

**CONTEXTUAL PRIMING EFFECTS IN
PRINT ADVERTISEMENTS:
THE MODERATING ROLE OF
PRIOR KNOWLEDGE**

Working Paper #701

**Youjae Yi
The University of Michigan**

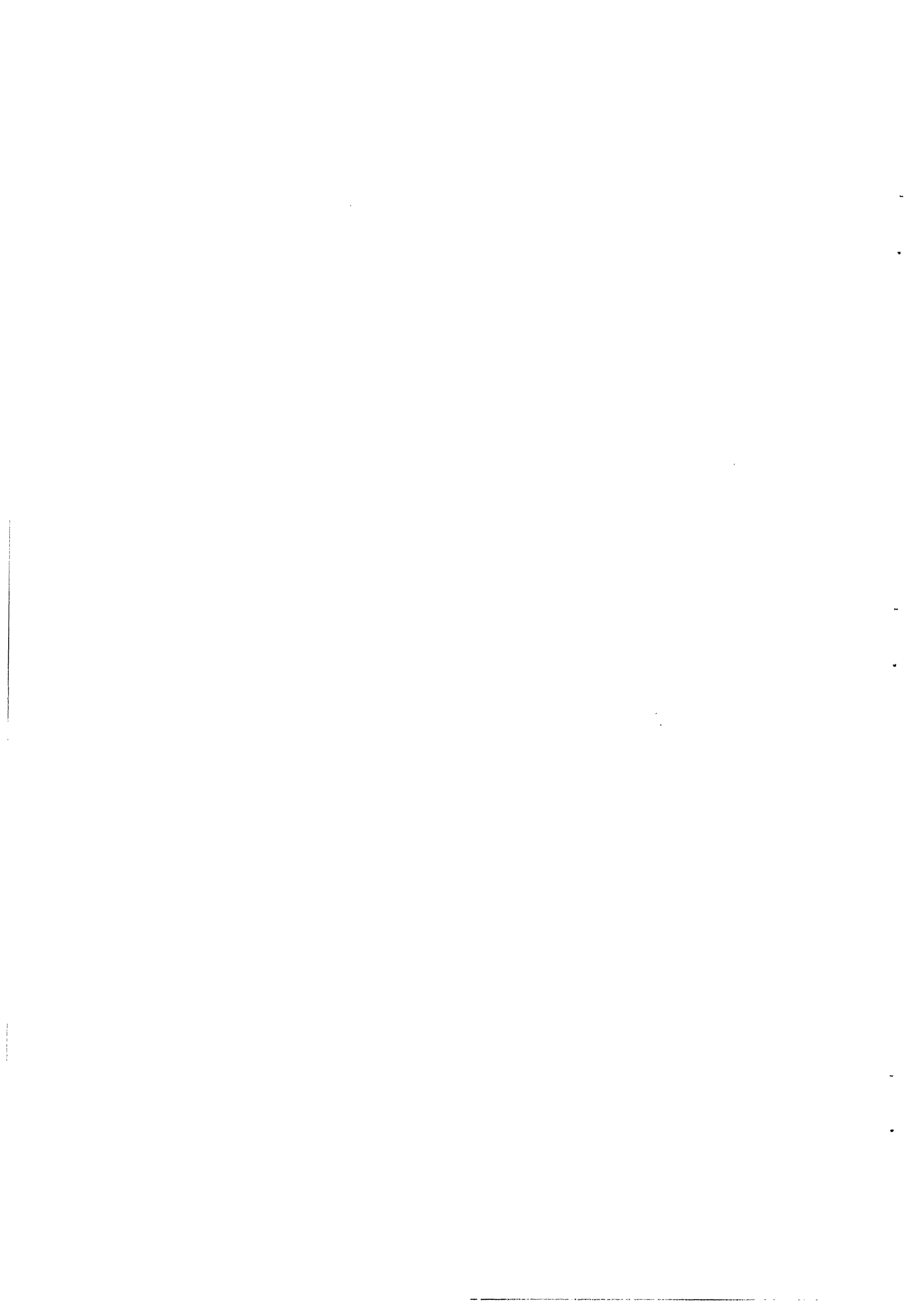
**FOR DISCUSSION PURPOSES ONLY
This material may not be quoted or reproduced
without the expressed permission of the
Division of Research.**

**COPYRIGHT 1993
The University of Michigan
School of Business Administration
Ann Arbor, Michigan 48109-1234**

Author's Description

Youjae Yi (Ph.D., Stanford University) is the Sanford R. Robertson Assistant Professor of Business Administration at the School of Business Administration, The University of Michigan, Ann Arbor, MI 48109-1234.

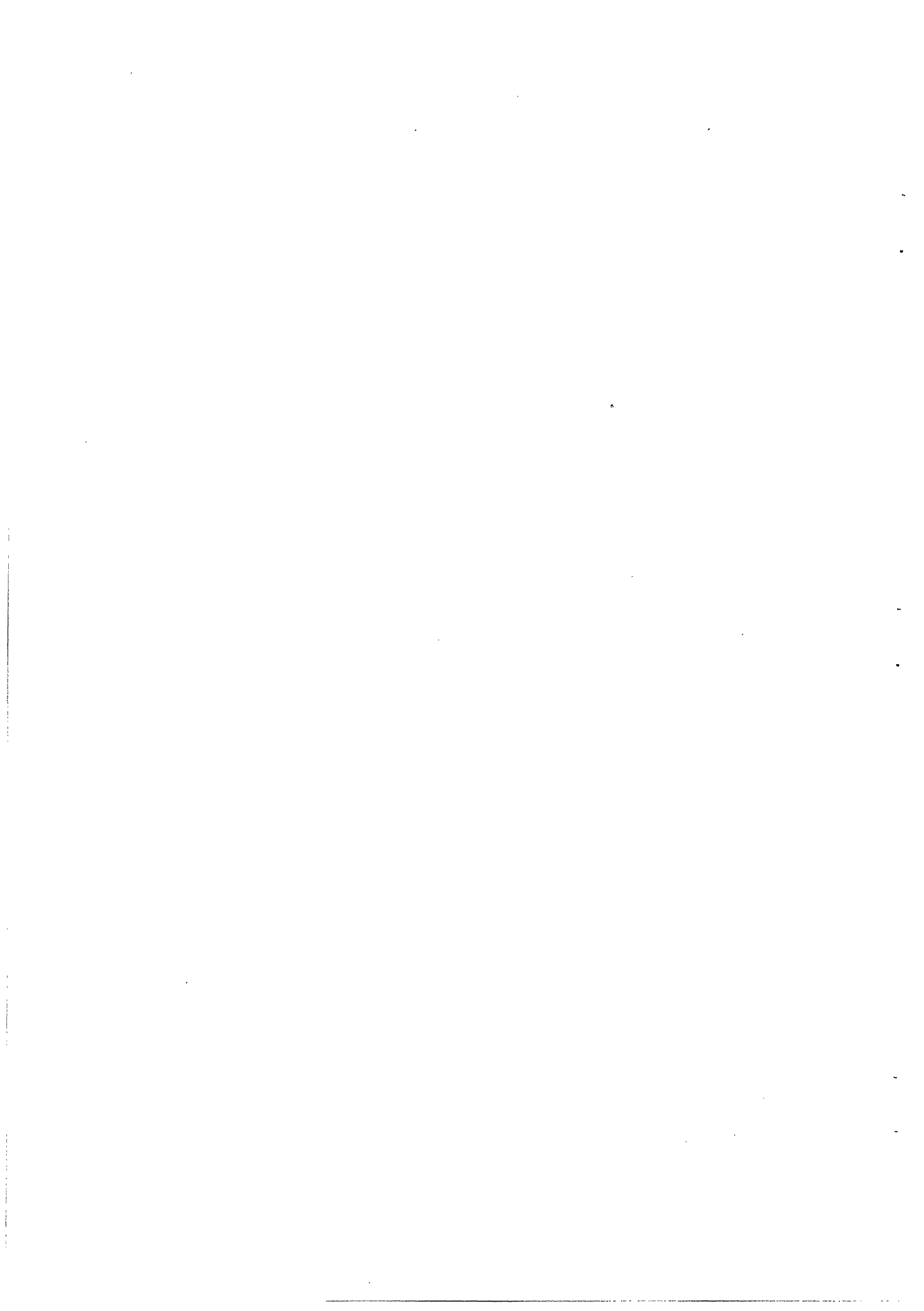
This research was supported by the American Academy of Advertising Research Grant and the University of Michigan Rackham Faculty Grant. The author wishes to thank the editor and three anonymous reviewers for their constructive comments on the earlier versions of this article.



Contextual Priming Effects in Print Advertisements: The Moderating Role of Prior Knowledge

Abstract

This study examines the moderating effect of prior knowledge on the degree to which contextual priming influences evaluations of an ambiguous product in the ad. Before subjects saw an ad containing ambiguous product information, one of the two product attributes pertinent to product evaluations was made accessible through contextual priming. Contextual priming had pronounced effects on brand evaluations among moderate-knowledge subjects, but the effects sharply diminished among low- and high-knowledge subjects. By showing that an ad context can inhibit or facilitate the effects of a particular ad on brand evaluations as a function of consumer knowledge, the study provides insights into the situations when contextual effects may be strong.



Advertisements do not occur in a vacuum, but rather appear simultaneously with other materials such as articles in magazines, advertisements for other products, and programs or station identifications on radio or TV. Such materials presented in the immediate environment within which ads are embedded are usually referred to as the ad context (Soldow and Principe 1981). Since the ad context can vary to a great extent, an important advertising decision is selecting the appropriate context within which to place an advertisement. In this regard, a key question should be considered: What are the influences of the ad context on consumers' attitudes and purchase intentions? This question seems very important for an understanding of advertising effectiveness, given the wide variety of ad contexts. In fact, several surveys show that the impact of the ad context is among the top research priorities for advertisers (Chook 1985; Schultz 1979).

Recent research has shown that an ad context (e.g., magazine articles or adjacent advertisements) can affect the interpretation of ambiguous product information in the ad by priming certain attributes of the product category (Yi 1990a, 1990b). The product attributes primed by the ad context may result in the formation or change of beliefs about the advertised brand, thereby affecting consumers' evaluations of the brand. Such effects of the ad context are called "contextual priming effects" (Schmitt 1991; Yi 1990b).

The purpose of the present research is to deepen our understanding of contextual priming effects by investigating a moderator variable: prior knowledge. Prior knowledge has been shown to influence the way consumers process information in product evaluations (e.g., Alba and Hutchinson 1987; Bettman and Sujan 1987; Brucks 1985; Park and Lessig 1981; Sujan 1985), and it is likely to affect contextual priming effects. Thus, we investigate the moderating effect of prior knowledge on the degree to which contextual priming affects product evaluations.

CONTEXTUAL PRIMING EFFECTS IN ADVERTISING

Advertisements often contain ambiguous information that can be interpreted in several different ways. When an ad emphasizes that a piece of luggage is light, for example, one might infer either that the luggage will be easy to carry or that the luggage will not be durable. As such, a product feature or characteristic (e.g., luggage weight) can imply several benefits or consequences (e.g., ease of handling and durability). In such a case, interpretations of light weight as ease of handling would produce a favorable brand evaluation, whereas interpretations as low durability would yield an unfavorable brand evaluation. That is, the given information may have multiple implications for the evaluation of the advertised product. Then, a question arises: What determines the particular interpretation given to the product information that has several possible meanings?

Many studies show that people's interpretation of information often depends on the currently active knowledge structures (Higgins and King 1981; Wyer and Srull 1981), where knowledge structures refer to cognitive representations of generic concepts, including the attributes constituting the concept and the relationships among the attributes. For example, the fact that someone gave a friend an answer during an exam could be interpreted as either "dishonest" or "kind." Which interpretation is actually given seems to depend on which of the related concepts (dishonest or kind) is most easily accessible at the time information is received (Srull and Wyer 1980). Activated or accessible concepts may serve to direct attention to selective aspects of information and affect the interpretation of information. Furthermore, people use the activated concepts even without conscious awareness (Higgins, Bargh, and Lombardi 1985). According to these findings, highly accessible attributes related to the product information in the ad are likely to guide the encoding of information.

Given that attribute accessibility guides interpretations of product information, it becomes important to identify what determines attribute accessibility. Although a variety of

factors can make certain attributes accessible to ad recipients, of particular interest to this study is the immediate context for the ad. When the ad context provides people with exposure to a certain attribute (e.g., when they read a magazine article mentioning the attribute), this attribute is likely to become accessible. Subsequently, that attribute would be used in processing ad information and evaluating the advertised brand. Research in social cognition has shown that the accessibility of certain concepts is enhanced by prior exposure to the concepts (Higgins and King 1981; Wyer and Srull 1981).

The impact of the ad context on brand evaluation would therefore depend upon the attribute primed by the ad context (e.g., magazine article) before exposure to ambiguous product information (e.g., light weight of luggage) in the ad. When the ad context primes an attribute (e.g., ease of handling) that has positive implications for the evaluation of the advertised brand, overall product evaluations will be enhanced. In contrast, when the context primes an attribute (e.g., durability) whose evaluative implication is negative, overall brand evaluations will be lowered. This suggests that the same ad can have different effects, depending upon the context in which the ad appears.

Yi's (1990a, 1990b) research provides evidence for contextual priming effects on the evaluation of the product in print ads. In Yi's (1990b) study, for example, subjects saw a target ad describing a computer's numerous features--ambiguous product information which may be interpreted positively (e.g., the computer is versatile) or negatively (e.g., the computer is not easy to use). Before their exposure to the target ad, however, subjects had been induced to consider either "versatility" or "ease of use" by seeing a prime ad for another computer. Subjects who had previously been exposed to the "versatility" ad evaluated the target product more favorably than did subjects who had seen the "ease of use" ad. More specifically, brand attitude and purchase intention were higher in the positive priming condition than in the negative priming condition. The results also showed that contextual priming did indeed make one product attribute more accessible than another and thereby altered the way subjects reached overall brand evaluations. That is,

information that the ad context makes accessible was found to guide evaluations of the advertised brand.

The above findings suggest that an ad context may prime certain attributes and influence evaluations of the advertised brand (e.g., brand attitude and purchase intention). However, contextual priming does not guarantee influence. The impact of contextual priming may be strong or negligible depending on the characteristics of the audience. That is, some people may be more susceptible to situational manipulations of attribute accessibility than are others. We need to understand the individual difference variables that are likely to mitigate or enhance contextual priming effects. We examine one variable to address this issue: prior knowledge. In particular, we wish to specify how the contextual priming of product attributes interacts with individual differences in prior knowledge.

PRIOR KNOWLEDGE AND CONTEXTUAL PRIMING EFFECTS

Ambiguous product information is potentially associated with several product attributes, which might be product characteristics, benefits, or consequences. Contextual priming effects will occur when one of these related attributes is primed by the ad context and the (positive or negative) relationship of ambiguous information with this attribute is activated and utilized in product evaluations. Thus, the process of contextual priming assumes the existence of perceived relationships among product attributes in memory. That is, priming effects on the encoding of ambiguous information (e.g., weight of luggage) requires that there be some minimum level of perceived covariation between the provided information and one or more relevant product attributes (e.g., durability or ease of handling). Cox (1962) posits that the use of an informational cue in product evaluations is directly related to the perceived probability that the cue is associated with a specific product attribute.

Experienced consumers may develop knowledge about the possible relationships among elements of a product class (Rao and Monroe 1988). For example, consumers who

use automobiles may come to learn certain relationships among engine size, fuel efficiency, and safety. This knowledge should allow consumers to encode the ambiguous information in terms of related attributes. However, inexperienced or low-knowledge consumers would lack such knowledge structures representing relationships among product attributes (Herr 1989). As a consequence, they would not be able to encode ambiguous information in terms of other related product attributes.

Bettman, John and Scott (1986) suggest that increased product knowledge reinforces the correlations between product attributes and summary cues. Srull and Wyer (1979) propose that schematic representations of specific individuals are built up on the basis of repeated experiences and that the effects of increased accessibility of a particular trait schema on the encoding of new information would not be pronounced when the target person is unknown. These results suggest that a minimum level of product class knowledge would be needed for consumers to perceive the correlations between the given information and other product attributes. As a consequence, contextual priming effects are less likely to occur for consumers with little or low knowledge.

It is expected that too much knowledge may also decrease contextual priming effects. As consumers develop a great deal of expertise within a product category, they might acquire knowledge of criteria useful for judging alternatives in that category (Howard 1977). Since experts possess well-established decision criteria (Bettman and Sujon 1987; Wright and Rip 1980), product attributes are likely to be highly accessible to them, regardless of contextual priming. Highly knowledgeable individuals are thus likely to consider a product in terms of all the relevant attribute dimensions that are chronically accessible to them. As a result, contextual priming effects would also be reduced for highly knowledgeable consumers.

Moderately knowledgeable individuals may have some idea as to what attributes are important in evaluating a product. However, because these attributes are not readily accessible from memory, they may not evaluate the product along all the relevant attribute

dimensions. Therefore, moderately knowledgeable individuals may be more susceptible to contextual priming effects in that they are likely to consider only those attributes that are made temporarily accessible by the context.

Based the above arguments, we propose that prior knowledge would moderate the impact of contextual priming on product evaluations. Specifically, it is hypothesized that contextual priming effects on brand attitudes and purchase intentions will be pronounced among consumers with moderate product class knowledge and sharply diminish among consumers with low or high knowledge.

It should be noted here that the present study examines product knowledge, which is conceptually distinct from product familiarity. See Zinkhan and Muderrisoglu (1985) for a test of convergent and discriminant validity of familiarity. Familiarity is defined as the number of product-related experiences that have been accumulated by the consumer (Alba and Hutchinson 1987). In general, product familiarity is a necessary but insufficient condition for consumer knowledge or expertise.

Product knowledge can be operationally defined either in terms of what is actually stored in memory (objective knowledge) or in terms of what individuals perceive that they know (subjective knowledge; Brucks 1985). The former is used as a primary measure in the present study, because contextual priming deals with knowledge structures stored in memory. Furthermore, what people perceive they know is likely to depend on what they actually know as well as their self-confidence in the amount of knowledge held in memory (Park and Lessig 1981; Rao and Monroe 1988). Aspects of objective knowledge include terminology, available attributes, criteria for evaluations, perceived covariance between attributes, and usage situations that determine attribute importance (Brucks 1985, p. 7).

METHOD

The hypothesis was tested with an experiment in which subjects were exposed to a print ad and asked to indicate their reactions to the advertised product. Aspects of the

magazine article preceding the ad were manipulated in order to investigate the priming effects of the ad context.

Product and Advertisement

Because this study examines contextual priming effects, several things were considered in choosing the product class. First, subjects should have some interest in the product so that they would process ad information. Second, the product should have many interrelated attributes so that several interpretations are possible from a piece of information. Automobiles were selected as a focal product based on these considerations. Subjects were likely to be interested in automobiles and therefore readily process product information in the ad, and the product class has a sufficient number of attributes with probable interrelationships.

A pretest was conducted with 15 target subjects (who were not included in the main experiment) to identify a product attribute that has different implications for other attributes. Participants were first asked to identify salient attributes of the test product. Then, for each attribute, associated attributes were solicited and the perceived relationship was assessed with a scale ranging from “perfectly positive relationship” (+10) to “perfectly negative relationship” (-10), which has been used in previous research on covariation assessment (e.g., John, Scott, and Bettman 1986). The results indicated that the size of a car was negatively related to fuel economy, but positively related to safety. That is, the large size of a car tended to imply that the car is not fuel efficient or that the car is safe. Therefore, the size of a car was chosen as a focal attribute in the ad. Accordingly, fuel economy was chosen as the attribute to be primed by the ad context in the negative priming condition, whereas safety was chosen as the salient attribute in the positive priming condition.

A print ad was created which focused on the size of the advertised car. A print ad was used for a good control of the message content, a feature which is critical to this study. The ad introduced a fictitious brand as a new car in order to reduce any confounding due to subjects' familiarity with the test brand. Presenting product information in four short

paragraphs, the ad emphasized especially the fact that the car is large. A picture of the car was also included.

Experimental Design

This study used a 2 x 3 factorial between-subjects design with two factors: (1) product attributes (safety or fuel economy) primed by the ad context and (2) prior knowledge about the product class (low, moderate, or high). These two factors will be hereafter called "Contextual Priming" and "Prior Knowledge," respectively. Magazine articles (described below) were used as the ad context by placing the appropriate article before the ad.

Contextual priming was manipulated by varying the theme of the article so that it would activate different attributes. The ad emphasized the "large size" of the car, and it was desired that positive and negative interpretations be given. To do this, two different themes were selected with the purpose of priming one of the two attributes (fuel economy or safety) that are associated with the size of the automobile. In the safety condition, the article dealt with the safety of air travel with a headline in bold face, "How safe is air travel?" In the fuel economy condition, the article contained a story of an oil entrepreneur with a headline in bold face, "Oil's new mavericks." The objective was to enhance the chances that, while reading the ad saying that the car was very large, subjects who had earlier read an article on flight safety would interpret the car size information in terms of safety, whereas those who had read the article on oil entrepreneurs would encode the product information in terms of gas consumption.

Prior knowledge was measured on the basis of subjects' responses. The subjects were divided into three groups (low, moderate, and high). Details of this measure are given in the next section.

Procedures

The subjects were 120 students at the business school of a major university. Subjects were randomly assigned to one of the two priming conditions that differed in terms of magazine articles preceding the ad. After being seated in the research room, subjects were

told that the study concerned people's reactions to magazine articles and advertisements. They were asked to read the article and the ad as if they were seeing them in a magazine. It was also emphasized that all the questions concerned subjects' own feelings and thoughts with no right or wrong answers.

After the general instructions, each subject read a magazine article which primed one of the two attributes (oil or safety). After reading the article, they completed a one-page questionnaire on their reactions to the magazine article such as their current feelings. This is to compare the affective responses generated by the magazine articles (see the discussion section). Specifically, the subjects were asked to indicate their feelings on the four seven-point items (i.e., good-bad, happy-unhappy, pleased-displeased, comfortable-uncomfortable). The alpha coefficient for this measure was .90.

Next, subjects were told that a pre-production version of an advertisement for a new car had been obtained for the study. Each subject was given a photocopy of the ad and was told to examine it as if they had seen it in a magazine. All subjects saw the same ad, although they had read a different article. Then they were asked for attitude toward the ad (Aad), attitude toward the advertised brand (Ab), and purchase intentions (PI). Aad was measured using four seven-point bipolar scales anchored by the adjectives "good-bad," "interesting-uninteresting," "like-dislike," and "irritating-not irritating." Ab was assessed by three seven-point scales anchored by the phrases "good-bad," "pleasant-unpleasant," and "like-dislike." PI was measured by three seven-point scales: "likely-unlikely," "possible-impossible," and "probable-improbable." The alpha coefficients for Aad, Ab, and PI were .80, .94 and .92, respectively, indicating a high degree of internal consistency.

After responding to these measures, subjects completed a test to measure individual subject's actual product knowledge held in memory. Consistent with previous research (e.g., Rao and Monroe 1988; Sujana 1985), the knowledge scale consisted of sixteen multiple-choice questions that assessed subjects' knowledge of automobiles (e.g., "Which

of the following statements concerning disc brakes is incorrect?”). The alpha coefficient for this scale was .73, indicating that the scale was reliable.

Two other measures were also taken in order to validate the knowledge scale. The first measure was subjects' familiarity with the product class (e.g., Alba and Hutchinson 1987). Subjects responded on a 11-point scale (0 = “not at all” to 10 = “very much”) to a question, “How familiar are you with automobiles?” The second measure was subjects' self-reported subjective knowledge of automobiles. Subjects were asked to indicate on a 11-point scale how knowledgeable they are about automobiles. The test of automobile knowledge correlated highly with familiarity ($r = .74, p < .001$) and subjective knowledge ($r = .63, p < .001$). The results provide some evidence that the knowledge scale was valid.

The subjects were divided into low, moderate, and high knowledge groups using their scores on the knowledge scale. Based on the frequency distribution of knowledge scores, 6 and 10 were chosen as cutoff points for the three knowledge conditions. Low-knowledge subjects scored an average of 4.9 ($n = 41$), moderate-knowledge subjects scored 8.4 ($n = 42$), and high-knowledge subjects scored 12.9 ($n = 37$). Based on this split, the cell sizes varied from 17 to 23.

It was checked whether there had been any demand effects. After completing the last questionnaire, subjects were asked to write down their thoughts concerning the purpose of the experiment. Results showed that no subjects guessed the real purpose of the study, indicating that little demand effects had operated.

RESULTS

A 2 x 3 multivariate analysis of variance (MANOVA) was run on the set of dependent variables (i.e., Ab and PI) with contextual priming and prior knowledge as the independent variables. The Box's M test indicated that the homogeneity assumption was valid; Box's $M = 12.60, \chi^2(15) = 12.03, p > .60$. MANOVA results showed that contextual priming and prior knowledge had a significant interaction effect on these measures of brand

evaluations ($F(4, 226) = 2.74, p < .05$). The main effects were nonsignificant ($F(2, 113) = 2.11, p > .10$; $F(4, 226) = 0.35, p > .80$).

For an understanding of priming effects on individual variables, separate univariate 2 x 3 ANOVAs were subsequently run on each dependent variable: Ab and PI, respectively. The first two columns of Table 1 summarize these ANOVA results. The interaction effects of contextual priming and prior knowledge were significant for both Ab and PI ($F = 4.20, p < .05$; $F = 3.41, p < .05$, respectively). Contextual priming had significant main effects on Ab ($F = 4.09, p < .05$), but its effects on PI were not significant ($F = 2.56, p > .10$). The main effects of prior knowledge on Ab and PI were nonsignificant ($F = 0.29, p > .70$; $F = 0.14, p > .80$, respectively).

 Insert Table 1 about here

Tables 2 and 3 present the cell means for the dependent variables. They show that contextual priming effects were significant for subjects with moderate knowledge. Specifically, Ab was higher in the positive priming condition than in the negative priming condition (4.50 vs. 3.18, $t = 3.73, p < .01$). The same pattern was observed for PI (2.47 vs. 1.48, $t = 3.51, p < .01$). However, little contextual priming effects occurred for the subjects with low or high knowledge. In the low knowledge group, neither Ab nor PI was different between the positive and negative priming conditions (3.83 vs. 3.96, n.s.; 2.03 vs. 1.96, n.s., respectively). The same patterns of Ab and PI were observed for the high knowledge subjects (4.06 vs. 3.95, n.s.; 1.75 vs. 1.93, n.s., respectively); there was little difference in the brand evaluations by these subjects between the two priming conditions. Furthermore, the evaluations by high knowledge subjects did not differ from the evaluations by low knowledge subjects. In the positive priming condition, for example, Ab was not different between low and high knowledge subjects (3.83 vs. 4.06, n.s.).

 Insert Tables 2 & 3 about here

We should note here that the two dependent variables (Ab and PI) in the study are interrelated. Previous research suggests that they are likely to be in a causal order from Ab to PI (e.g., MacKenzie, Lutz, and Belch 1986). Separate univariate ANOVAs are not very useful for understanding the nature and process of the experimental effects on such interrelated variables (Bray and Maxwell 1985). Variation in a particular variable (e.g., PI) may be due to a direct influence of the ad context or due to the dependence of that variable on the other variable (e.g., Ab). In addition, the probability statements from separate ANOVAs are not meaningful when the dependent variables are interrelated.

Step-down analysis was conducted next. By examining dependent variables in a predetermined order, the step-down analysis assesses the unique contribution of each variable to the between-group variance, as the variable is added to the dependent variable set (Bagozzi and Yi 1989; Roy 1958). It can provide useful information since it indicates whether variation in a single dependent variable is due to the direct effects of an independent variable or due to relationships of that dependent variable with other dependent variables. The last two columns in Table 1 summarize the results from the step-down analyses. The first step-down F is the same as the univariate F value from ANOVA on Ab. But the second step is the effect of the independent variables on PI, with the effect of Ab covaried out.

When the causal relation among the dependent variables was taken into account by step-down analysis, all the effects that had been significant in univariate ANOVAs became nonsignificant. Specifically, both main and interaction effects of contextual priming and prior knowledge became nonsignificant in the step-down analyses. These results suggest that the variations in PI observed in ANOVA were due to the dependence of PI on Ab, rather than due to the direct influences of contextual priming and/or prior knowledge.

In summary, the results show that brand evaluations can be affected by contextual priming. Furthermore, the results support the hypothesis that prior knowledge moderates contextual priming effects; contextual priming effects were observed only for subjects with

moderate product knowledge. Subsequent step-down analyses also revealed the processes underlying the contextual priming effects on individual measures of brand evaluations (i.e., Ab and PI). The ad context affected Ab directly, whereas it influenced PI indirectly through Ab.

DISCUSSION

A basic premise of the present study was that people differ both in the accessibility and use of relevant product attributes in processing ambiguous information in the ad. This study examined the interaction between individual differences in prior knowledge and situational differences in contextual priming (i.e., the degree to which attributes are made accessible by the context). We found that brand evaluations were differentially influenced by contextual priming as a function of an individual's prior knowledge about the product class. Specifically, contextual priming had pronounced effects on brand evaluations among moderately knowledgeable consumers, but the effects sharply diminished among those low and high in knowledge.

The fact that contextual priming effects are an inverted U-shape function of prior knowledge suggests that the relationships between priming and expertise might be subtler than found in earlier studies. For example, Bettman and Sujan (1987) demonstrated that prior knowledge decreased the effects of priming different decision criteria on product evaluations, whereas Herr (1989) found that prior knowledge increased priming effects. Note that both findings can be explained under the non-linear relationship. Depending on which levels of prior knowledge are employed, each of the two seemingly conflicting results can be observed in a particular study. For example, the relationship will be positive for low- vs. moderate-knowledge subjects, while it is negative for moderate- vs. high-knowledge subjects. That is, the current study shows the inverted-U effect in a single experimental design, while earlier studies might have demonstrated parts of the inverted-U effect in separate experiments. In fact, a non-linear relationship has often been found in

other research involving knowledge (e.g., Bettman and Park 1980; Johnson and Russo 1984; Park and Lessig 1981; Rao and Monroe 1988).

Although contextual priming effects diminished among those with both low and high knowledge, different mechanisms seem to underlie such diminished effects. First, consumers with little product knowledge may not perceive the relevance of the accessible attribute to the evaluation at hand. As a consequence, although a product attribute is made accessible by the ad context, the consumers may not be able to draw the implication of ambiguous product information in terms of that attribute.

High knowledge consumers are relatively immune to accessibility manipulations by contextual priming, perhaps because their evaluative standards are well established and already highly accessible (e.g., Bettman and Sujan 1987; Wright and Rip 1980). Contextual priming of a pertinent attribute may only remind highly knowledgeable consumers of what they already know. That is, situational manipulations of attribute accessibility are redundant for them, because most attributes are chronically accessible to them. Evidence for this explanation is found in Sanbonmatsu, Kardes, and Herr's (1992) study. Their study demonstrated that highly knowledgeable individuals spontaneously recognize the absence of unmentioned attributes and evaluate a target along each of the relevant attribute dimensions, whether the attributes are salient within the judgmental context or not.

Kirmani and Yi (1991) argue that the influence of advertising context may be either cognitive or affective. Cognitive influence occurs when the context influences consumers' processing of product information in ads. Affective influence, on the other hand, occurs when the context generates affective responses such as mood states or feelings (see Goldberg and Gorn 1987). For example, Yi (1990a) shows that an ad context can evoke affective reactions among ad recipients and influence their brand evaluations. Contextual priming effects examined in this study are cognitive in nature. However, it is possible that contextual priming manipulations might have induced unintended affective influences.

This possibility was examined by looking at two variables. First, subjects' feelings after reading magazine articles were compared across the contextual priming conditions. The feelings were not different between the two conditions (4.63 vs. 4.67, n.s.). It can be noted that subjects were not asked for their feelings toward the article, but for their current feelings in general. Second, subjects' attitudes toward the ad were compared across the priming conditions. The means were 3.98 and 4.17, respectively, and the difference was nonsignificant. Note that this was a measure of specific feelings toward the ad. These results indicate that the observed results cannot be attributed to general or specific affect generated by the context. Furthermore, 2 x 3 ANOVAs were run on each variable with contextual priming and prior knowledge as the independent variables. None of the effects were significant, providing additional support for our interpretation.

This research has several theoretical implications. First, this research links research on ad context and information accessibility within a single framework. On the one hand, many studies have shown that ad contexts affect advertising effectiveness (e.g., Singh and Churchill 1987). On the other hand, studies of information accessibility suggest that once a concept is primed or activated, its relative accessibility is enhanced, and the likelihood of its use in encoding subsequent information increases (e.g., Wyer and Srull 1981). The present research suggests that an integration of the two streams of research can be fruitful.

Second, this study extends the research on consumer inference making by considering situations where several benefits or consequences can be inferred from the same set of product features. Specifically, we have examined the case in which several different, possibly opposing, inferences can be drawn from ad messages. Previous research tended to examine whether or not or when inferences are made, assuming that the inferences made in a given situation are similar (e.g., Ford and Smith 1987; Yi 1990c). The present study allows for the existence of several inferences which may differ in evaluative implications, examines which inferences are made out of several possible ones, and investigates contextual priming as a determinant of inferences.

Third, by investigating the moderator variable of contextual priming effects, this research provides insights into the situations when contextual effects may be pronounced. That is, the results of the present study should be informative of when ad context influences consumers' product evaluations. In addition, this research suggests one way in which consumers' evaluations of multiattribute alternatives can be influenced. By priming some of the relevant product attributes, the context can help define the evaluative criteria by which consumers apply to products.

The present research is also relevant to practitioners of advertising. First, an ad context can either inhibit or facilitate the effects of a particular ad on brand evaluations. The specific attributes (e.g., safety or fuel economy) that are relevant to evaluating an advertised product may vary in accessibility as a function of its context, and these variations may influence the favorability of brand evaluation (Yi 1990a, 1990b). This suggests that an ad context is not merely a benign background but can also influence the effectiveness of an ad. By providing an understanding of context effects, this study expands the scope of both strategic and tactical approaches to persuasion.

This study also helps advertisers to understand and predict the unintended effects of the ad context. If the ad context primes negative interpretations of the product, perceptions of the advertised product will be negatively affected. One should avoid placing the ad in such an unfavorable environment. Alternatively, one might proactively create a favorable context that can enhance the effect of an ad. For example, advertisements emphasizing a certain product feature (e.g., air-bags) may benefit by having an adjacent article (e.g., crime story) that can prime the target benefit (e.g., safety). This suggests that advertisers might wish to have more control over not only media outlets, but also specific editorial content.

Furthermore, contextual priming effects may be important for copy testing. Because ad effectiveness varies across contexts, ads must be tested in a setting that closely resembles the actual ad environment. Such contextual priming effects should be important especially

when consumers are expected to have moderate knowledge of the product category (e.g., for brands in fairly well-established product categories). In contrast, contextual priming might be less relevant when consumers have little knowledge (e.g., for brands in new product categories) or when consumers are highly knowledgeable (e.g., for brands in very well-established and frequently-used categories).

The findings also suggest an indirect persuasive attempt in which one provides seemingly neutral information (e.g., weight of a bag) and primes consumers to encode the information in terms of the target benefit (e.g., ease of handling). Such indirect approaches to persuasion may offer several advantages over conventional techniques claiming the target benefit directly. Yi (1990d) shows that indirect approaches can induce more stable persuasion and reduce unfavorable cognitive responses generated by the audience, compared with direct approaches.

This study suggests another important strategic application. According to this research, even if ads do not address the product's possession of attributes, they can effectively enhance recipients' perceptions of the brand. For instance, if consumers perceive a product to be strong on one attribute, then ads or ad context merely suggesting the relationship between that attribute and other related attributes may change the overall attitude by inducing consumers' inferences about other attributes (Yi 1990c). A firm can then take advantage of the positional strengths of its brand in the product space.

Limitations of the present study and directions for future research are in order. Prior knowledge was assessed rather than experimentally manipulated, as is typical of studies involving prior knowledge (e.g., Brucks 1985; Johnson and Russo 1985). Thus, findings should be interpreted only in a correlated sense. In addition, the experimental setting and stimuli were somewhat unrealistic, as the results showed that subjects' attitudes toward the ad were neutral. One might question whether the same effect would result from a more favorable ad. Because conceptual priming effects examined in the present study work

mainly through brand evaluations, there is no apparent reason for expecting different results. However, the present study should be replicated with more realistic stimuli.

Also, this study was conducted in a relatively high involvement situation (e.g., automobile and print ads), and findings should be interpreted with caution. Involvement in the product class might covary with knowledge and might be expected to affect contextual priming effects. Although knowledge and involvement might be correlated, they are different constructs (Zinkhan and Muderrisoglu 1985). For example, individuals may acquire much knowledge without having high involvement in the product class. Therefore, it is important to disentangle the effects of involvement and knowledge by investigating both variables simultaneously in future research.

One might also examine a control condition with no relevant priming in future research. This condition might have a neutral article that bears no relationship to the advertisement rather than no article at all, because some context would always be present in the real world setting. It would allow us to determine whether positive or negative priming has the greater effect on brand attitude and purchase intention.

In this study magazine articles were found to affect the interpretation of product attributes. Future research can focus on the identification of other factors (e.g., point-of-purchase stimuli) that enhance the likelihood that certain attributes are accessible to consumers in processing product information. Since contextual priming deals with situational accessibility of attributes, one should also examine factors affecting chronic accessibility. In this regard, attribute importance might be one factor to consider in subsequent research. For example, if fuel economy is more important than safety to a consumer, the consumer would be more likely to make economy type interpretations than safety type interpretations. That is, economy might be chronically more accessible to the consumer than safety. Again, such effects might be moderated by prior knowledge. In any case, it would be important to distinguish factors (e.g., attribute importance) affecting

chronic accessibility from factors (e.g., contextual priming) affecting temporary accessibility.

REFERENCES

- Alba, Joseph W. and J. Wesley Hutchinson (1987), "Dimensions of Consumer Expertise," Journal of Consumer Research, 13 (March), 411-454.
- Bettman, James R., Deborah Roedder John, and Carol A. Scott (1986), "Covariation Assessment by Consumers," Journal of Consumer Research, 13 (December), 316-326.
- _____ and C. Whan Park (1980), "Effects of Prior Knowledge and Experience and Phase of the Choice Process on Consumer Decision Processes: A Protocol Analysis," Journal of Consumer Research, 7 (December), 234-248.
- _____ and Mita Sujana (1987), "Effects of Framing on Evaluation of Comparable and Noncomparable Alternatives by Expert and Novice Consumers," Journal of Consumer Research, 14 (September), 141-154.
- Bagozzi, Richard P. and Youjae Yi (1989), "On the Use of Structural Equation Models in Experimental Designs," Journal of Marketing Research, 26 (August), 271-284.
- Bray, James H. and Scott E. Maxwell (1985), Multivariate Analysis of Variance, Beverly Hills, CA: Sage Publications, Inc.
- Brucks, Merrie (1985), "The Effect of Product Class Knowledge on Information Search Behavior," Journal of Consumer Research, 12 (June), 1-16.
- Chook, Paul H. (1985), "A Continuing Study of Magazine Environment, Frequency, and Advertising Performance," Journal of Advertising Research, 25 (4), 23-33.
- Cox, Donald F. (1962), "The Measurement of Information Value: A Study in Consumer Decision-Making," in Emerging Concepts in Marketing, William S. Decker, ed., Chicago, IL: American Marketing Association, 413-421.
- Ford, Gary T. and Ruth Ann Smith (1987), "Inferential Beliefs in Consumer Evaluations: An Assessment of Alternative Processing Strategies," Journal of Consumer Research, 14 (December), 363-371.

- Goldberg, Marvin E. and Gerald J. Gorn (1987), "Happy and Sad TV Programs: How They Affect Reactions to Commercials," Journal of Consumer Research, 14 (December), 387-403.
- Herr, Paul M. (1989), "Priming Price: Prior Knowledge and Context Effects," Journal of Consumer Research, 16 (June), 67-75.
- Higgins, E. Tory, John A. Bargh, and Wendy Lombardi (1985), "Nature of Priming Effects on Categorization," Journal of Experimental Psychology: Learning, Memory, and Cognition, 11 (January), 59-69.
- _____ and Gillian King (1981), "Accessibility of Social Constructs: Information Processing Consequences of Individual and Contextual Variability," in Personality, Cognition, and Social Interaction, N. Cantor and J. Kihlstrom, eds., Hillsdale, NJ: Erlbaum, 69-122.
- Howard, John A. (1977), Consumer Behavior: Applications of Theory. New York: McGraw-Hill.
- John, D. Roedder, Carol A. Scott, and James R. Bettman (1986), "Sampling Data for Covariation Assessment: The Effects of Prior Beliefs on Search Patterns," Journal of Consumer Research, 13 (June), 38-47.
- Johnson, Eric J. and J. Edward Russo (1984), "Product Familiarity and Learning New Information," Journal of Consumer Research, 11 (June), 542-550.
- Kirmani, Amna and Youjae Yi (1991), "The Effects of Advertising Context on Consumer Responses," in Advances in Consumer Research, Vol. 18, Rebecca Holman, ed., Provo, UT: Association for Consumer Research, 414-416.
- MacKenzie, Scott B., Richard J. Lutz, and George E. Belch (1986), "The Role of Attitude Toward the Ad as a Mediator of Advertising Effectiveness: A Test of Competing Explanations," Journal of Marketing Research, 23 (May), 130-143.

- Park, C. Whan and V. Parker Lessig (1981), "Familiarity and its Impacts on Consumer Decision Biases and Heuristics," Journal of Consumer Research, 8 (September), 223-230.
- Rao, Akshay R. and Kent B. Monroe (1988), "The Moderating Effect of Prior Knowledge on Cue Utilization in Product Evaluations," Journal of Consumer Research, 15 (December), 253-264.
- Roy, J. (1958), "Step Down Procedure in Multivariate Analysis," Annals of Mathematical Statistics, 29 (December), 1177-1187.
- Sanbonmatsu, David M., Frank R. Kardes, and Paul M. Herr (1992), "The Role of Prior Knowledge and Missing Information in Multiattribute Evaluation," Organizational Behavior and Human Decision Processes, 51 (February), 76-91.
- Schmitt, Bernd H. (1991), "Contextual Priming of Nonverbal Material in Advertisements," working paper, Columbia University.
- Schultz, Don E. (1979), "Media Research Users Want," Journal of Advertising Research, 19 (December), 13-17.
- Singh, Surendra N. and Gilbert A. Churchill (1987), "Arousal and Advertising Effectiveness," Journal of Advertising, 16 (1), 4-10.
- Soldow, Gary F. and Victor Principe (1981), "Response to Commercials as a Function of Program Context," Journal of Advertising Research, 21 (2), 59-65.
- Srull, Thomas K. and Robert S. Wyer (1979), "The Role of Category Accessibility in the Interpretation of Information About Persons: Some Determinants and Implications," Journal of Personality and Social Psychology, 37 (October), 1660-1672.
- _____ and Robert S. Wyer (1980), "Category Accessibility and Social Perception: Some Implications for the Study of Person Memory and Interpersonal Judgments," Journal of Personality and Social Psychology, 38 (6), 841-856.
- Sujan, Mita (1985), "Consumer Knowledge: Effects on Evaluation Strategies Mediating Consumer Judgments," Journal of Consumer Research, 12 (June), 31-46.

- Wright, Peter and Peter Rip (1980), "Product Class Advertising Effects on First Time Buyers' Decision Criteria," Journal of Consumer Research, 7 (September), 176-188.
- Wyer, Robert S. and Thomas K. Srull (1981), "Category Accessibility: Some Theoretical and Empirical Issues Concerning the Processing of Social Stimulus Information," in Social Cognition: The Ontario Symposium, E. T. Higgins, C. P. Herman, and M. P. Zanna, eds., Hillsdale, NJ: Erlbaum, 161-197.
- Yi, Youjae (1990a), "Cognitive and Affective Priming Effects of the Context for Print Advertisements," Journal of Advertising, 19 (2), 40-48.
- _____ (1990b), "Contextual Priming Effects in Print Advertisements," Journal of Consumer Research, 17 (September), 215-222.
- _____ (1990c), "The Indirect Effects of Advertisements Designed to Change Product Attribute Beliefs," Psychology and Marketing, 7 (Spring), 47-63.
- _____ (1990d), "Direct and Indirect Approaches to Advertising Persuasion: Which is More Effective?" Journal of Business Research, 20 (June), 279-291.
- Zinkhan, George M. and Aydin Muderrisoglu (1985), "Involvement, Familiarity, Cognitive Differentiation and Advertising Recall: A Test of Convergent and Discriminant Validity," in Advances in Consumer Research, Vol. 12, E. Hirschman and M. Holbrook, eds., Provo, UT: Association for Consumer Research, 356-361.

Table 1
Univariate and Step-Down F Tests

Variable ordering	Sources of variation	Univariate <i>F</i>	<i>p</i>	Step-Down <i>F</i>	<i>p</i>
1. Ab	P	4.09	.05		
	K	0.29	.75		
	P x K	4.20	.02		
2. PI	Ab*			31.45	.01
	P	2.70	.10	0.56	.46
	K	0.09	.91	0.45	.64
	P x K	3.40	.04	1.35	.26

NOTE: P = contextual priming; K = prior knowledge;

Ab = attitude toward the brand; PI = purchase intention

* The step-down F test is based on ANCOVA with this preceding variable as a covariate.

Table 2
Brand Attitudes as a Function of Contextual Priming and Prior Knowledge

	Prior Knowledge		
	Low	Moderate	High
<u>Contextual Priming</u>			
Positive	3.83	4.50	4.06
Negative	3.96	3.18	3.95
<u>Difference score^a</u>	-0.13	1.32 ^b	0.11

^aThe difference in brand attitudes between the positive and negative priming conditions.

^b $p < .01$

Table 3
Purchase Intentions as a Function of Contextual Priming and Prior Knowledge

	Prior Knowledge		
	Low	Moderate	High
<u>Contextual Priming</u>			
Positive	2.03	2.47	1.75
Negative	1.96	1.48	1.93
<u>Difference score</u> ^a	0.07	0.99 ^b	-0.18

^aThe difference in purchase intentions between the positive and negative priming conditions.

^b $p < .01$