

Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement

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Undergraduates expressed their attitudes about a product after being exposed to a magazine ad under conditions of either high or low product involvement. The ad contained either strong or weak arguments for the product and featured either prominent sports celebrities or average citizens as endorsers. The manipulation of argument quality had a greater impact on attitudes under high than low involvement, but the manipulation of product endorser had a greater impact under low than high involvement. These results are consistent with the view that there are two relatively distinct routes to persuasion.

Over the past three decades, a large number of studies have examined how consumers' evaluations of issues, candidates, and products are affected by media advertisements. Research on the methods by which consumers' attitudes are formed and changed has accelerated at a pace such that Kassirjian and Kassirjian were led to the conclusion that "attitudes clearly have become the central focus of consumer behavior research" (1979, p. 3). Not only are there a large number of empirical studies on consumer attitude formation and change, but there are also a large number of different theories of persuasion vying for the attention of the discipline (see Engel and Blackwell 1982; Kassirjian 1982).

In our recent reviews of the many approaches to attitude change employed in social and consumer psychology, we have suggested that—even though the different theories of persuasion possess different terminologies, postulates, underlying motives, and particular "effects" that they specialize in explaining—these theories emphasize one of two distinct routes to attitude change (Petty and Cacioppo 1981, 1983). One, called the *central route*, views attitude change as resulting from a person's diligent consideration of information that s/he feels is central to the true merits of a

particular attitudinal position. The theoretical approaches following this route emphasize factors such as (1) the cognitive justification of attitude discrepant behavior (Cummings and Venkatesan 1976; Festinger 1957); (2) the comprehension, learning, and retention of issue- or product-relevant information (Bettman 1979; Hovland, Janis, and Kelly 1953; McGuire 1976); (3) the nature of a person's idiosyncratic cognitive responses to external communications (Cacioppo and Petty 1980a; Greenwald 1968; Petty, Ostrom, and Brock 1981; Wright 1980); and (4) the manner in which a person combines and integrates issue- or product-relevant beliefs into an overall evaluative reaction (Ajzen and Fishbein 1980; Lutz and Bettman 1977; Troutman and Shanteau 1976). Attitude changes induced via the central route are postulated to be relatively enduring and predictive of behavior (Cialdini, Petty, and Cacioppo 1981; Petty and Cacioppo 1980).

A second group of theoretical approaches to persuasion emphasizes a more *peripheral route* to attitude change. Attitude changes that occur via the peripheral route do not occur because an individual has personally considered the pros and cons of the issue, but because the attitude issue or object is associated with positive or negative cues—or because the person makes a simple inference about the merits of the advocated position based on various simple cues in the persuasion context. For example, rather than diligently considering the issue-relevant arguments, a person may accept an advocacy simply because it was presented during a pleasant lunch or because the source is an expert. Similarly, a person may reject an advocacy simply because the position presented appears to be too extreme. These cues (e.g., good food, expert sources, extreme po-

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sitions) and inferences (e.g., "If an expert says it, it must be true") may shape attitudes or allow a person to decide what attitudinal position to adopt without the need for engaging in any extensive thought about issue- or product-relevant arguments. The theoretical approaches following the peripheral route emphasize factors such as (1) whether a simple attitudinal inference can be made based on observing one's own behavior (Bem 1972; Scott 1978); (2) whether the advocacy falls within one's latitude of acceptance or rejection (Newman and Dolich 1979; Sherif, Sherif, and Nebergall 1965); (3) whether some transient situational utility is associated with adopting a particular attitude (Schlenker 1978, 1980); and (4) whether an advocated position or product is classically conditioned to basic but issue-irrelevant cues, such as food and pain (Janis, Kaye, and Kirschner 1965; Sternthal and Craig 1974), or is associated with secondary cues, such as pleasant pictures and attractive endorsers (Kelman 1961; Mitchell and Olson 1981; Mowen 1980). Attitude changes induced under the peripheral route are postulated to be relatively temporary and unpredictable of behavior.¹

Unfortunately, none of the unique theories of persuasion has yet provided a comprehensive view of attitude change. For example, cognitive response theory—an approach that falls under the central route—assumes that people are usually interested in thinking about and elaborating incoming information, or in self-generating issue- or product-relevant thoughts (Brock and Shavitt 1983). Yet, as Miller and his colleagues have noted, "It may be irrational to scrutinize the plethora of counterattitudinal messages received daily. To the extent that one possesses only a limited amount of information processing time and capacity, such scrutiny would disengage the thought process from the exigencies of daily life." (Miller, Maruyama, Beaber, and Valone 1976, p. 623). Haines (1974), in fact, has proposed a principle of information-processing parsimony according to which consumers seek to process as little data as necessary in order to make decisions.

The accumulated research on persuasion clearly indicates that neither the central nor the peripheral approach alone can account for the diversity of attitude-change results observed. Thus, a general framework for understanding atti-

tude change must consider that in some situations people are avid seekers and manipulators of information, and in others they are best described as "cognitive misers" who eschew any difficult intellectual activity (Burnkrant 1976; McGuire 1969). An important question for consumer researchers then is: when will consumers actively seek and process product-relevant information, and when will they be more cursory in their analysis of ads? Recent research in consumer behavior and social psychology has focused on the concept of "involvement" as an important moderator of the amount and type of information processing elicited by a persuasive communication (see Burnkrant and Sawyer 1983; Petty and Cacioppo 1981, 1983). One major goal of the experiment reported in this paper was to test the hypothesis that under "high involvement," attitudes in response to an advertisement would be affected via the central route, but that under "low involvement," attitudes would be affected via the peripheral route.

INVOLVEMENT AND ATTITUDE CHANGE

Methods of Studying Involvement

Although there are many specific definitions of involvement within both social and consumer psychology, there is considerable agreement that high involvement messages have greater personal relevance and consequences or elicit more personal connections than low involvement messages (Engel and Blackwell 1982; Krugman 1965; Petty and Cacioppo 1979; Sherif and Hovland 1961).² Various strategies have been employed in studying involvement. For example, both social (Hovland et al. 1957) and consumer (Newman and Dolich 1979) researchers have investigated existing groups that differed in the extent to which an issue or product was personally important, or have employed designs allowing subjects to assign themselves to high and low involvement groups. These correlational methods may be high in external validity, but they confound involvement with all other existing differences between the high and low involvement groups (attitude extremity, amount of prior information, and so on), and thus compromise internal validity (Kiesler, Collins, and Miller 1969). Other social (Rhine and Severance 1970) and consumer (Lastovicka and Gardner 1979) researchers have defined involvement in terms of the specific issue or product under consideration. This procedure, of course, confounds involvement with aspects of the issue or product that may be irrelevant to its personal importance. Finally, some researchers have studied involvement by varying the medium of message pre-

¹Our categorization of the traditional theoretical approaches under one or the other route to persuasion is meant to be suggestive rather than absolute. For example, the theoretical process of self-perception (Bem 1972) might generally lead to attitude change because of a simple inference (peripheral route), but might also be capable of initiating extended issue-relevant thinking in other circumstances (e.g., when personal relevance is high; see Liebhart 1979). Additionally, we note that the view that there are different "kinds" of persuasion can be traced back to Aristotle's *Rhetoric*, and that the distinction we have made between the central and peripheral routes to attitude change has much in common with Kelman's (1961) earlier view of "internalization" vs. "identification" and with the recent psychological distinctions between "deep" vs. "shallow" processing (Craik and Lockhart 1972), "controlled" vs. "automatic" processing (Schneider and Shiffrin 1977), "systematic" vs. "heuristic" processing (Chaiken 1980), "thoughtful" vs. "scripted" or "mindless" processing (Abelson 1976; Langer et al. 1978), and others. For more details on similarities and differences among the approaches, see Petty and Cacioppo (forthcoming a).

²In the present paper, we use the term involvement to refer to "issue" or "product" involvement rather than "response" involvement. In the former, the attitude issue or the product itself has some direct personal relevance or consequence, and people are concerned with forming a reasoned opinion (Petty and Cacioppo 1979). In the latter, the attitude response is important, and people are more concerned with expressing an attitude that will produce immediate situational rewards (such as gaining favor with others) than with forming a veridical opinion (Zimbardo 1960).

sentation. Interestingly, some investigators have argued that television is a more involving medium than print (Worchel, Andreoli, and Eason 1975), whereas others have argued just the opposite (Krugman 1967).

A preferred procedure for studying involvement would be to hold recipient, message, and medium characteristics constant and randomly assign participants to high and low involvement groups. Apsler and Sears (1968) employed an ingenious method to manipulate involvement: some participants were led to believe that a persuasive proposal had personal implications for them (an advocated change in university regulations would take effect while the student participants were still in school), while others were led to believe that it did not (i.e., the change would not take effect until after the students had graduated). A variation of this procedure was developed by Wright (1973, 1974) to manipulate involvement in an advertising study. Participants in the high involvement group were told that they would subsequently be asked to evaluate the product in an advertisement they were about to see, and were given some additional background information. Participants in the low involvement group did not expect to evaluate the product and were given no background information. The background information provided to the high involvement subjects explained the relevance of their product decisions to "their families, their own time and effort, and their personal finances" (Wright 1973, p. 56). However, it is somewhat unclear to what extent this background information made certain product-relevant arguments salient or suggested appropriate dimensions of product evaluation for high but not low involvement subjects.

In the present experiment, participants in both the high and low involvement groups were told that they would be evaluating advertisements for products, but subjects in the high involvement group were led to believe that the experimental advertised product would soon be available in their local area, and that after viewing a variety of advertisements they would be allowed to choose one brand from the experimental product category to take home as a gift. Low involvement participants were led to believe that the experimental advertised product would not be available in their local area in the near future, and that after viewing the ads they would be allowed to take home one brand from a category of products other than the experimental category.

Theories of Involvement

In addition to the methodological differences that have plagued the involvement concept, another area of disagreement concerns the effects on persuasion that involvement is expected to have. Perhaps the dominant notion in social psychology stems from the Sherifs' social judgment theory (Sherif et al. 1965). Their notion is that on any given issue, highly involved persons exhibit more negative evaluations of a communication because high involvement is associated with an extended "latitude of rejection." Thus, incoming messages on involving topics are thought to have an enhanced probability of being rejected because they are more

likely to fall within the unacceptable range of a person's implicit attitude continuum. Krugman (1965) has proposed an alternative view that has achieved considerable recognition among consumer researchers. According to this view, increasing involvement does not increase resistance to persuasion, but instead shifts the sequence of communication impact. Krugman argues that under high involvement, a communication is likely to affect cognitions, then attitudes, and then behaviors, whereas under low involvement, a communication is more likely to affect cognitions, then behaviors, then attitudes (see also Ray et al. 1973).

As noted earlier, a focal goal of this study is to assess the viability of a third view of the effects of involvement on consumer response to advertisements. This view stems from our Elaboration Likelihood Model (ELM) of attitude change (Petty and Cacioppo 1981). The basic tenet of the ELM is that different methods of inducing persuasion may work best depending on whether the elaboration likelihood of the communication situation (i.e., the probability of message- or issue-relevant thought occurring) is high or low. When the elaboration likelihood is high, the central route to persuasion should be particularly effective, but when the elaboration likelihood is low, the peripheral route should be better. The ELM contends that as an issue or product increases in personal relevance or consequences, it becomes more important and adaptive to forming a reasoned and veridical opinion. Thus, people are more motivated to devote the cognitive effort required to evaluate the true merits of an issue or product when involvement is high rather than low. If increased involvement increases one's propensity to think about the true merits of an issue or product, then manipulations that require extensive issue- or product-relevant thought in order to be effective should have a greater impact under high rather than low involvement conditions. On the other hand, manipulations that allow a person to evaluate an issue or product without engaging in extensive issue- or product-relevant thinking should have a greater impact under low rather than high involvement.

Research in social psychology has supported the view that different variables affect persuasion under high and low involvement conditions. For example, the quality of the arguments contained in a message has had a greater impact on persuasion under conditions of high rather than low involvement (Petty and Cacioppo 1979; Petty, Cacioppo, and Heesacker 1981). On the other hand, peripheral cues such as the expertise or attractiveness of a message source (Chaiken 1980; Petty, Cacioppo, and Goldman 1981; Rhine and Severance 1970) have had a greater impact on persuasion under conditions of low rather than high involvement. In sum, under high involvement conditions people appear to exert the cognitive effort required to evaluate the issue-relevant arguments presented, and their attitudes are a function of this information-processing activity (central route). Under low involvement conditions, attitudes appear to be affected by simple acceptance and rejection cues in the persuasion context and are less affected by argument quality (peripheral route). Although the accumulated research in

social psychology is quite consistent with the ELM, it is not yet clear whether or not the ELM predictions would hold when involvement concerns a product (such as toothpaste) rather than an issue (such as capital punishment), and when the persuasive message is an advertisement rather than a speech or editorial.

Central and Peripheral Routes to Advertising Effectiveness

One important implication of the ELM for advertising messages is that different kinds of appeals may be most effective for different audiences. For example, a person who is about to purchase a new refrigerator (high involvement) may scrutinize the product-relevant information presented in an advertisement. If this information is perceived to be cogent and persuasive, favorable attitudes will result, but if this information is weak and specious, unfavorable attitudes will result (central route). On the other hand, a person who is not considering purchasing a new refrigerator at the moment (low involvement) will not expend the effort required to think about the product-relevant arguments in the ad, but may instead focus on the attractiveness, credibility, or prestige of the product's endorser (peripheral route). Some evidence in consumer psychology is consistent with this reasoning. For example, Wright (1973, 1974) exposed people to an advertisement for a soybean product under high and low involvement conditions (see earlier description) and measured the number of source comments (derogations) and message comments (counterarguments) generated after exposure. Although Wright (1974) predicted that involvement would increase both kinds of comments, he found that more message comments were made under high rather than low involvement, but that more source comments were made under low involvement conditions. This finding, of course, is consistent with the ELM.

In an initial attempt to provide a specific test of the utility of the ELM for understanding the effectiveness of advertising messages (Petty and Cacioppo 1980), we conducted a study in which three variables were manipulated: (1) the personal relevance of a shampoo ad (high involvement subjects were led to believe that the product would be available in their local area, whereas low involvement subjects were not); (2) the quality of the arguments contained in the ad; and (3) the physical attractiveness of the endorsers of the shampoo. Consistent with the ELM predictions, the quality of the arguments contained in the advertisement had a greater impact on attitudes when the product was of high rather than low relevance. Contrary to expectations, however, the attractiveness of the endorsers was equally important under both the high and low involvement conditions. In retrospect, in addition to serving as a peripheral cue under low involvement, the physical appearance of the product endorsers (especially their hair) may have served as persuasive visual testimony for the product's effectiveness. Thus, under high involvement conditions, the physical attractiveness of the endorsers may have served as a cogent product-relevant argument.

The present study was a conceptual replication of previous work (Petty and Cacioppo 1980), except that we employed a peripheral cue that could not be construed as a product-relevant argument. In the current study, participants were randomly assigned to high and low involvement conditions and viewed one of four different ads for a fictitious new product, "Edge disposable razors." The ad was presented in magazine format and was embedded in an advertising booklet along with 11 other ads. Two features of the Edge ad were manipulated: the quality of the arguments in support of Edge (strong or weak), and the celebrity status of the featured endorsers of Edge (celebrity or average citizen). It is important to note that preliminary testing revealed that for most people, the celebrity status of the endorsers was irrelevant to an evaluation of the true merits of a disposable razor, but that because the celebrity endorsers were liked more than the average citizens, they could still serve as a positive peripheral cue.

We had two major hypotheses. First, we expected the quality of the arguments presented in the ad to have a greater impact on product attitudes under high rather than low involvement conditions. Second, we expected the celebrity status of the product endorsers to have a greater impact on product attitudes under low rather than high involvement conditions. If these hypotheses were supported, it would provide the first evidence that the Elaboration Likelihood Model can contribute to understanding the effects of involvement on attitudinal responses to advertisements.

METHOD

Subjects and Design

A total of 160 male and female undergraduates at the University of Missouri-Columbia participated in the experiment to earn credit in an introductory psychology course; 20 subjects were randomly assigned to each of the cells in a 2 (involvement: high or low) \times 2 (argument quality: strong or weak) \times 2 (cue: celebrity or noncelebrity status) factorial design. Subjects participated in groups of three to 15 in a very large classroom. The subjects were isolated from each other so that they could complete the experiment independently, and subjects in a single session participated in different experimental conditions. In fact, if enough subjects were present it was possible to conduct all eight experimental conditions simultaneously. This procedure avoided confounding session with experimental condition.

Procedure

Two booklets were prepared for the study. The first contained the advertising stimuli and the second contained the dependent measures. The first page of the advertising booklet explained that the study concerned the evaluation of magazine and newspaper ads and that the psychology department was cooperating with the journalism school in this

endeavor. The first page also contained part of the involvement manipulation (see below). It was explained that each ad in the booklet was preceded by an introductory statement that told a little about the advertisement that followed (e.g., "The ——— company of Paris, France has just opened an American office in New York City. This élite men's clothing company originally sold clothing only in Europe, but is now in the process of attempting to enter the American market. The ad on the next page is one that they will be testing soon in Tampa, Florida before running the ads in other major cities that will eventually carry their products"). The instructions told subjects to continue through the booklet at their own pace and to raise their hands when finished. The ad booklet contained 10 real magazine ads for both relatively familiar (e.g., Aquafresh toothpaste) and unfamiliar (e.g., Riopan antacid) products, and two bogus ads. The sixth ad in each booklet was the crucial fictitious ad for Edge razors (the nature of the other bogus ad was varied but is irrelevant to the present study). When subjects had completed perusing their ad booklets, they were given a questionnaire booklet to complete. Upon completion of the questionnaire, the subjects were thoroughly debriefed, thanked for their participation, and dismissed.

Independent Variables

Involvement. Involvement was embedded in two places in the ad booklet. First, the cover page offered subjects a free gift for participation in the experiment. Subjects were either informed that they would be allowed to choose a particular brand of disposable razor (high involvement with the fictitious Edge ad) or that they would be allowed to choose a brand of toothpaste (low involvement with Edge). A toothpaste ad did appear in the ad booklet, but it was the same ad for all subjects. To bolster the involvement manipulation, the page that introduced the Edge ad also differed in the high and low involvement conditions. High involvement subjects were told that the advertisement and product would soon be test-marketed in medium-sized cities throughout the Midwest, including their own city (Columbia, Missouri); low involvement subjects were told that the advertisement and product were being test-marketed only on the East Coast. Thus high involvement subjects were not only led to believe that they would soon have to make a decision about the product class, they were also led to believe that the product would be available in their area in the near future. Low involvement subjects, on the other hand, did not expect to make a decision about razors (but did expect to make one about toothpaste), and were led to believe that Edge razors would not be available for purchase in their area in the foreseeable future.

Argument quality. A variety of arguments for disposable razors were pretested for potency on a sample of undergraduates. In the strong arguments ad, the razor was characterized as "scientifically designed," and the following five statements were made about the product:

- New advanced honing method creates unsurpassed sharpness
- Special chemically formulated coating eliminates nicks and cuts and prevents rusting
- Handle is tapered and ribbed to prevent slipping
- In direct comparison tests, the Edge blade gave twice as many close shaves as its nearest competitor
- Unique angle placement of the blade provides the smoothest shave possible

In the weak arguments version of the ad, the razor was characterized as "designed for beauty," and the following five statements were made about the product:

- Floats in water with a minimum of rust
- Comes in various sizes, shapes, and colors
- Designed with the bathroom in mind
- In direct comparison tests, the Edge blade gave no more nicks or cuts than its competition
- Can only be used once but will be memorable

Peripheral cue. In the "famous endorser" conditions, the headline accompanying the advertisement read "Professional Athletes Agree: Until you try new Edge disposable razors you'll never know what a really close shave is." In addition, the ad featured the pictures of two well-known, well-liked golf (male) and tennis (female) celebrities. In the "nonfamous endorser" conditions, the headline read "Bakersfield, California Agrees: ———," and the ad featured pictures of average looking people who were unfamiliar to the subjects. The average citizens in the ad were middle-aged and characterized as coming from California to minimize perceptions of similarity to the subjects (Missouri college students). Figure A depicts two of the four Edge ads used in the present study.

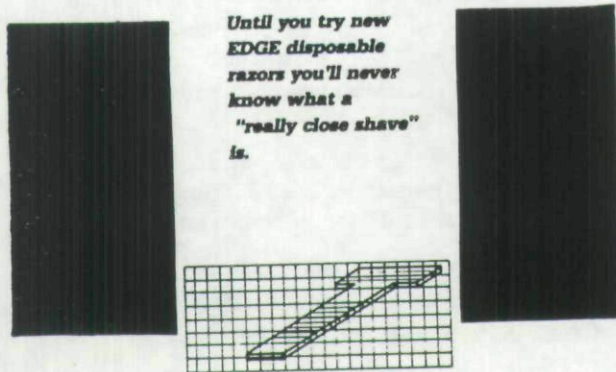
Dependent Measures

On the first page of the dependent variable booklet, subjects were asked to try to list all of the product categories for which they saw advertisements, and to try to recall the brand name of the product in that category. On the next page, subjects were given descriptions of the 12 product categories and were asked to select the correct brand name from among seven choices provided. Although we had no specific hypotheses about brand recall and recognition, these measures were included because of their practical importance and for purposes of comparison with the attitude data.

Next, subjects responded to some questions about one of the legitimate ads in the booklet; this was followed by the crucial questions about Edge razors. The questions about Edge were placed relatively early in the booklet to avoid subject fatigue and boredom and to maximize the effectiveness of the manipulations. Subjects were first asked to rate, on a four-point scale, how likely it would be that they would purchase Edge disposable razors "the next time you needed a product of this nature." The descriptions for each

FIGURE A
EXAMPLE MOCK ADS

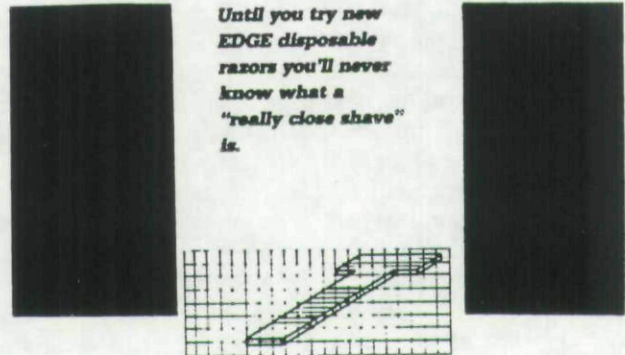
PROFESSIONAL ATHLETES AGREE



- Scientifically Designed
- New advanced honing method creates unsurpassed sharpness
- Special chemically formulated coating eliminates nicks and cuts and prevents rusting.
- Handle is tapered and ribbed to prevent slipping
- In direct comparison tests the EDGE blade gave twice as many close shaves as its nearest competitor.
- Unique angle placement of the blade provides the smoothest shave possible

GET THE EDGE DIFFERENCE!

BAKERSFIELD, CALIFORNIA AGREES



- Designed for Beauty
- Floats in water with a minimum of rust
- Comes in various sizes, shapes, and colors
- Designed with the bathroom in mind
- In direct comparison tests the EDGE blade gave no more nicks or cuts than its competition.
- Can only be used once but will be memorable

GET THE EDGE DIFFERENCE!

NOTE: Left panel shows celebrity endorser ad for Edge razors employing the strong arguments. Right panel shows average citizen endorser ad for Edge razors employing the weak arguments. Pictures of celebrities and citizens have been blacked out to preserve propriety and anonymity.

scale value were: 1 = "I definitely would not buy it," 2 = "I might or might not buy it," 3 = "I would probably buy it," and 4 = "I would definitely buy it." Following this measure of purchase intentions, subjects were asked to rate their overall impression of the product on three nine-point semantic differential scales anchored at -4 and +4 (bad-good, unsatisfactory-satisfactory, and unfavorable-favorable). Since the intercorrelations among these measures were very high (average $r = 0.86$), responses were averaged to assess a general positive or negative attitude toward the product.

Following some additional questions that were consistent with the cover story, subjects were instructed to list the thoughts that crossed their minds as they examined the ad for Edge disposable razors. These thoughts were subsequently scored on several dimensions by trained judges. Since subjects listed very few thoughts about the product ($M = 1.18$) and since the manipulations failed to affect this measure, it will not be discussed further. This "cognitive response" measure would probably have been more sensitive if it had been administered immediately after exposure to the Edge ad rather than after exposure to all 12 ads, but in the present study this would have compromised the cover story (for an extended discussion of the reliability, validity, and sensitivity of the thought-listing measure in persuasion research, see Cacioppo and Petty 1981).

After listing their thoughts, several questions were asked

to check on the experimental manipulations, and subjects were asked to try to list as many of the attributes mentioned in the ad about Edge razors as they could recall. Following the questions about Edge were several questions about some of the other products and ads in the booklet. As a check on the involvement manipulation, the very last question in the booklet asked subjects to recall the free gift they had been told to expect.

RESULTS

Manipulation Checks

In response to the last question in the dependent variable booklet asking subjects what gift they had been told to expect, 92.5 percent of the subjects in the high involvement conditions correctly recalled that they were to select a brand of disposable razor. In the low involvement conditions, none of the subjects indicated a razor and 78 percent correctly recalled that they were to select a brand of toothpaste. Thus, subjects presumably realized what product they were soon to make a decision about as they examined the ad booklet.

To assess the effectiveness of the endorser manipulation, two questions were asked. First, subjects were asked if they recognized the people in the ad for the disposable razor. When the famous athletes were employed, 94 percent in-

licated "yes," whereas when the average citizens were employed, 96 percent indicated "no." In addition, subjects were asked to rate the extent to which they liked the people depicted in the ad on an 11-point scale, where 1 indicated "liked very little" and 11 indicated "liked very much." An analysis of this measure revealed that the famous endorsers were liked more ($M = 6.06$) than the average citizens ($M = 3.64$; $F(1, 143) = 40.81, p < 0.0001$); on average, women reported liking the endorsers more ($M = 5.32$) than did men ($M = 4.44$; $F(1, 143) = 5.25, p < 0.03$).

As a check on the argument-persuasiveness manipulation, two questions were asked. The first required respondents to "rate the reasons as described in the advertisement for using EDGE" on an 11-point scale anchored by "unpersuasive" and "persuasive"; the second question asked them to rate the reasons on an 11-point scale anchored by "weak reasons" and "strong reasons." On the first measure, subjects exposed to the strong arguments rated them as significantly more persuasive ($M = 5.46$) than did subjects exposed to the weak arguments ($M = 4.03$; $F(1, 139) = 12.97, p < 0.0004$). Additionally, a main effect for gender was found such that women rated the arguments as more persuasive ($M = 5.26$) than did men ($M = 4.28$; $F(1, 139) = 5.25, p < 0.02$). Finally, an Arguments \times Gender interaction emerged ($F(1, 139) = 5.43, p < 0.02$), indicating that the tendency for females to find the arguments more persuasive than males was greater for the strong than for the weak arguments. On the second manipulation check measure, subjects rated the strong arguments as "stronger" ($M = 5.58$) than the weak ones ($M = 4.13$; $F(1, 138) = 14.31, p < 0.002$). Again, an Arguments \times Gender interaction occurred, indicating that females especially tended to rate the strong arguments more highly than did males. In short, all of the variables were manipulated successfully. The tendency for females to be more positive in their ratings of both endorsers and the arguments in the ads is generally consistent with previous psychological research portraying women as more concerned with social harmony than men (Eagly 1978). Importantly, these sex differences did not lead to any significant gender effects on the crucial measures of attitude and purchase intention.

Attitudes and Purchase Intentions

The Table presents the means and standard deviations for each cell on the attitude index. A number of interesting main effects emerged. First, involved subjects were somewhat more skeptical of the product ($M = 0.31$) than were less involved subjects ($M = 0.99$; $F(1, 148) = 6.64, p < 0.01$). Second, subjects liked the product significantly more when the ad contained cogent arguments ($M = 1.65$) than when the arguments were specious ($M = -0.35$; $F(1, 148) = 57.81, p < 0.0001$). Third, subjects tended to like the product more when it was endorsed by the famous athletes ($M = 0.86$) than by the average citizens of Bakersfield, California ($M = 0.41$; $F(1, 148) = 2.91, p < 0.09$).

TABLE
MEANS AND STANDARD DEVIATIONS FOR EACH
EXPERIMENTAL CELL ON THE ATTITUDE INDEX

	Low involvement		High involvement	
	Weak arguments	Strong arguments	Weak arguments	Strong arguments
Citizen endorser	-.12 (1.81)	.98 (1.52)	-1.10 (1.66)	1.98 (1.25)
Celebrity endorser	1.21 (2.28)	1.85 (1.59)	-1.36 (1.65)	1.80 (1.07)

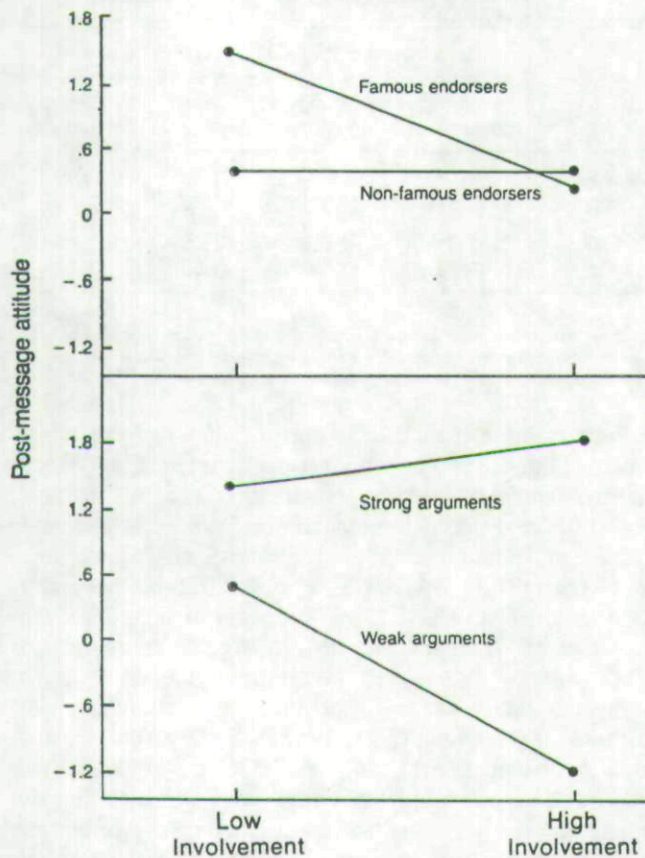
NOTE: Attitude scores represent the average rating of the product on three nine-point semantic differential scales anchored at -4 and +4 (bad-good, unsatisfactory-satisfactory, and unfavorable-favorable). Standard deviations are in parentheses.

Each of these main effects must be qualified and interpreted in light of two important two-way interactions. First, an Involvement \times Endorser interaction ($F(1, 148) = 5.94, p < 0.02$) revealed that the nature of the product endorser had a significant impact on product attitudes only under low involvement ($F(1, 148) = 5.96, p < 0.02$), but not under high involvement ($F < 1$; see top panel of Figure B). On the other hand, an Involvement \times Arguments interaction ($F(1, 148) = 18.47, p < 0.0001$) revealed that although argument quality had an impact on product attitudes under both low involvement ($F(1, 148) = 5.40, p < 0.02$) and high involvement ($F(1, 148) = 71.36, p < 0.0001$), the impact of argument quality on attitudes was significantly greater under high rather than low involvement (see bottom panel of Figure B). Neither the Endorser \times Arguments nor the three-way interaction approached significance ($F = 0.14$ and 0.54 , respectively).

Two significant effects emerged from the question asking subjects to rate their likelihood of purchasing Edge disposable razors the next time they needed a product of this nature. Subjects said that they would be more likely to buy the product when the arguments presented were strong ($M = 2.23$) rather than weak ($M = 1.68$; $F(1, 152) = 25.37, p < 0.0001$). Additionally, an Involvement \times Arguments interaction emerged ($F(1, 152) = 4.25, p < 0.04$). This interaction paralleled that obtained on the attitude measure and indicated that argument quality was a more important determinant of purchase intentions under high rather than low involvement.

The correlation between attitudes and purchase intentions for low involvement subjects was 0.36; and for high involvement subjects it was 0.59. Although both correlations are significantly different from zero ($ps < 0.001$), it is interesting to note that the low involvement correlation is considerably smaller than the high involvement correlation ($p < 0.07$). The fact that the argument quality manipulation affected behavioral intentions while the endorser manipulation did not (although it did affect attitudes)—and the fact that attitudes were better predictors of behavioral intentions under high rather than low involvement—provide some support for the ELM view that attitudes formed via the

FIGURE B
PRODUCT ATTITUDES



NOTE: Top panel shows interactive effect of involvement and endorser status on attitudes toward Edge razors. Bottom panel shows interactive effect of involvement and argument quality on attitudes toward Edge razors.

central route will be more predictive of behavior than attitudes formed via the peripheral route.

Recall and Recognition Measures

Subjects were asked to list all of the products for which they saw ads and all of the brand names they encountered. Following this, all subjects were told that they had seen an advertisement for a disposable razor and were asked to select the correct brand name from a list of seven (Gillette, Wilkinson, Schick, Edge, Bic, Schaffer, and Remington). The proportion of subjects showing correct recall or recognition was calculated for each cell. These proportions were then subjected to an arcsin transformation (Winer 1971) and analyzed by the procedure recommended by Langer and Abelson (1972).

The involvement manipulation had a significant impact on free recall of the product category, with more high involvement subjects (81 percent) recalling the product category than low involvement subjects (64 percent; $Z = 2.4$, $p < 0.02$). Additionally, exposure to the famous endorser increased recall of the product category under low involvement conditions (from 52 percent to 75 percent; $Z = 2.14$,

$p < 0.03$), but had no effect on product category recall under high involvement (80 versus 82 percent).

Involvement affected free recall of the brand name of the product, increasing it from 42 percent in the low involvement conditions to 60 percent in the high involvement conditions ($Z = 2.28$, $p < 0.01$). There was also an effect for gender on this measure, with males showing greater brand name recall (61 percent) than females (39 percent; $Z = 2.78$, $p < 0.007$). The endorser manipulation had a marginally significant effect on brand name recall, with the famous endorsers tending to enhance recall over average citizens from 43 to 58 percent ($Z = 1.89$, $p < 0.06$).

On the measure of brand name recognition, an interaction pattern emerged. Under low involvement, the use of famous endorsers reduced brand name recognition from 85 to 70 percent, but under high involvement, the use of famous endorsers improved brand name recognition from 77 to 87 percent ($Z = 1.96$, $p < 0.05$).³

To summarize the recall and recognition data thus far, it appears that increasing involvement with the product enhanced recall not only of the product category, but also of the brand name of the specific product advertised. The effects of the endorser manipulation were more complex and depended on the level of involvement. In general, under low involvement a positive endorser led to increased recall of the product category but reduced brand name recognition. Thus, people may be more likely to notice the products in low involvement ads when they feature prominent personalities, but because of the enhanced attention accorded the people in the ads and the general lack of interest in assessing the merits of the product (due to low involvement), reductions in brand recognition may occur. This finding is similar to the results of studies on the use of sexually oriented material in ads for low involvement products—the sexual material enhances recognition of the ad, but not the brand name of the product (e.g., Chestnut, LaChance, and Lubitz 1977; Steadman 1969). Under high involvement, however, the use of prominent personalities enhanced brand name recognition. When people are more interested in the product category, they may be more motivated to assess what brand the liked personalities are endorsing. The manipulation of argument quality had no effect on recall of the product category, brand name recall, or brand name recognition.

A final recall measure assessed how many of the specific

³Some authors have suggested that it may be appropriate to analyze dichotomous data using analysis of variance without biasing the results greatly (e.g., Winer 1971). We subjected our recall and recognition data (scored 0 or 1) to ANOVA, and the following significant effects were obtained. On the measure of recall of the product category, a main effect of involvement ($F(1, 152) = 6.42$, $p < 0.01$) and an involvement \times endorser interaction ($F(1, 152) = 3.28$, $p < 0.07$) were obtained. On the measure of brand name recall, main effects for involvement ($F(1, 145) = 6.34$, $p < 0.01$), gender ($F(1, 145) = 7.20$, $p < 0.008$), and endorser ($F(1, 145) = 3.49$, $p < 0.06$) were obtained. On the measure of brand name recognition, an involvement \times endorser interaction was obtained ($F(1, 152) = 4.04$, $p < 0.05$). This pattern of significant effects is identical to the significant pattern of effects reported in the text.

arguments for Edge razors the subjects could spontaneously recall after they had examined the entire ad booklet. Overall, subjects were able to correctly reproduce only 1.75 of the five arguments presented. This was not affected by any of the experimental manipulations.

Clearly, the manipulations produced a very different pattern of effects on the recall and recognition measures than on the attitude and purchase intention measures. In addition, the recall and recognition measures were uncorrelated with attitudes or intentions toward Edge razors. This finding is consistent with a growing body of research indicating that simple recall or recognition of information presented about an attitude object is not predictive of attitude formation and change (e.g., Cacioppo and Petty 1979; Greenwald 1968; Insko, Lind, and LaTour 1976).

The present data also argue against using measures of brand name recall or recognition as the sole indicants of advertising effectiveness. For example, in the present study, enhancing involvement led to a significant improvement in brand name recall, but increasing involvement led to a decrement in attitude toward the brand when the arguments presented were weak.

DISCUSSION

As we noted earlier, previous research on attitude formation and change has tended to characterize the persuasion process as resulting either from a thoughtful (though not necessarily rational) consideration of issue-relevant arguments and product-relevant attributes (central route), or from associating the attitude object with various positive and negative cues and operating with simple decision rules (peripheral route). Over the past decade, investigators in both social psychology and consumer behavior have tended to emphasize the former process over the latter. Consider the recent comments of Fishbein and Ajzen (1981, p. 359):

The general neglect of the information contained in a message . . . is probably the most serious problem in communication and persuasion research. We are convinced that the persuasiveness of a communication can be increased much more easily and dramatically by paying careful attention to its content . . . than by manipulation of credibility, attractiveness . . . or any of the other myriad factors that have caught the fancy of investigators in the area of communication and persuasion.

The present study suggests that, although the informational content of an advertisement may be the most important determinant of product attitudes under some circumstances, in other circumstances such noncontent manipulations as the celebrity status (likeability) or credibility of the product endorsers may be even more important. Specifically, we have shown that when an advertisement concerned a product of low involvement, the celebrity status of the product endorsers was a very potent determinant of attitudes about the product. When the advertisement concerned a product of high involvement, however, the celebrity status of the product endorsers had no effect on attitudes, but the cogency of the information about the product contained in

the ad was a powerful determinant of product evaluations.⁴ These data clearly suggest that it would be inappropriate for social and consumer researchers to overemphasize the influence of issue-relevant arguments or product-relevant attributes and ignore the role of peripheral cues. Each type of attitudinal influence occurs in some instances, and the level of personal involvement with an issue or product appears to be one determinant of which type of persuasion occurs.

According to the Elaboration Likelihood Model, personal relevance is thought to be only one determinant of the route to persuasion. Personal relevance is thought to increase a person's motivation for engaging in a diligent consideration of the issue- or product-relevant information presented in order to form a veridical opinion. Just as different situations may induce different motivations to think, different people may typically employ different styles of information processing, and some people will enjoy thinking more than others (Cacioppo and Petty 1982, forthcoming). However, a diligent consideration of issue- or product-relevant information requires not only the motivation to think, but also the ability to process the information. Thus situational variables (e.g., distraction; Petty, Wells, and Brock 1976) and individual difference variables (e.g., prior knowledge; Cacioppo and Petty 1980b) may also be important moderators of the route to persuasion. In the present study, subjects' ability to think about the product was held at a high level across experimental conditions—that is, the messages were easy to understand, the presentation was self-paced, and so on. Thus the primary determinant of the route to persuasion was motivational in nature.⁵

⁴Although not tested in the present study, the ELM predicts that under moderate involvement conditions, source information serves neither as a simple cue (as under low involvement) nor is it ignored (as under high involvement). Instead, source information helps a person determine how much thinking to do about the message (Petty and Cacioppo 1981, forthcoming a).

⁵An anonymous reviewer of this article took issue with our motivational interpretation of the effects of involvement and suggested that perhaps our effects resulted because our experimental task overtaxed our subjects' cognitive abilities. This suggestion assumes that subjects lacked the ability to evaluate both the source and the message, and therefore had to choose one over the other. We find this explanation implausible for several reasons. First, since the subjects paced themselves through the ad booklet, they could spend as much time as they wished evaluating each ad: the "overtaxed" explanation may thus be more plausible for research in which the message is externally paced. Second, our experiment included several checks on whether or not subjects attended to the source and message information. For example, all subjects were asked if they recognized and liked the endorsers appearing in the ad. If the reviewer's suggestion is correct, we would expect subjects in the high involvement group (who diligently processed the message content) to be less likely to report recognizing the endorsers in the ad, and hence to show less liking for the ad endorsers. However, the involvement manipulation failed to affect either the recognition or the liking measure. In fact, subjects in the high involvement group reported slightly (though not significantly) greater recognition and liking of the famous endorsers than did the low involvement subjects. Thus high involvement subjects were not overtaxed. They recognized and liked the famous endorsers to the same extent as did low involvement subjects. It is just that the product attitudes of the high involvement subjects were not affected by this liking, while the product attitudes of the low involvement subjects were.

It is important to note that although our "peripheral" manipulation was a source variable presented visually and our "central" manipulation was a message variable presented verbally, neither the source/message nor the visual/verbal dichotomy is isomorphic with the central/peripheral one. Thus a source variable may induce persuasion via the central route, and a message variable may serve as a peripheral cue. For example, in one study described previously (Petty and Cacioppo 1980), we observed that a physically attractive message endorser might serve as a cogent product-relevant argument for a beauty product. In another study (Petty and Cacioppo, forthcoming b), we found that the mere number of message arguments presented may activate a simple decision rule (the more the better) under low involvement, but not under high involvement, where argument quality is more important than number. Similarly, a "central" manipulation may be presented visually—e.g., depicting a kitten in an advertisement for facial tissue to convey the product-relevant attribute "softness" (Mitchell and Olson 1981)—and a "peripheral" manipulation may be presented verbally—e.g., providing a verbal description of a message source as an expert or as likeable (Chaiken 1980; Petty, Cacioppo, and Goldman 1981). The critical feature of the central route to persuasion is that an attitude change is based on a diligent consideration of information that a person feels is central to the true merits of an issue or product. This information may be conveyed visually, verbally, or in source or message characteristics. In the peripheral route, attitudes change because of the presence of simple positive or negative cues, or because of the invocation of simple decision rules which obviate the need for thinking about issue-relevant arguments. Stimuli that serve as peripheral cues or that invoke simple decision rules may be presented visually or verbally, or may be part of source or message characteristics.

In the present study, the overall pattern of results on the attitude and purchase intention measures is more consistent with the Elaboration Likelihood Model formulation than with the Sherif, Sherif, and Nebergall (1965) social judgment model or with Krugman's (1965, 1967) sequence model of involvement. Although increasing involvement did produce a main effect on the attitude measure (more resistance to the product under high rather than low involvement), as anticipated by social judgment theory, the more complicated interactions of endorser and argument quality with involvement cannot be accounted for by the theory. Thus the social judgment theory view that it is more difficult to change attitudes under high involvement is, at best, only partially correct, and is unable to account for the complete pattern of attitude data. The attitude and behavioral data are generally inconsistent with Krugman's sequence formulation. Krugman suggested that under high involvement, attitude change preceded behavior change, but that under low involvement, behavior change preceded attitude change. This reasoning would suggest that on immediate measures, attitudinal effects should be easier to detect than behavioral effects under high involvement, while behavioral effects should be easier to detect than at-

titudinal effects under low involvement. In the present study, both attitudinal and behavioral (intention) effects were observed under high involvement, which is consistent with both models. Under low involvement, however, effects were obtained on the measure of attitude but not on the measure of behavioral intentions. This finding is inconsistent with Krugman's formulation, which expects stronger behavioral effects under low involvement than under high involvement, but it is consistent with the ELM, which postulates a greater correspondence between attitudes and behaviors under high involvement (central route) than under low involvement (peripheral route).

In sum, the present study has provided support for the view that different features of an advertisement may be more or less effective, depending upon a person's involvement with it. Under conditions of low involvement, peripheral cues are more important than issue-relevant argumentation, but under high involvement, the opposite is true. The realization that independent variables may have different effects, depending on the level of personal relevance of a message, may provide some insight into the conflicting pattern of results that is said to characterize much attitude research. It may well be that attitude effects can be arranged on a continuum, depending on the elaboration likelihood of the particular persuasion situation. This continuum would be anchored at one end by the peripheral route and at the other end by the central route to persuasion. Furthermore, these two routes may be characterized by quite different antecedents and consequents. If so, future work could be aimed at uncovering the various moderators of the route to persuasion and at tracking the various consequents of the two different routes.

[Received March 1982. Revised April 1983.]

REFERENCES

- Abelson, Robert P. (1976), "Script Processing in Attitude Formation and Decision Making," in *Cognition and Social Behavior*, eds. John S. Carroll and John W. Payne, Hillsdale, NJ: Lawrence Erlbaum.
- Ajzen, Icek and Martin Fishbein (1980), *Understanding Attitudes and Predicting Social Behavior*, Englewood Cliffs, NJ: Prentice-Hall.
- Apsler, Robert and David O. Sears (1968), "Warning, Personal Involvement, and Attitude Change," *Journal of Personality and Social Psychology*, 9 (June), 162-166.
- Bem, Daryl J. (1972), "Self-Perception Theory," in *Advances in Experimental Social Psychology*, Vol. 6, ed. Leonard Berkowitz, New York: Academic Press, 2-57.
- Bettman, James R. (1979), "Memory Factors in Consumer Choice: A Review," *Journal of Marketing*, 43 (Spring), 37-53.
- Brock, Timothy C. and Sharon Shavitt (1983), "Cognitive Response Analysis in Advertising," in *Advertising and Consumer Psychology*, eds. Larry Percy and Arch Woodside, Lexington, MA: Lexington Books, 91-116.
- Burnkrant, Robert E. (1976), "A Motivational Model of Information Processing Intensity," *Journal of Consumer Research*, 3 (June), 21-30.

- and Alan G. Sawyer (1983), "Effects of Involvement and Message Content on Information Processing Intensity," in *Information Processing Research in Advertising*, ed. Richard Harris, Hillsdale, NJ: Lawrence Erlbaum.
- Cacioppo, John T. and Richard E. Petty (1979), "Effects of Message Repetition and Position on Cognitive Responses, Recall, and Persuasion," *Journal of Personality and Social Psychology*, 37 (January), 97-109.
- and Richard E. Petty (1980a), "Persuasiveness of Communications is Affected by Exposure Frequency and Message Quality: A Theoretical and Empirical Analysis of Persisting Attitude Change," in *Current Issues and Research in Advertising*, eds. James H. Leigh and Claude R. Martin, Ann Arbor, MI: University of Michigan, 97-122.
- and Richard E. Petty (1980b), "Sex Differences in Influenceability: Toward Specifying the Underlying Processes," *Personality and Social Psychology Bulletin*, 6 (December), 651-656.
- and Richard E. Petty (1981), "Social Psychological Procedures for Cognitive Response Assessment: The Thought Listing Technique," in *Cognitive Assessment*, eds. Thomas V. Merluzzi, Carol R. Glass, and Myles Genest, New York: Guilford Press, 309-342.
- and Richard E. Petty (1982), "The Need for Cognition," *Journal of Personality and Social Psychology*, 42 (January), 116-131.
- and Richard E. Petty (forthcoming), "The Need for Cognition: Relationships to Social Influence and Self Influence," in *Social Perception in Clinical and Counseling Psychology*, eds. Richard P. McGlynn, James E. Maddux, Cal D. Stoltenberg, and John H. Harvey, Lubbock, TX: Texas Tech Press.
- Chaiken, Shelly (1980), "Heuristic Versus Systematic Information Processing and the Use of Source Versus Message Cues in Persuasion," *Journal of Personality and Social Psychology*, 39 (November), 752-766.
- Chestnut, Robert W., Charles C. LaChance, and Amy Lubitz (1977), "The Decorative Female Model: Sexual Stimuli and the Recognition of Advertisements," *Journal of Advertising Research*, 6, 11-14.
- Cialdini, Robert B., Richard E. Petty, and John T. Cacioppo (1981), "Attitude and Attitude Change," *Annual Review of Psychology*, 32, 357-404.
- Craik, Fergus M. and Robert S. Lockhart (1972), "Levels of Processing: A Framework for Memory Research," *Journal of Verbal Learning and Verbal Behavior*, 11 (October), 671-684.
- Cummings, William H. and M. Venkatesan (1976), "Cognitive Dissonance and Consumer Behavior: A Review of the Evidence," *Journal of Marketing Research*, 13 (August), 303-308.
- Eagly, Alice H. (1978), "Sex Differences in Influenceability," *Psychological Bulletin*, 85 (January), 86-116.
- Engel, James F. and Roger D. Blackwell (1982), *Consumer Behavior*, Hinsdale, IL: Dryden Press.
- Festinger, Leon (1957), *A Theory of Cognitive Dissonance*, Stanford, CA: Stanford University Press.
- Fishbein, Martin and Icek Ajzen (1981), "Acceptance, Yielding, and Impact: Cognitive Processes in Persuasion," in *Cognitive Responses in Persuasion*, eds. Richard E. Petty, Thomas Ostrom, and Timothy C. Brock, Hillsdale, NJ: Lawrence Erlbaum, 339-359.
- Greenwald, Anthony G. (1968), "Cognitive Learning, Cognitive Response to Persuasion, and Attitude Change," in *Psychological Foundations of Attitudes*, eds. Anthony G. Greenwald, Timothy C. Brock, and Thomas Ostrom, New York: Academic Press, 147-170.
- Haines, George H. (1974), "Process Models of Consumer Decision Making," in *Buyer/Consumer Information Processing*, eds. G. David Hughes and Michael L. Ray, Chapel Hill, NC: University of North Carolina Press, 89-107.
- Hovland, Carl I., O. J. Harvey, and Muzifer Sherif (1957), "Assimilation and Contrast Effects in Reactions to Communication and Attitude Change," *Journal of Abnormal and Social Psychology*, 55 (September), 244-252.
- , Irving Janis, and Harold Kelley (1953), *Communication and Persuasion*, New Haven, CT: Yale University Press.
- Insko, Chester A., E. Allen Lind, and Stephen LaTour (1976), "Persuasion, Recall, and Thoughts," *Representative Research in Social Psychology*, 7, 66-78.
- Janis, Irving L., D. Kaye, and P. Kirschner (1965), "Facilitating Effects of 'Eating while Reading' on Responsiveness to Persuasive Communication," *Journal of Personality and Social Psychology*, 1 (February), 181-186.
- Kassarjian, Harold H. (1982), "Consumer Psychology," *Annual Review of Psychology*, 33, 619-649.
- and Waltraud M. Kassarjian (1979), "Attitudes under Low Commitment Conditions," in *Attitude Research Plays for High Stakes*, eds. John C. Maloney and Bernard Silverman, Chicago: American Marketing Association, 3-15.
- Kelman, Herbert C. (1961), "Processes of Opinion Change," *Public Opinion Quarterly*, 25 (Spring), 57-78.
- Kiesler, Charles A., Barry E. Collins, and Norman Miller (1969), *Attitude Change: A Critical Analysis of Theoretical Approaches*, New York: John Wiley.
- Krugman, Herbert E. (1965), "The Impact of Television Advertising: Learning without Involvement," *Public Opinion Quarterly*, 29 (Fall), 349-356.
- (1967), "The Measurement of Advertising Involvement," *Public Opinion Quarterly*, 30 (Winter), 583-596.
- Langer, Ellen J. and Robert P. Abelson (1972), "The Semantics of Asking a Favor: How to Succeed in Getting Help without Really Dying," *Journal of Personality and Social Psychology*, 24 (October), 26-32.
- , Arthur Blank, and Ben Zion Chanowitz (1978), "The Mindlessness of Ostensibly Thoughtful Action: The Role of 'Placebic' Information in Interpersonal Interaction," *Journal of Personality and Social Psychology*, 36 (June), 635-642.
- Lastovicka, John L. and David M. Gardner (1979), "Components of Involvement," in *Attitude Research Plays for High Stakes*, eds. John C. Maloney and Bernard Silverman, Chicago: American Marketing Association, 53-73.
- Liebhart, Ernst H. (1979), "Information Search and Attribution: Cognitive Processes Mediating the Effect of False Autonomic Feedback," *European Journal of Social Psychology*, 9, (January-March), 19-37.
- Lutz, Richard J. and James R. Bettman (1977), "Multiattribute Models in Marketing: A Bicentennial Review," in *Consumer and Industrial Buying Behavior*, eds. Arch Woodside, Jagdish Sheth, and Peter D. Bennett, New York: Elsevier North-Holland, 137-150.
- McGuire, William J. (1969), "The Nature of Attitudes and Attitude Change," in *The Handbook of Social Psychology*, Vol. 3, eds. Gardner Lindzey and Elliot Aronson, Reading, MA: Addison-Wesley, 136-314.
- (1976), "Some Internal Psychological Factors Influencing Consumer Choice," *Journal of Consumer Research*, 2 (March), 302-319.

- Miller, Norman, Geoffrey Maruyama, Rex Julian Beaber, and Keith Valone (1976), "Speed of Speech and Persuasion," *Journal of Personality and Social Psychology*, 34 (October), 615-624.
- Mitchell, Andrew A. and Jerry C. Olson (1981), "Are Product Attribute Beliefs the Only Mediator of Advertising Effects on Brand Attitude?" *Journal of Marketing Research*, 18 (August), 318-332.
- Mowen, John C. (1980), "On Product Endorser Effectiveness: A Balance Model Approach," in *Current Issues and Research in Advertising*, eds. James H. Leigh and Claude R. Martin, Ann Arbor, MI: University of Michigan, 41-57.
- Newman, Larry M. and Ira J. Dolich (1979), "An Examination of Ego-Involvement as a Modifier of Attitude Changes Caused from Product Testing," *Advances in Consumer Research*, Vol. 6, ed. William L. Wilkie, Ann Arbor, MI: Association for Consumer Research, 180-183.
- Petty, Richard E. and John T. Cacioppo (1979), "Issue Involvement Can Increase or Decrease Persuasion by Enhancing Message-Relevant Cognitive Responses," *Journal of Personality and Social Psychology*, 37 (October), 1915-1926.
- and John T. Cacioppo (1980), "Effects of Issue Involvement on Attitudes in an Advertising Context," in *Proceedings of the Division 23 Program*, eds. Gerald G. Gorn and Marvin E. Goldberg, Montreal, Canada: American Psychological Association, 75-79.
- and John T. Cacioppo (1981), *Attitudes and Persuasion: Classic and Contemporary Approaches*, Dubuque, IA: William C. Brown.
- and John T. Cacioppo (1983), "Central and Peripheral Routes to Persuasion: Application to Advertising," in *Advertising and Consumer Psychology*, eds. Larry Percy and Arch Woodside, Lexington, MA: Lexington Books, 3-23.
- and John T. Cacioppo (forthcoming a), *Attitude Change: Central and Peripheral Routes to Persuasion*, New York: Springer/Verlag.
- and John T. Cacioppo (forthcoming b), "The Effects of Involvement on Responses to Argument Quantity and Quality: Central and Peripheral Routes to Persuasion," *Journal of Personality and Social Psychology*.
- , John T. Cacioppo, and Rachel Goldman (1981), "Personal Involvement as a Determinant of Argument-Based Persuasion," *Journal of Personality and Social Psychology*, 41 (November), 847-855.
- , John T. Cacioppo, and Martin Heesacker (1981), "The Use of Rhetorical Questions in Persuasion: A Cognitive Response Analysis," *Journal of Personality and Social Psychology*, 40 (March), 432-440.
- , Thomas Ostrom, and Timothy C. Brock (1981), "Historical Foundations of the Cognitive Response Approach to Attitudes and Persuasion," in *Cognitive Responses in Persuasion*, eds. Richard E. Petty, Thomas Ostrom, and Timothy C. Brock, Hillsdale, NJ: Lawrence Erlbaum, 5-29.
- , Gary L. Wells, and Timothy C. Brock (1976), "Distraction Can Enhance or Reduce Yielding to Propaganda: Thought Disruption Versus Effort Justification," *Journal of Personality and Social Psychology*, 34 (November), 874-884.
- Ray, Michael L., Alan G. Sawyer, Michael L. Rothschild, Roger M. Heeler, Edward C. Strong and Jerome B. Reed (1973), "Marketing Communication and the Hierarchy of Effects," in *New Models for Mass Communication Research*, Vol. 2, ed. Peter Clarke, Beverly Hills, CA: Sage Publications, 147-176.
- Rhine, Ramon, and Laurence J. Severance (1970), "Ego-Involvement, Discrepancy, Source Credibility, and Attitude Change," *Journal of Personality and Social Psychology*, 16 (October), 175-190.
- Schlenker, Barry R. (1978), "Attitudes as Actions: Social Identity Theory and Consumer Research," *Advances in Consumer Research*, Vol. 5, ed. H. Keith Hunt, Ann Arbor, MI: Association for Consumer Research, 352-359.
- (1980), *Impression Management: The Self-Concept, Social Identity, and Interpersonal Relations*, Monterey, CA: Brooks/Cole.
- Schneider, Walter and Richard M. Shiffrin (1977), "Controlled and Automatic Human Information Processing: I. Detection, Search, and Attention," *Psychological Review*, 84 (January), 1-66.
- Scott, Carol A. (1978), "Self-Perception Processes in Consumer Behavior: Interpreting One's Own Experiences," *Advances in Consumer Research*, Vol. 5, ed. H. Keith Hunt, Ann Arbor, MI: Association for Consumer Research, 714-720.
- Sherif, Muzifer and Carl I. Hovland (1961), *Social Judgment*, New Haven: Yale University Press.
- Sherif, Carolyn W., Muzifer Sherif, and Roger E. Nebergall (1965), *Attitude and Attitude Change*, Philadelphia: Saunders.
- Steadman, Major (1969), "How Sexy Illustrations Affect Brand Recall," *Journal of Advertising Research*, 9 (1), 15-19.
- Sternthal, Brian and C. Samuel Craig (1974), "Fear Appeals: Revisited and Revised," *Journal of Consumer Research*, 1 (December), 22-34.
- Troutman, C. Michael and James Shanteau (1976), "Do Consumers Evaluate Products by Adding or Averaging Attribute Information," *Journal of Consumer Research*, 3 (December), 101-106.
- Winer, B. J. (1971), *Statistical Principles in Experimental Design*, New York: McGraw-Hill.
- Worchel, Stephen, Virginia Andreoli, and Joe Eason (1975), "Is the Medium the Message? A Study of the Effects of Media, Communicator, and Message Characteristics on Attitude Change," *Journal of Applied Social Psychology*, 5 (April-June), 157-172.
- Wright, Peter L. (1973), "The Cognitive Processes Mediating Acceptance of Advertising," *Journal of Marketing Research*, 10, (February), 53-62.
- (1974), "Analyzing Media Effects on Advertising Responses," *Public Opinion Quarterly*, 38 (Summer), 192-205.
- (1980), "Message-evoked Thoughts: Persuasion Research Using Thought Verbalizations," *Journal of Consumer Research*, 7 (September), 151-175.
- Zimbardo, Phillip (1960), "Involvement and Communication Discrepancy as Determinants of Opinion Conformity," *Journal of Abnormal and Social Psychology*, 60 (January), 86-94.

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