly specified. The matching activation hypothesis predicts that the subconscious processing of a brand name in one hemisphere is facilitated when the opposing hemisphere contributes relatively more to the processing of the attended
information. This prediction is interesting because it suggests that a further increase in the activation in one hemisphere can enhance processing of the brand name in the opposing hemisphere to an even greater extent. A competing hemispheric explanation is that the differences in affect observed in Experiment 1 were the result of competition for resources within a hemisphere. For example, differences in evaluation of the brand name in the model conditions could be attributed to an inhibition when the brand name is sent to the right hemisphere rather than a facilitation when it is sent to the left hemisphere. If this is the case, the results would be much less interesting.

Experiment 2

Experiment 2 was designed to address the alternative explanations that could not be ruled out using the results of Experiment 1. Because Experiment 1 lacked any explicit or implicit controls on attention, a procedure that discouraged attention to the brand name was needed. Similar effects when recognition of the peripherally placed material is at a minimum would be additional evidence that the differences in affect observed in Experiment 1 were subconsciously generated. Also, it would be advantageous to demonstrate that affect toward a brand name could be influenced when the brand name is not conceptually related to the attended material. If the brand name were a separate ad, rather than a part of the attended information, then the hypothesis that a generalization of $A_{ad}$ was responsible for the results of Experiment 1 would have less merit. Finally, it would be beneficial to show that differences in brand name evaluation are best explained by the facilitation associated with being sent to the less occupied hemisphere rather than the inhibition associated with being sent to the more occupied hemisphere. To address this issue, a control group that was not exposed to the brand name was added.

Design. Experiment 2 used a design identical to that of Experiment 1. Subjects were asked to either examine a visual scene or read a verbal passage. An unfamiliar brand name was placed to either the left or right of the visual scene or verbal passage. Thus, the experimental manipulations consisted of pictorial or verbal attended information with a nonattended stimulus in the right or left visual field.

To address the concerns raised by Experiment 1, the experimental manipulation was embedded in a mock newspaper. A newspaper was chosen because it provides a context in which a peripherally placed brand name is unlikely to attract attention; thus, any differences in preference for the target brand name can be more confidently attributed to hemispheric activity. (See Janiszewski 1988 for a detailed discussion of this methodology.) A newspaper also allows the brand name to be placed in an unrelated ad, thus removing the possibility that brand preference would be generalized from $A_{ad}$.

Procedure. One hundred forty-two undergraduate students from an introductory marketing course were given extra credit for their participation in the experiment. Subjects were run in groups ranging from five to 33. After being seated, subjects were given a cover story to reduce anticipated suspicions about the experimental procedure and were told that the experiment investigated lexical priming. The experimenter explained that lexical priming occurred when an initial set of words biased one’s perceptions of a subsequent set of words. To measure these biases, subjects would be asked to perform three tasks. The first task involved the reading of an article that contained the words, the second task was an activity that either enhanced or degraded the effect, and the third task measured the effect. This procedure created a context in which an attended task could be manipulated (task two) and preference toward the brand name could be measured (task three) without arousing the suspicions of subjects.

In reality, the first task was identical for all subjects. All newspapers had a human interest story about a student hostel placed on page two. The article was marked with an orange dot, and subjects were allowed to read it at their own pace. Page five of the newspaper was blank except for a set of instructions that explained the second task to the subjects. Subjects in the pictorial condition were told they would search for 14 hidden objects in a visual scene. Subjects in the verbal condition were told they would read an article marked with an orange dot. All subjects began the second task at the same time and were given two and a half minutes to complete the task. This time limit was insufficient for the completion of the reading or picture search task and resulted in a standard peripheral exposure to the brand name placed adjacent to the task.

Depending on experimental condition, task two was placed on page six or page seven. When the brand name was to be sent to the left hemisphere, task two was placed on the left outer edge of page six, a left side page. The brand name “EON” was placed to the right of the attended material, along the inside seam of the paper. When the brand name was to be sent to the right hemisphere, the attended task was placed on the right outer edge of page seven, a right side page. The brand name was placed to the left of the attended material, along the inside seam of the paper. In each layout, the brand name was written in one-inch block letters, began one inch from the edge of the attended task, and occupied a visual space ranging from 3.5 to 27 degrees from the possible points of focus on the attended task. The placement of the brand name was
well outside the 1.5-degree minimum displacement necessary for representation in a single hemisphere (Beaumont 1982). The brand name was located in the center of an ad that had an address at the bottom and resembled ads commonly encountered in a newspaper. In the control condition, the area to be occupied by the brand name was replaced by an alternative ad. Thus, control subjects were not exposed to the brand name.

After being told to stop task two, subjects were instructed to look on the back page of their newspapers for the experimental condition number and to record it on the dependent measure booklets being distributed. Each booklet contained a set of instructions and six ads. In accordance with the cover story, the instructions explained that a lexical priming effect was most prevalent when people responded to stimuli using their first impressions, and subjects were encouraged to respond in this fashion. In addition, the use of the evaluation scale was explained. Subjects were told they would use five nine-point, bipolar adjective items to evaluate six ads. The scale end points were anchored unappealing/appealing, unattractive/attractive, bad/good, unlikeable/likeable, unpleasant/pleasant.

Following the instructions were six ads: two pictorial ads, two verbal ads, the brand name, and a syllable. The target brand name (“EON”) was in the fifth position. A syllable (“NEO”) was in the third position and allowed subjects to be exposed to a similar stimulus prior to their evaluation of the target. After they had evaluated all ads, subjects indicated their gender, handedness, and whether they had participated in a similar experiment at an earlier time. Then they were asked to review the ads and indicate whether they recognized the ad as having been in the mock newspaper (yes/no) and whether they had seen the ad prior to that day (yes/no).

Results. The five items measuring the subjects’ evaluative responses to the brand name were summed for each subject and used as an indicator of a subject’s evaluation of the name. A Bartlett-Box homogeneity test was not significant. A plot of the residuals supported the assumption of the independence of errors. The matching activation hypothesis predicted the evaluation of the target brand name would be greater when it was placed in the right visual field (sent to the right hemisphere) during the performance of the picture search task or in the left visual field (sent to the right hemisphere) during the reading of the article. As can be seen in Table 1, the predictions were supported.

A test for an interaction between the type of attended task and the placement of the target brand name was significant ($F(1,66) = 5.43, p < .05, \omega^2 = .06$). Simple main effects tests for the influence of the attended tasks showed the brand name was liked significantly more when placed to the left of a verbal, as opposed to pictorial, task (one-tail $F = 2.65, p = .05, \omega^2 = .02$) and that the brand name was liked significantly more when placed to the right of a pictorial, as opposed to a verbal, task (one-tail $F = 2.83, p < .05, \omega^2 = .02$). Simple main effect tests for placement of the brand name showed it was liked significantly more when placed to the right, as opposed to the left, of the attended pictorial material (one-tail $F = 3.44, p < .05, \omega^2 = .03$) and to the left, as opposed to the right, of the attended verbal material (one-tail $F = 2.02, p = .08, \omega^2 = .02$). In addition, evaluation of the brand name when placed to the right of the verbal task was greater than the evaluation provided by the control group (one-tail $t(53) = 4.31, p < .05$), as was the evaluation when the brand name was placed to the left of the picture search task (one-tail $t(47) = 5.16, p < .05$). There was no influence of handedness or gender on evaluation of the brand name (all Fs < 1.0). Only one subject recognized that the brand name was in the newspaper. No subjects reported having seen the brand name at an earlier time.

Discussion. The results of Experiment 2 replicate those of Experiment 1. The matching activation hypothesis predicted the brand name would be liked better when placed to the right of the picture search task or to the left of the verbal passage. When placed to the right of the pictorial material, the brand name was sent to the left hemisphere for analysis. Attention to the pictorial material activated the right hemisphere to a greater extent and encouraged the left hemisphere to elaborate on the brand name. This increase in subconscious processing increased affect toward the brand name. Likewise, when the brand name was placed to the left of the verbal material, it was sent to the right hemisphere for analysis. Attention to the verbal material activated the left hemisphere to a greater extent and encouraged the right hemisphere to elaborate upon the brand name. This increase in subconscious processing increased affect toward the brand name.

The results of Experiment 2 provide insight into the plausibility of the rival hypotheses discussed subsequent to Experiment 1. First, the differences in brand

---

### TABLE 1

<table>
<thead>
<tr>
<th>Stimulus placement</th>
<th>Attended task</th>
<th>Left visual field</th>
<th>Right visual field</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pictorial</td>
<td>20.1 (7.6)</td>
<td>25.1 (8.9)</td>
<td>18.4 (8.9)</td>
<td></td>
</tr>
<tr>
<td>Verbal</td>
<td>24.3 (5.8)</td>
<td>21.0 (7.3)</td>
<td>19.5 (9.2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 17)</td>
<td>(n = 14)</td>
<td>(n = 35)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 18)</td>
<td></td>
<td>(n = 21)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(n = 37)</td>
<td></td>
</tr>
</tbody>
</table>
name evaluation created by varying the form of attended material and the placement of the brand name relative to that material do not seem to rely on variations in the level of attention. Only one subject recognized the brand name as having been in the newspaper. This does not guarantee that subjects did not attend to the brand name while viewing the newspaper, but it does suggest that attention was limited and unlikely to differ by condition.

Second, Experiment 2 replicated the results of Experiment 1 using a context that did not allow for the transfer of affect from the whole to the part. In other words, it is unlikely that the viewer’s attitude toward the entire newspaper page generalized to the brand name. Thus, the similarity between the brand name evaluation and $A_{ad}$ measures observed in Experiment 1 may be interpreted in light of the results of Experiment 2. For example, attitude toward the ad may be a function of the subconscious analysis of all elements contained within the ad, implying that the subconscious based affect toward the brand name may precede, rather than follow, the formation of affect toward the entire ad. In sum, the results of Experiment 2 suggest that $A_{ad}$ was not responsible for the differences in brand name evaluation observed in Experiment 1.

Third, a comparison of the treatment group means to the control group means suggests that the matching activation effect is indeed a facilitation effect. The two treatment groups that were to benefit from matching activation evaluated the brand name more positively than the comparable control groups. Thus, it seems that the proper layout of material can provide subtle benefits to brand information contained within an ad.

Although the first two experiments are quite supportive of the matching activation hypothesis, they have not provided definitive evidence that the matching activation effect can be attributed to the forced allocation of hemispheric resources. At best, Experiments 1 and 2 provide evidence that the processing of a brand name can be facilitated when it is placed so that it can be sent initially to the less occupied hemisphere. If the matching activation effect is a hemispheric resource allocation phenomenon, it should be sensitive to variations in the amount of hemispheric resources allocated within each hemisphere. For example, increasing (decreasing) the amount of processing performed within one hemisphere should increase (decrease) resources available for processing of the brand name in the opposing hemisphere, which should result in increased (decreased) preference for the brand name. This hypothesis was tested in Experiment 3.

Experiment 3

Experiment 3 attempted to manipulate the amount of subconscious resources allocated to the processing of the brand name by varying the amount of resources devoted to the processing of the attended material. A common method of varying resource allocation is to vary the amount of material that must be processed (Friedman and Polson 1981), so an attempt was made to vary the difficulty of a pictorial display and a verbal message. Manipulating the amount of material in a pictorial display was dismissed because altering a visual image so that it was more or less engaging (thus demanding more or fewer resources) proved to be technologically infeasible. In contrast, resource requirements for the verbal material in an ad could be manipulated easily by altering the length of the verbal passage. Adding or subtracting information to a verbal passage could increase or decrease the amount of resources the left hemisphere would have to contribute to the processing of the verbal passage and increase or decrease the matching activation in the right hemisphere.

To test these predictions, an experiment with three levels of left hemisphere resource requirements and two areas of placement was designed. Again, a brand name was used as the target stimulus. It was predicted that the brand name would be evaluated more positively when placed in the left visual field and that the degree of positive evaluation would increase as the resource requirements of the attended verbal material increased. In addition, there was a counterbalancing factor to control for the physical location of material on the page.

Stimulus. Six versions of an Arcoflam cookware ad were created by manipulating the length of a product description and the placement of the brand name relative to that description. Constructed by reorganizing an actual ad, all treatment ads consisted of a headline that occupied the top two and a half inches of the page, a secondary headline that occupied the bottom two inches of the page, and four panels organized in a four-square manner in the center of the page. Two of the panels contained pictures of the cookware, a third panel displayed the brand name, and the last panel contained the verbal description of the product. Hence, the brand name could be placed to the left or right of the verbal description with the picture panels either above or below it.

The verbal description was created by taking claims from the original ad. The short version consisted of the phrase “The world’s most thought-out cookware.” The moderate version added two sentences to increase the length of the description to 35 words. The

---

2Ideally, one would like to add or subtract information from a picture so that it becomes more or less engaging. An attempt was made to alter a picture by removing information, but pretesting revealed that a large percentage of the subjects easily noticed that the pictures had been altered. This created a situation in which the “less” interesting pictures became more interesting because subjects wanted to look closely at the changes.
long version embellished the third sentence and added another sentence to increase the length to 57 words. The size of the font in each of the three versions was varied so that the description would fill the panel.

To remove the bias of physical placement within the ad, the placement of the verbal description and the brand name was also varied between the top and bottom half of the four-panel layout. This counterbalancing manipulation was included to address the rival hypothesis that attention differs by quadrant, as discussed subsequent to Experiment 1. A control group that was not exposed to the ad was also included.

Procedure. Sixty-seven female subjects from an undergraduate marketing course were processed in groups ranging from eight to 22. Subjects were given a booklet containing an experimental ad and three other ads. Subjects were asked to pay attention to all four ads, reading all the text and looking at all the pictures. After subjects had read the ads, they removed a questionnaire that had been placed in the back of the booklet. The instructions explained that the experimenter was interested in the influence of ads on the formation of preferences for brand names and pictures of products and that they would be asked to evaluate some of each. A five-item, seven-point rating scale consisting of the end points unappealing/appealing, unattractive/attractive, bad/good, unlikable/likable, unpleasant/pleasant was explained, and then subjects were asked to turn the page and wait for the first item.

The brand names and product pictures were presented using a Kodak Ektagraphic 35mm slide projector. First, subjects evaluated one of the pictures of the Arcoflam product, then the brand name, then a second picture of the Arcoflam product, then four additional slides representing products and brand names from the other ads. All slides were exact replicas of the panels or brand names within the ads. Next, subjects were asked to recall everything they could from the Arcoflam ad. Finally, measures assessing handedness and possible contamination from discussion of the experiment with classmates were collected.

Results. The five items measuring the subjects' evaluative responses to the brand name were summed for each subject and used as an indicator of a subject’s evaluation of the name. A Bartlett-Box homogeneity test was not significant. A plot of the residuals supported the assumption of the independence of errors.

The matching activation hypothesis predicted the brand name would be more positively evaluated when placed to the left, as opposed to the right, of the verbal passage. In addition, increasing the length of the verbal passage should enhance the evaluation of the brand name when the name was placed to the left of the description. The means presented in Table 2 support these predictions.

A main effect test for placement revealed that the brand name was preferred significantly more when placed to the left of the attended message ($F(1,42) = 14.2, p < .05, \omega^2 = .14$). A test for the interaction of placement with the length of the verbal description was also significant (one-tail $F = 2.32, p = .05, \omega^2 = .04$). To determine if the interaction was in the predicted pattern, simple main effect tests were run. Tests comparing the short to the moderate and the moderate to the long condition in the right visual field placement conditions were nonsignificant (both $F_s < 1.0$). Tests comparing the short to the moderate and the moderate to the long condition in the left visual field placement conditions were also insignificant ($F = 1.28, F = 1.67$, respectively), although a test comparing the short to the long condition was significant ($F = 5.36, p < .05, \omega^2 = .05$). Simple main effect tests comparing placement and length of description showed no effect of placement in the short condition ($F = 0.34, p > .05$), but a significant effect of placement in the moderate ($F = 5.66, p < .05, \omega^2 = .06$) and long ($F = 11.95, p < .05, \omega^2 = .12$) conditions.

The control group, which was not exposed to the experimental ad, had a mean brand name evaluation of 15.02 (s.d. = 5.5). For the left peripheral placement conditions, the control group differed from the short (one-tail $t(82) = 1.62, p = .06$), the moderate (one-tail $t(83) = 3.6, p < .05$), and long (one-tail $t(82) = 5.83, p < .05$) conditions. There were no differences between the right peripheral placement condition means and the control group mean (all $t's < 1.0$).

Next, an analysis was performed to determine whether the absolute location, as opposed to the relative location, of the brand name on the page had an influence on the evaluation of the brand name.

3The control subjects for this experiment participated in another experiment not reported here. The control subjects experienced a procedure almost identical to the experimental subjects and were run on the same day, although not at the same time. The only difference in procedure was that the target brand name was evaluated fifth rather than second.
There was no main effect of top/bottom placement on evaluation \((F = 1.20, p > .05)\), nor was there an interaction of top/bottom placement with the peripheral field of placement, the length of verbal description, or a combination of the two \((all Fs < 1.0)\). Thus, the quadrant in which the brand name was located had no influence on the evaluation of the brand name.

Finally, the free recall information collected subsequent to the brand name evaluation was analyzed to ensure that the placement effect on evaluation was not the result of different viewing patterns across conditions. Subjects were given one point for each product attribute recalled from the product description. The short version had one possible attribute, the moderate version had six, and the long version had 10. The mean number of attributes recalled for the short, moderate, and long versions, respectively, were 0.6, 2.3, and 2.8 in the left peripheral field placement conditions and 0.3, 2.3, and 2.3 in the right peripheral field placement conditions. The levels of recall did not differ by placement condition \((F = 0.62, p > .05)\). Thus, attention to the product description was probably equivalent across placement conditions.

**Discussion.** The results of Experiment 3 provide a third replication of the matching activation effect. The brand name was more positively evaluated when placed to the left, as opposed to the right, of the verbal description. This increase in affect can be attributed to the opportunity for increased elaboration of the brand name when its placement allowed initial representation in the right hemisphere. Processing the verbal claims activated the left hemisphere to a greater extent and encouraged elaboration of the brand name when it was represented in the right hemisphere.

When the brand name was sent to the right hemisphere, the evaluation of the brand name was positively correlated with the length of the verbal description, as evidenced by the increase in the \(\omega^2\) of the matching activation effect from zero in the low load condition to .06 in the moderate load condition to .12 in the high load condition. The length of the verbal description influenced the length of the time the brand name could benefit from matching activation and, hence, the amount of liking or preference. There seems to be rather compelling evidence that an increase, or decrease, in elaboration within one hemisphere is directly related to the amount of elaboration in the opposing hemisphere.

The results also provide additional evidence against rival hypotheses mentioned subsequent to Experiment 1. First, a comparison of the treatment groups’ means to the control group’s mean confirms that the matching activation effect is a facilitation effect. The left peripheral placement treatment groups’ means were all superior to that of the control group, while the right peripheral placement treatment groups’ means did not differ from the control’s. Second, it is unlikely that differences in the evaluation of the brand name were a result of affect generalized from the comfort associated with certain layouts of the material. The general organization of the ad remained constant in all conditions—a top and bottom headline with a four-panel midsection. Third, the differences in brand name evaluation do not seem to rely on variations in the level of attention. Brand name evaluation was not influenced by movement of the brand name and product description between the upper or lower half of the four panels. Fourth, recall of product attributes did not differ by placement condition, which suggests that the subject’s motivation to process the ad was not influenced by the placement of the brand name.

**DISCUSSION AND IMPLICATIONS**

The results of the three experiments have implications for our understanding of affect formation, information processing, and the effectiveness of low-priority media exposures. Concerning affect formation, Janiszewski (1988) demonstrated that affect for a pictorial or verbal ad could be influenced by placement of the ad relative to focal attention. The three experiments reported here extend these findings by demonstrating that the amount of subconscious processing does not depend solely on the stimulus itself, but also on the stimuli surrounding the target stimulus. The amount of subconscious processing devoted to the brand name was mediated by the accompanying verbal or pictorial material. In addition, attention to the target stimulus did not temper the manifestation of the effect. Together, these two findings provide evidence for the automatic operation of some affect formation processes. The individual has little control over the activation and allocation of resources at the hemispheric level, and attention as an executive process has little influence on these resource decisions.

The results also have implications for our understanding of the relative influence of subconscious processes, especially as manifested in conscious operations. Information processing theorists often assume subconscious processes are preattentive and basic, having little influence on conscious, voluntary decision processes (e.g., Greenwald and Leavitt 1984). The three experiments presented here complement the growing evidence to the contrary (see Bargh 1989; Bornstein 1989b; Kihlstrom 1987 for discussion). Within the realm of affect formation, subconscious processing of information not only increases an individual’s affect toward a stimulus, but also encourages the individual to select the stimulus from among a set of alternatives or to behave toward that stimulus in a
favorable way (e.g., Bornstein et al. 1987). Thus, there is ample support for the contention that subconsciously generated affect toward a brand name or product package will encourage the selection of that brand from a set of alternatives.

The potential for subconscious processes to influence voluntary behaviors also has implications for our understanding of the role of conscious thought in information processing. Conscious thought was not necessary for the formation of affect toward the brand names, nor did attention to the brand names in Experiments 1 and 3 prohibit the formation of subconsciously based affect. In effect, the subconscious processes were occurring parallel to the conscious processes, but the outputs of these processes did not in any way relate to the conscious thoughts (Experiment 1) or experiences (Experiment 2) of the individual (see Mandler and Nakamura 1987). Similar illustrations of the lack of conscious intervention in the subconscious contribution to visual perception (Marcel 1983), social perception and classification (Bargh 1989), verbal processing (Janiszewski 1990), memory formation (Schacter 1987), the acquisition of procedural knowledge (Lewicki, Czyzewska, and Hoffman 1987), and a number of other information processing activities suggest that consumer researchers may want to reassess the appropriateness of consciousness-based processing models for explaining all consumer behavior. The parallel processing models, which emphasize concurrent activity in numerous processing centers, may provide a better conceptual foundation for understanding some classes of consumer behavior (Rumelhart, McClelland, and the PDP Research Group 1986).

Given the present evidence that affect can be formed independently of conscious thought and can influence voluntary behavior, it may be interesting to assess the strength, persistence, and generalizability of subconscious affect formation. Bornstein (1989a) performed a metaanalysis of mere exposure studies conducted between 1968 and 1987 and concluded that the size of the mere exposure effect increases as the recognition of the stimulus decreases. He attributes the stronger exposure effects observed under conditions of subliminal presentation to subjects’ inability to counterargue or explain their preference for the stimulus. In effect, people cannot discount or ignore exposures of which they are unaware.

There is also evidence that subconsciously formed affect can persist over time, which implies that the processes or codes responsible for the affect formation are represented in long-term memory. For example, Seamon et al. (1983b) gave subjects repeated five-millisecond exposures to stimuli and then asked them to select between subliminally presented and novel stimuli. Subjects selected the subliminally presented stimulus about 60 percent of the time in the immediate and one-day delay conditions and about 65 percent of the time in the one-week delay condition. Furthermore, the strength of the preference seems to increase with longer intervals between presentation and test and seems to be stronger when implemented in naturalistic settings (Bornstein 1989a). Thus, research suggests that subconsciously formed affect should persist between exposure to advertising material and the actual purchase.

Finally, there is evidence that the subconscious processes responsible for increasing affect toward stimuli may continue to influence an individual’s choice even when alternative decision criteria are being used. Mandler et al. (1987) demonstrated that subconscious preference effects are nonspecific. They gave subjects repeated two-millisecond exposures to stimuli and then had them select between subliminally presented and novel stimuli. Subjects chose the previously presented stimulus about 60 percent of the time when asked to select based on preference, brightness, and darkness, but only 47 percent of the time when asked to select based on recognition. Thus, the bias for the subconsciously presented stimuli seems to exist independently of the actual criteria used to choose among alternatives as long as the conscious choice is somewhat ambiguous.

The evidence on the effectiveness, persistence, and generalizability of subconsciously generated affect can be combined with the results of the present experiments to speculate about current advertising strategy and evaluation. First, one could argue that the target market does not have to be able to recall or recognize a brand name for advertising to be effective. In fact, there is very little evidence that recall or recognition has any influence on brand choice (Gibson 1983; Ross 1982). In contrast, subconsciously generated affect has consistently influenced individuals’ choice between two alternatives (Bornstein 1989a). This suggests that the brand name should be placed to take advantage of matching activation in some situations, as opposed to maximizing the probability of recall (e.g., stimulus-based choice).

Second, it is expected that the affect generated via matching activation can occur as long as there is some level of attention to the pictorial or verbal material supporting the presentation of the brand name. In other words, two- and three-second exposures to advertising material would be effective because they would be capable of generating affect, even though they would not be sufficient to encourage any conscious evaluation of the brand name. Thus, low priority processing of advertising material would provide some benefit for the advertiser.

In sum, subconsciously formed preferences have the potential to influence consumer behavior because they are easily formed, unavailable to counter-argumentation and persist in time. These three characteristics make subconsciously based affect formation both managerially and sociologically interesting and
highlight the need to investigate the influence of subconscious processes on consumer behavior.

CONCLUSION

Three experiments were presented to provide evidence for subconscious affect formation. Preference for a brand name was influenced by varying its placement relative to verbal or pictorial material. The differences in preference were best explained by the matching activation hypothesis, the view that processing of the brand name is facilitated by placing it so that it is represented in a single hemisphere when the opposing hemisphere is the primary contributor to the processing of attended material. The literature suggests that subconsciously generated affect can influence choice and can persist over time, thus highlighting the potential application of subconscious processing principles in consumer behavior.

[Received September 1989. Revised November 1989.]

REFERENCES


Curtis, Helena (1968), Biology, New York: Worth.


