
Mary J. Bitner, Carl Obermiller (1985), "THE ELABORATION LIKELIHOOD MODEL: LIMITATIONS AND EXTENSIONS IN MARKETING", in *Advances in Consumer Research* Volume 12, eds. Elizabeth C. Hirschman and Moris B. Holbrook, Provo, UT : Association for Consumer Research, Pages: 420-425.

Advances in Consumer Research Volume 12, 1985 Pages 420-425

THE ELABORATION LIKELIHOOD MODEL: LIMITATIONS AND EXTENSIONS IN
MARKETING

Mary J. Bitner, University of Washington

Carl Obermiller, University of Washington

ABSTRACT -

The Elaboration Likelihood Model (Petty and Cacioppo 1981) is discussed as a framework for understanding attitude formation and change with regard to products and services. The model has a number of limitations, some general and some specifically relevant to applications in consumer behavior and marketing. These limitations are presented and discussed along with suggestions for research. Despite its underspecification, the model is seen as a useful framework and the authors propose a number of specific marketing mediators of elaboration likelihood.

In marketing a great deal of attention has been focused on attitude formation, attitude change and attitude measurement with respect to products and services. Since 1970, the literature reflects strong interest in the application and development of multiattribute attitude models (Wilkie and Pessemier 1973; Lutz 1981). Industry applications have also relied heavily on survey methodologies and multiattribute approaches to measure attitudes toward and preferences for products and services. The multiattribute method assumes that consumers can and do base their choice decisions on beliefs about product/service attributes. Marketing strategies evolving out of this approach to attitude formation focus on analyzing and communicating information about important product/service attributes.

At the same time there has been substantial research in marketing to suggest that there are external cues or internal psychological processes quite separate from careful consideration of specific product/service attributes that may influence consumers' attitudes. Halo effect phenomena (Beckwith and Lehmann 1975; Mitchell and Olson 1981), attitude change via classical conditioning (Gorn 1982), behavior modification (Nord and Peter 1980), mere exposure effects (Obermiller 1984), self-perception theory (Reingen and Kernan 1977), and the application of simple decision rules are examples of this view of attitude formation and change. Marketing strategies evolving out of this approach focus less on specific product/ service attributes and more on understanding the effects of contextual cues and heuristics on evaluation and decision making.

These two approaches to attitude formation and change can be classified under what Petty and Cacioppo (1981; 1983) refer to in their Elaboration Likelihood Model (ELM) as central and peripheral routes to persuasion. The model proposes that neither route alone can account for the diversity of observed attitude change phenomena, and that the important question is when each route is most likely to be followed. This paper discusses the ELM and its usefulness to the field of marketing as a framework for predicting how attitudes will be formed and changed in various situations. Limitations of the model are discussed and specific marketing mediators of elaboration likelihood are suggested.

THE ELABORATION LIKELIHOOD MODEL (ELM)

The ELM provides a framework for accounting for the diverse results observed in attitude change research. The model suggests that there are two routes to persuasion the central route and the peripheral route -- and that these two categories can account for all of the various theories of attitude change. In the central route, attitudes are formed and changed by careful consideration and integration of information relevant to the attitude object or issue. In the peripheral route, on the other hand, attitudes are formed and changed without active thinking about the object and its attributes, but rather by associating the object with positive or negative cues or by using cognitive "short cuts."

"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" (Petty, Cacioppo, and Schumann 1983, p. 136). The question thus becomes under what conditions is persuasion most likely via each of the two routes. In their model, Petty and Cacioppo suggest the persuasion will occur via the central route when elaboration likelihood is high, that is when a person is both motivated and able to process information about the attitude object. Elaboration likelihood will be low if either or both of the above conditions (motivation or ability) are not met and persuasion will then be more likely via the peripheral route.

Support for these hypotheses can be found in both the marketing and psychology literature. Most work to date has addressed the role of motivation as a mediator of elaboration likelihood, and thus the route to persuasion (Chaiken 1980; Gorn 1982; Johnson and Scileppi 1969; Petty and Cacioppo 1981, 1984; Petty, Cacioppo and Goldman 1981; Petty, Cacioppo and Schumann 1983). A few studies have addressed ability as a mediator of elaboration likelihood (Wood 1982; Chaiken and Eagley 1976; Regan and Cheng 1973; Cacioppo and Petty 1981; Petty, Wells and Brock 1976). In addition to ability and motivation, and individual difference variable, "need for cognition," has been shown to be a mediator of elaboration likelihood (Cacioppo, Petty and Morris 1983).

Petty and Cacioppo also hypothesize that there are differing consequences resulting from persuasion via the two routes. They believe that persuasion via the central route is both more enduring and more predictive of subsequent behavior than persuasion via the peripheral route. The source of these hypotheses is their analysis of past studies and there is at this point only weak support from indirect tests of hypotheses (Chaiken 1980; Petty, Cacioppo and Schumann 1983).

LIMITATIONS OF THE MODEL

Although we acknowledge the usefulness of ELM as a framework for conceptualizing attitude formation and change, we wish to argue for several limitations of significance in consumer research. These limitations are not intended as criticisms of the development of the ELM. Rather they indicate underspecifications of the model that leave important questions as yet unanswered. (One reviewer of this paper suggested that the ELM in its current form is an "anatomy" whereas we are pursuing a "physiology" of attitude formation and change. We presume this comment to mean that the ELM describes and categorizes, but lacks sufficient detail of the process to afford explanation. Our criticism may well be directed at the current state of understanding as a whole rather than specifically at the ELM.)

(1) Central cues, peripheral cues--which are which. Petty and Cacioppo are clear in their description of ELM as a framework based on the classification of processing styles not on the classification of objective cues. Marketers, however, control objective cues; and communication effectiveness would be greatly improved if the model could predict which cues would be processed in which way under particular sets of circumstances. As it stands, ELM describes the process that results from a motivational state, but it cannot predict the motivational state. Thus, one person will be motivated to process brand relevant information centrally, another will be less motivated and will process background music peripherally, still another may be highly motivated to process the music cue centrally.

Studies to date have relied on face validity to justify the relationship between operationalized cues and processing. Thus, number of arguments, background music, pleasantness of atmosphere have been used as relevant peripheral cues. Petty and Cacioppo acknowledge the weakness of such an approach. In one study they used model attractiveness as a peripheral cue in an ad for shampoo only to discover that subjects appeared to use attractiveness as "central" evidence of the shampoo's performance (Petty and Cacioppo 1980).

The difficulty is not limited to overlooking possible logical connections such as that between an attractive model's hair and shampoo performance. In an environment where attention is free to roam, many peripheral cues such as music, images, humor, may attract enough attention to elicit central processing of their own. The role of such elaborate, but irrelevant, processing in affect formation is not well understood and not currently addressable within the ELM.

The "central or peripheral" cue issue, then, has two parts. How does one predict which cues will be processed centrally, and what happens when a supposed peripheral cue is elaborated but not with respect to the persuasion object? An extremely valuable avenue of research would be an application of the ELM to the development of a normative model of communication structure that would identify which cues are processed centrally, which peripherally, under what conditions, and by whom. A later section of this paper suggests at a conceptual level variables that are likely to mediate elaboration likelihood and the route to persuasion in marketing situations.

A pilot study reported elsewhere (Obermiller and Bitner 1984) begins to address these questions. In the study we have specifically identified atmosphere as an important peripheral cue for

product evaluations, and purchase orientation ("shopping" versus "browsing") as a determinant of motivation. The results of that study showed that a pleasant atmosphere enhances product evaluations when subjects are in a low state of motivation ("browsing"), but that pleasantness of atmosphere has no effect on product evaluations when subjects are motivated ("shopping") as the ELM predicts. Although the study does not address the core problem of how to know in advance that atmosphere will act as a peripheral cue, the results contribute to our knowledge of how and when atmosphere may operate as a peripheral cue to influence our attitudes toward products.

(2) How does peripheral processing influence affect? ELM combines a variety of effects under the category of peripheral processing. These effects may, in fact, result from quite different processes. On one hand, peripheral effects may result from cognitive "short cuts." For example, not motivated enough to consider message points, an individual bases her attitude on source characteristics. Her information processing center is a miser that decides, "I'm not very interested in this issue, so, rather than waste effort on developing a well-considered attitude, I'll base my affective response on a source cue." On the other hand, peripheral effects may result from more directly affective process, which may be more or less conscious. A physically repulsive lawyer may have difficulty attracting clients regardless of ability. The negative effect associated with physical appearance is a simple affective response, not a cognitive short cut. Other less conscious affective responses may result from classical conditioning and mere exposure. Since the cognitive short cuts imply a low degree of object relevant cognitive activity and direct affective responses imply almost no cognitive activity, ELM may be underspecified in grouping the two types of processing together. This possibility is suggested by Greenwald and Leavitt (1984) in their separation of levels of involvement into four categories: preattention, focal attention, comprehension and elaboration. Preattention and focal attention represent distinctly different processes of elaboration, yet the ELM implies that both levels of involvement would result in "Peripheral processing."

(3) Are there differences in the strengths of peripherally and centrally processed attitudes? A direct implication of the preceding discussion is the question of differing strengths of resulting attitudes. Petty and Cacioppo argue that peripheral results in less durable, less forceful attitudes that are less predictive of behavior. Their prediction is consistent with a model that presents affect as a cognitive structure that can be more or less integrated with an object representation, thus more or less durable and forceful. Greenwald and Leavitt (1984) are in agreement. Their principle of "higher level dominance" posits that effects of more elaborate processes will dominate the effects of less elaborate processes given equal numbers of repetition. The equal repetition constraint is an important one since peripheral processing is typically associated with many exposures, central processing with few. Another possibility is a model incorporating another construct, confidence in attitude, such that attitudes based on peripheral cues are held with less confidence. An altogether different model is argued by Zajonc (1980; with Markus 1982), who maintains that attitudes based on directly affective responses may be more durable and more forceful than attitudes that result from thoughtful consideration, particularly because they are less susceptible to change by central processing. Petty and Cacioppo (1981) present post hoc support for their hypothesis, but no direct test has been conducted.

We propose two approaches to researching the question of relative attitude strength and predictability of behavior. The first is a straightforward between subjects tests. One group would

receive a positive central processing manipulation followed by a negative peripheral processing manipulation. The extent and durability of change would be compared with a second group that received the manipulations in the opposite order. Such a test would address the relative resistance of attitudes developed centrally and peripherally. Behavioral measures could also be taken in each case to compare relative attitude-behavior consistencies.

The second approach would be to select objects with existing attitudes formed largely from either central or peripheral processes. For example Zajonc and Markus (1982) suggest that our attitudes toward some foods are acquired early in life primarily through affective (or peripheral) associations. On the other hand, attitudes toward expensive products such as cars and houses are likely to result from central processing of specific product-relevant information. Several objects of each type could be selected and their relative resistances could then be assessed by subjecting each to change strategies.

(4) Are peripheral and central processing interactive. ELM presents the two routes as alternatives. Of particular interest to marketers is the question of separate main effects versus interaction. Petty and Cacioppo (1981) suggest an interaction: If central processing occurs first, peripheral processing is irrelevant, but if peripheral processing occurs first, it may lead to central processing. Their reasoning recalls the hierarchy of effects model of low involvement learning (Ray 1973). Advertising may work through low involvement by creating very weak preferences (peripheral effects) that induce purchase, which leads to strong attitudes based on experience (central effects). Another attractive hypothesis is that peripheral processing may have a main effect in addition to central processing. If central processing results in nearly equal preferences for alternatives, peripheral effects may be marginally determinant. For many product categories objective differences, even advertising claim differences, are small, and preferences may well result from peripheral effects.

Research addressing this question might involve the selection (by "expert" judges or through another procedure) of several brands of a product that are determined to be essentially the same in their central, product-relevant characteristics. Peripheral cues such as music, endorser characteristics, or atmosphere could then be varied systematically to explore whether such peripheral cues can significantly alter the evaluations of essentially similar products and when this is most likely to be true. Image advertising of products such as beer and soft drinks would suggest that marketers believe that peripheral cues are the determinants of preference when objective cues are approximately equal.

(5) Can the central processor make do with peripheral cues? What happens when one is highly motivated to process thoughtfully but there is no "useful" information to process? ELM suggests two possibilities. The first is that "useful" is a subjective criterion. A given individual may be psycho-logical even if she bypasses information and relies on attractiveness of background music in forming her attitude. There may, however, be a consensus about which cues are objectively central and which are not. In the absence of central cues, ELM further suggests that self-generated thoughts about the issue will determine attitude via central processing. Yet, we would contend that consumers frequently face evaluation situations in which neither alternative is quite acceptable--when motivation is high, when useful central cues are absent, and when existing issue attitudes are insufficient to generate own thoughts of consequence. When judging

a professional service, an expensive, unfamiliar product, even a new restaurant, consumers may be forced to form evaluations without objectively useful information and without useful prior attitudes. In such cases, consumers may well rely on peripheral cues--decor, physical features and personality traits, information source characteristics--but not on peripheral process. When nothing else is available, consumers may elaborate cues that would, otherwise, be peripheral. Does such elaboration lead to durable, forceful attitudes? A more likely hypothesis is that consumers hold attitudes with varying confidences depending on the basis of the attitudes. An evaluation of an insurance agent, based upon the pleasantness of the office, should be held with little confidence regardless of any amount of elaboration of that cue. On the other hand, a comparison of premiums, data on claims honored, or past experience should lead to an attitude held with confidence even with minimal elaboration. Confidence in attitudes is an important construct that is related to the notions of central and peripheral cues, but it probably results from an interaction between the elaboration process and the nature of the cues. ELM could be modified by research on the usefulness or the confidence in inferences drawn from various types of informational cues. (Consideration of Olson's (1972) concept of cue utilization in terms of ELM may be of a Profitable first step.)

EXTENDING ELM'S USEFULNESS IN MARKETING

While the ELM has limitations, we believe it is an attractive framework for further research and application. An intuitively appealing feature of the ELM is that it doesn't force acceptance of only one view of attitude formation and change, but rather it directs researchers toward understanding the circumstances under which each of the two routes to attitude formation and change is most likely. For marketers, a better understanding of these specific circumstances would be very useful to explaining the diversity of consumer behavior and for designing marketing strategies appropriate to varied circumstances.

Most support for the ELM has focused on the role of personal involvement as a mediator of elaboration likelihood and thus as a determining factor in the route to persuasion. However, as Petty and Cacioppo (1983, p. 22) suggest, "there are a variety of determinants of the route to persuasion," by which they imply that there are a number of factors in addition to personal involvement that may affect motivation and ability to process central cues.

A useful line of research in marketing would be to categorize the various determinants of the routes to persuasion for products and services. We propose that in a marketing context, motivation and ability will be influenced by situational variables, person variables, product category variables, and their interactions as illustrated in Figure 1. Situation, person, and situation/ person interactions have all been used to explain consumer responses (see Punj and Stewart 1983 for a review). Here the situation and the product are proposed as separate influencing variables because of the importance of the product as the primary object to which the consumer is responding. Separation of the two concepts was also suggested by Belk (1975).

FIGURE 1

MARKETING MEDIATORS OF ELABORATION LIKELIHOOD

TABLE 1

SPECIFIC MARKETING MEDIATORS OF ELABORATION LIKELIHOOD

Specific examples of marketing variables that may lead to high or low elaboration likelihood are described below and summarized in Table 1. Although the discussion focuses on main effects, the arrows at the top of Figure 1 suggest that there will be interactions among the categories as well.

Situational Variables

In addition to personal involvement, other situational variables such as purchase orientation ("shopping" v. "browsing"), time pressure, irreversibility of the decision, and personal accountability may influence elaboration likelihood (EL). When a person is under time pressure to make an evaluation or purchase, EL will be low because the person simply doesn't have time to engage in effortful cognitive activity. The consumer will often rely on peripheral cues in making judgments about products under these circumstances. On the other hand, when there is no time pressure, a consumer is more apt to rely on central cues, unless for some other reason he or she is not motivated to do so. Research by Wright (1974; 1977) suggests that these hypotheses would be supported if tested in the context of the ELM. In the organizational decision-making environment, Beach and Mitchell (1978) have suggested a number of situational variables that may affect how a person makes a decision. At least two of these--irreversibility of the decision and personal accountability--are likely to apply in the consumer persuasion context as well. For example, when a purchase decision cannot be reversed (an expensive product that cannot be returned, or a vacation trip), a consumer may be more likely to engage in cognitive activity (EL high) and thus be persuaded via central cues than when the decision can be reversed. Similarly, when a person will be held accountable for a decision (as in industrial purchasing) she will probably be motivated to process all possible central cues.

Person Variables

Person variables may also influence whether EL is high or low. For example, Cacioppo, Petty and Morris (1983) suggest that persons high in "need for cognition" may simply enjoy thinking more than others and thus be more responsive to central cues no matter what the situation. Similarly, individuals may be more or less sensitive to a particular peripheral cue such as source credibility or environmental pleasantness causing these variables to vary in relative persuasiveness based on individual differences in such traits as locus of control or need for stimulation. Another person variable that may influence EL is knowledge with respect to the stimulus. A person who is an expert with respect to a particular type of product is likely to process central cues because it is easy to do so and because he or she is interested in the product category. On the other hand, ignorant consumers may not process central cues simply because they do not have the ability to do so. Cacioppo and Petty (1981) suggest as much by showing that apparent sex differences in the relative influence of central and peripheral cues actually are a function of knowledge of the subject matter.

Product Category Variables

Certain product category variables may also influence EL. For example, for many intangible products, EL may be low simply because people are not able to evaluate central cues either because they are not available or because they are difficult to comprehend and evaluate. Most professional services would be examples of this phenomenon since central cues are often not available and peripheral cues such as personal appearance and office environment may be relied upon. Furthermore, even if central cues are available, the average person may not have a sufficiently developed schema for, say, legal services, and thus may be unable to interpret the central cues in a meaningful manner.

Because many intangible products are largely experiential in nature (restaurants, hotels, hairdressers, lawyers, doctors), pre-purchase attitudes are often formed on the basis of what would normally be thought of as peripheral cues -- appearance of the facility and personnel, odors, lighting, other customers in the facility. What is not clear, however, is whether these cues operate as peripheral cues or whether they are central cues in such situations.

Other product variables may also influence EL. For high risk products such as medical services, medicines, or safety equipment, people will be highly motivated to make the right judgment and therefore will be willing to engage in effortful cognitive activity. Unfortunately, central cues may be unavailable or difficult to evaluate in such cases so people may still rely on peripheral cues. For low risk products, on the other hand, there is likely to be little motivation to carefully evaluate product attributes resulting in low EL and persuasion via peripheral cues.

EL is likely to be high for both relatively expensive products and shopping goods. In both cases consumers will be motivated to process central cues because of the importance of the purchase. On the other hand, they are not likely to be motivated to process central cues in the case of impulse purchases where persuasion and evaluation are likely to be influenced by peripheral cues such as location of the product in the store, or on the shelf, and packaging. For most people, EL will be low for highly complex products because the average person will not have a fully developed schema with which to relate the multitude of central cues. If the complex product is also very expensive (a computer), or high risk (medical drugs), however, the consumer may be highly motivated to develop such a schema prior to purchase.

CONCLUSION

The work of Petty and Cacioppo represents an insightful synthesis of divergent research streams in attitude formation and change. Our discussion of limitations of the model in the first part of this paper should be viewed as suggestions for further development of the model rather than fault-finding. We suggest that with respect to the EL! the following questions remain unanswered:

- (1) Central cues, peripheral cues--which are which?
- (2) How does peripheral processing influence affect?
- (3) Are there differences in the strengths of peripherally and centrally processed attitudes?

(4) Are peripheral and central processing interactive?

(5) Can the central processor make to with peripheral cues?

Avenues of research are proposed that may begin to address these questions and thus increase understanding of the model.

Similarly, the discussion of the framework presented in Table 1 is offered as an extension of the ELM to marketing applications by directing researchers toward exploring specifically what determines motivation and ability in product evaluations. In doing so we have implicitly accepted Petty and Cacioppo's underlying model and are seeking to increase understanding in a particular behavioral area (product/service evaluation) by being more specific about what determines ability and motivation in that context.

Research directed at answering one of the five questions or at developing greater understanding of the variables presented in Table 1 would increase the usefulness of the ELM for marketing applications. Such research is built on an acceptance of Petty and Cacioppo's basic model and is intended to extend and develop it further in the context of product/service evaluations.

REFERENCES

Beach, Lee Roy and Terence R. Mitchell (1978), "A Contingency Model for the Selection of Decision Strategies," *Academy of Management Review*, 3 (July), 439-449.

Beckwith, Neil E. and Donald R. Lehmann (1975), "The Importance of Halo Effects in Multi-Attribute Attitude Models," *Journal of Marketing Research*, Vol. 12 (August), 265-175.

Belk, Russell W. (1975), "Situational Variables and Consumer Behavior," *Journal of Consumer Research*, Vol. 2 (December), 157-164.

Cacioppo, John T. and Richard E. Petty (1980), "Sex Differences in Influence-ability: Toward Specifying the Underlying Process," *Personality and Social Psychology Bulletin*, Vol. 6, No. 4, 651-656.

Cacioppo, John T., Richard E. Petty and Katherine J. Morris (1983), "Effects of Need for Cognition on Message Evaluations Recall and Persuasion," *Journal of Personality and Social Psychology*, Vol. 45, No. 4, 805-818.

Chaiken, Shelly (1980), "Heuristic Versus Systematic Information Processing and the Use of Source Versus Message Cues in Persuasion," *Journal of Personality and Social Psychology*, Vol. 39, No. 5, 752-766.

Chaiken, Shelly and Alice H. Eagly (1976), "Communication Modality as a Determinant of Message Persuasiveness and Message Comprehensibility," *Journal of Personality and Social Psychology*, Vol. 34, No. 4, 605-614.

Donovan, Robert and John Rossiter (1982), "Store Atmosphere: An Environmental Psychology Approach," *Journal of Retailing*, Vol. 58, No. 1 (Spring), 35-57.

Gorn, Gerald J. (1982), "The Effects of Music in Advertising on Choice Behavior: A Classical Conditioning Approach," *Journal of Marketing*, Vol. 46 (Winter), 94-101.

Greenwald, Anthony G. and Clark Leavitt (1984), "Audience Involvement in Advertising: Four Levels," *Journal of Consumer Research*, Vol. 11, No. 1 (June), 581-592.

Johnson, Homer H. and John A. Scileppi (1969), "Effects of Ego-Involvement Conditions on Attitude Change to High and Low Credibility Communicators," *Journal of Personality and Social Psychology*, Vol. 13, No. 1, 31-36.

Kotler, Phillip (1973), "Atmosphere as a Marketing Tool," *Journal of Retailing*, Vol. 49, No. 4 (Winter), 48-64.

Lutz, Richard J. (1981), "Lessons Learned From a Decade of Multiattribute Attitude Research in Marketing," working paper series, Center for Marketing Studies, University of California, Los Angeles, Paper No. 111.

Markin, Rom, Chalres Charles Lillis and them Narayana (1976), "Social-Psychological Significance of Store Space," *Journal of Retailing*, Vol. 52, No. 1 (Spring), 43-54, 94.

Maslow, A.L. and N.L. Mintz (1956), "Effects of Esthetic Surroundings," *Journal of Psychology*, Vol. 41, 247-254.

Milliman, Ronald (1981), "Using Background Music to Affect the Behavior of Supermarket Shoppers," *Journal of Marketing*, Vol. 46, No. 3 (Summer), 86-91.

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*, Vol. 18 (August), 318-332.

Nord, Walter R. and J. Paul Peter (1980), "A Behavior Modification Perspective on Marketing," Vol. 44 (Spring), 36-47.

Obermiller, Carl (1984), "Varieties of Mere Exposure: Effects of Processing Style on Affect Formation," *Journal of Consumer Research*, forthcoming.

Obermiller, Carl and Mary J. Bitner (1984), "Store Atmosphere: A Peripheral Cue in Product Evaluations," American Psychological Association Annual Conference Proceedings, Consumer Psychology, Division 23, forthcoming.

Olson, Jerry (1972), "Cue Utilization in the Quality Perception Process," unpublished doctoral dissertation, Purdue University.

Petty, Richard E. and John T. Cacioppo (1980), "Issue Involvement as a Moderator of the Effects on Attitude of Advertising Content and Context," *Advances in Consumer Research*. Vol. 8, 20-24.

Petty, Richard E. and John T. Cacioppo (1981), *Attitudes and Persuasion: Classic and Contemporary Approaches*, Dubuque, Iowa: William C. Brown Company Publishers.

Petty, Richard E. and John T. Cacioppo (1983), "Central and Peripheral Routes to Persuasion: Application to Advertising," in *Advertising and Consumer Psychology*, Larry Percy and Arch G. Woodside (eds), Lexington Books, D.C. Heath and Company.

Petty, Richard E. and John T. Cacioppo (1984), "The Effects of Involvement on Responses to Argument Quantity and Quality: Central and Peripheral Routes to Persuasion." *Journal of Personality and Social Psychology*, Vol. 46, No. 1., 69-81.

Petty, Richard E., John T. Cacioppo, and Rachel Goldman (1981), "Personal Involvement as a Determinant of Argument-Based Persuasion," *Journal of Personality and Social Psychology*, Vol. 41, No. 5, 847-855.

Petty, Richard E., John T. Cacioppo, and David Schumann (1983), "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement," *Journal of Consumer Research*, Vol. 10 (September), 135-146.

Petty, Richard E., 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*, Vol. 34, No. 5, 874-884.

Punj, Girish N. and David W. Stewart (1983), "An Interaction Framework of Consumer Decision Making," *Journal of Consumer Research*, Vol. 10 (September), 181-197.

Ray, Michael (1973), "Marketing Communications and the Hierarchy of Effects," in *New Models for Mass Communication Research*, M.P. Clarke (ed), Beverly Hills, CA: Sage Publications.

Regan, Dennis and Joan B. Cheng (1973), "Distraction and Attitude Change: A Resolution," *Journal of Experimental Social Psychology*, Vol. 9, 138-147.

Reingen, Peter and J. Kernan (1977), "Compliance with an Interview Request: A Foot-in-the-Door, Self-Perception Interpretation," *Journal of Marketing Research*, 14, 365-69.

Wilkie, William L. and Edgar A. Pessemier (1973), "Issues in Marketing's Use of Multi-Attribute Attitude Models," *Journal of Marketing Research*, Vol. 10 (November), 428-441.

Wood, Wendy (1982), "Retrieval of Attitude-Relevant Information from Memory: Effects on Susceptibility to Persuasion and on Intrinsic Motivation," *Journal of Personality and Social Psychology*, Vol. 42, No. 5, 798-810.

Wright, Peter (1974), "The Harrasses Decision Maker: Time Pressure, Distractions and the Use of Evidence," *Journal of Applied Psychology*, 59 (November), 555-561.

Wright, Peter (1977), "Time Horizon Effects on Product Evaluation Strategies," *Journal of Marketing Research*, Vol. 14 (November), 429-443.

Zajonc, Robert (1980), "Feeling and Thinking: Preferences Need no Inferences," *American Psychologist*, 35, 151-175.

Zajonc, Robert and Hazel Markus (1982), "Affective and Cognitive Factors in Preferences," *Journal of Consumer Research*, 9, 123-131.
