Central and Peripheral Routes to Persuasion: The Role of Message Repetition

John T. Cacioppo  
*University of Iowa*

Richard E. Petty  
*University of Missouri-Columbia*

INTRODUCTION

People are subjected to a nearly constant barrage of persuasive appeals. Prior to fully awakening, individuals are exposed to radio announcers proclaiming the merits of various wares, television news programs that are all too frequently interrupted by flashy exhibitions of products, packages adorned with appeals regarding their contents, newspapers replete with announcements of seemingly never-ending sales, and billboards designed to change how you feel toward items ranging from toothpaste to political candidates. Apparently, people's exposure to persuasive appeals does not lessen as the day continues, either. Recent estimates place the average American as the target of over 1500 persuasive appeals per day from national advertisers alone (Will, 1982).

Given the costs involved in designing, testing, and producing effective communications, and the fact that the vast majority of the target audience is not exposed to any single presentation of an appeal, *repeated* presentations of persuasive communications are commonplace. In this chapter, we consider the cognitive and attitudinal effects of repeatedly presenting either the same or similar persuasive communications to individuals over a short period of time. There are several suppositions underlying our analysis that should be stated at the outset. First, given people's limited capacity for processing information and the deluge of persuasive communications to which people are exposed daily, we have assumed that people have neither the capability nor
the motivation to attend to and deliberate upon all of the appeals to which they are exposed. In this regard, we are in agreement with Miller, Maruyama, Beaber, and Valone (1976), who noted almost a decade ago that:

it may be irrational to rationally 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 processes from the exigencies of daily life (p. 623).

We have also assumed, however, that individuals have neither the luxury of being able to, nor apparently the inclination to, ignore all these appeals. Anecdotal support for this assumption can be found in social phenomena such as a thriving multi-billion dollar advertising industry, the continued popularity and impact of religious orations, and the increasingly effective use of social surveys to tailor the appeals and appearances of political candidates to the electorate. Experimental support for this assumption is abundant in social psychology, where people have been found to express more agreement to appeals, even when the appeal has little personal relevance, when the communicator speaks quickly (Miller et al., 1976), the appeal emanates from an expert (Petty, Cacioppo, & Goldman, 1981) or attractive communicator (Choi, 1979; Norman, 1976), celebrities endorse the product (Petty, Cacioppo, & Schumann, 1983), and so forth (for a recent review, see Petty & Cacioppo, 1981).

THE ELABORATION LIKELIHOOD MODEL OF PERSUASION

Several years ago, we outlined a framework with which to organize social psychological research on persuasion (Perry & Cacioppo, 1980, 1981). In this model, which is presented in Fig. 4.1, recipients are viewed as being neither invariably cognitively nor universally mindless when dealing with persuasive appeals, but rather various factors, and combinations of factors, are viewed as determining people's motivation and ability to think carefully about the merits of the arguments for a recommendation. When conditions foster people's motivation and ability to engage in issue-relevant thinking, the elaboration-likelihood is said to be high. This means that people are likely to: (a) attend to the appeal; (b) attempt to access relevant associations, images, and experiences from memory; (c) scrutinize and elaborate upon the externally provided message arguments in light of the associations available from memory; (d) draw inferences about the merits of the arguments for a recommendation based upon their analysis of the data extracted from the appeal and ac-

![Fig. 4.1. The elaboration-likelihood model of attitude change. (Adapted from Petty & Cacioppo, 1981.)](image-url)
and accessible evaluation of the object, making it more likely that the measured attitude will be accessible at the point of behavior; and (c) considered appropriate actions regarding the attitude object across a wide range of personally relevant settings, minimizing the need for individuals to reconsider their attitude when faced with the costs of a relevant behavior.

As factors in the persuasive setting reduce the recipients' motivation or ability to think about an issue—and as example occurs when recipients view the appeal as being personally inconsequential (Petty & Cacioppo, 1979a, b), are engaged in a distracting task during their exposure to the appeal (Petty, Wells, & Brock, 1976), or possess little prior knowledge on the issue (Cacioppo & Petty, 1980b; Wood, 1982)—there is a reduction in the likelihood that the recipients will relate the incoming information to their prior knowledge about and experiences with the attitude object in an effort to evaluate the merits of the arguments for the recommendation. The notion is that when elaboration likelihood is low, recipients will either conserve their cognitive resources (e.g., napping during personally inconsequential television advertisements) or expend cognitive resources on another task (e.g., searching for a snack during the advertisement). If elaboration likelihood is near zero, then little or no attitude change will be forthcoming. If the elaboration likelihood is low (but not near zero), recipients adopt a strategy wherein they are more likely to attempt to derive a "reasonable" attitude based upon a superficial analysis of the recommendation. That is, when elaboration likelihood is low, the acceptance or rejection of the appeal is not based on the careful consideration of issue-relevant information, but rather it is based upon (a) the issue or object being associated with positive or negative cues, which have no intrinsic link to the attitude stimulus (e.g., although an attractive model can serve as an argument for the merits of a beauty production, it would more likely be a peripheral cue for a refrigerator); or (b) the recipients draw a single inference based upon various cues in the persuasion context (e.g., the more arguments for a recommendation, the better it must be).

We have suggested that there are central and peripheral routes to persuasion, with the "central route" representing the processes involved when elaboration likelihood is high and the "peripheral route" typifying the processes operative when elaboration likelihood is low. It should be apparent that these "routes" represent positions on a continuous dimension ranging from high to low elaboration likelihood rather than two mutually exclusive and exhaustive "types" of message processing. When elaboration likelihood is high, issue-relevant thinking tends to be the most direct determinant of the recipient's reactions to the recommendation, whereas when elaboration likelihood is low, the more important determinant of persuasion tends to be cues that, although perhaps peripheral to the personal merits of the appeal, allow the recipient to attain a reasonable position without diligently considering the merits of the specific recommendation.

An analogy may help to clarify the distinction we wish to draw between the processes involved when travelling the central versus peripheral route to persuasion. Consider first the case of a student who has studied diligently for an exam. The student knows the material over which he is being tested, reads each test question and set of answers, relates this incoming information to what he remembers about the material, attempts to integrate these various data, and selects the option that is judged to be the most veridical. This manner of processing the question posed to the student corresponds to the message processing we have suggested is invoked when elaboration likelihood is high in a persuasion context. There is no guarantee that the student's response will be correct or that his attempts to relate the material from the test question to the prior knowledge he has about the topic will necessarily be logical. However, the student's responses are more likely to be reliable (enduring) and correct than if his answers were based upon a simpler, peripheral analysis of the question. Note, too, that the student's comprehension of the question and prior knowledge of material relevant to the topic are viewed as being distal rather than proximal mediators of his response to the question; these factors affect how the student interprets, elaborates upon, and evaluates the incoming information, but it is the nature of the topic-relevant thinking that is viewed as being the most immediate determinant of the student's response to the question.

The responses of this student, who went through the effortful process of culling through data to evaluate the merits of the various options, can be contrasted with the reactions of a student who, either because he doesn't care (i.e., low motivation) or didn't study (i.e., low ability), reads each question and set of answers but fails to retrieve information from memory that is related specifically to the topic in question. The responses of this latter student generally are not random, but rather they are more likely to reflect the operation of simple and often times spurious decisional rules evoked by peripheral cues, such as the position of the answer within the set of answers (e.g., "a" is seldom the correct answer) or previous responses (e.g., "b" was marked twice previously, so I'll try "c"). Note that the incoming information may still be related to prior knowledge, but this body of knowledge is largely irrelevant to the true merits of the person's various options. Thus, as the student's elaboration likelihood decreases, obvious features in the testing (persuasion) setting that signal which option (position) is likely to be acceptable or correct are more likely to be the target of information (attitudinal) processing—even though all of the externally provided information (message arguments) may well be comprehended, and these features are more likely to be related to associations that have no intrinsic link to the specific question (issue) under consideration.

Evidence in social psychology supports the view that different processes are involved under high and low elaboration likelihood conditions. For ex-
ample, the quality of the arguments contained in a message has a greater impact on persuasion under conditions of high than low issue involvement ( Petty & Cacioppo, 1979a, b; Petty, Cacioppo, & Heesacker, 1981) and for individuals high than low in need for cognition (Cacioppo, Petty, & Morris, 1983). Conversely, peripheral cues such as the expertise or attractiveness of the communicator have a greater impact on persuasion under conditions of low than high involvement (Chaiken, 1980; Petty, Cacioppo, & Goldman, 1981; Petty, Cacioppo, & Schumann, 1983). There is also evidence in consumer psychology that is consistent with this analysis. Wright (1974), for example, exposed people to an ad for a soybean product under high and low involvement conditions and measured the number of source comments (derogations) and message comments (counterarguments) generated after exposure. Wright (1974) predicted that involvement would increase both kinds of comments, but consistent with the present analysis he found that more message comments were made under high than low involvement, while more source comments were made under low than high involvement conditions. Finally, we have recently found that when the conditions in a persuasion setting suppress the elaboration likelihood, then the number of arguments for a recommendation can serve as a simple cue (e.g., “the more reasons, the better the recommendation”), but when the existing conditions in the persuasion setting foster a high elaboration likelihood, the number of arguments serves as fuel for careful, effortful deliberations regarding the merits of the recommendation (Petty & Cacioppo, 1984). In our study, subjects were exposed to either three or nine arguments for a counterattitudinal appeal that was personally consequential (high involvement) or inconsequential (low involvement). In addition, half of the subjects read strong arguments for the recommendation, and the remaining subjects read weak arguments for the recommendation. We found that the attitudes of subjects who believed the appeal was unimportant and, hence, unworthy of extensive issue-relevant thought were influenced by the simple number of arguments. The attitudes of subjects who believed the appeal was important, however, were influenced by the quality of the message arguments; indeed, the provision of nine arguments, if anything, tended to fuel subjects’ discrimination between the strong and weak versions of the persuasive communication.

In the remainder of this chapter, we consider the role within this model played by one of the most pervasive and ecologically valid message factors: message repetition.

MESSAGE REPETITION

The most common empirical finding in the area of message repetition is that persuasion first increases then wears out as the number of repetitions in-
The results are depicted in Fig. 4.3. All of the major findings from Miller (1976) and our initial study were replicated. Moderate repetition of a persuasive communication proved most effective, regardless of the position advocated, suggesting that repetition not only provided more opportunities for an individual to process message arguments but repetition also aroused feelings of tedium or psychological reactance that ultimately proved detrimental to persuasion. Recall of the message arguments increased across repetition lev-

FIG. 4.2. The effects of preexposure position and message repetition on agreement. (From Cacioppo & Petty, 1979.)

presented a moderate (three) number of times. Analyses also indicated that recall increased with message repetition, suggesting that the recipients extracted more information from the message with each additional exposure even though the simple ability to recall these arguments made them no more or less likely to agree with the recommendation.

A second experiment was conducted to investigate other possible mediators of the repetition effect (Cacioppo & Petty, 1979). Of particular interest in the follow-up experiment was the possibility that a recipient's issue-relevant thinking would be influenced by message repetition and would predict the person's susceptibility or resistance to persuasion more accurately than would their recollection of the message arguments. Subjects heard the previously tested pro- or counterattitudinal advocacy either one, three, or five times in succession. Afterwards, subjects were instructed to list everything about which they had thought during the preceding minutes, rated their attitude toward increasing university expenditures, completed ancillary measures, and responded to a measure of their incidental learning of message arguments (for a detailed discussion of these procedures and their validity and reliability, see Cacioppo & Petty, 1981).

FIG. 4.3. The effects of preexposure position and message repetition on agreement and cognitive response. (From Cacioppo & Petty, 1979.)
els, suggesting that subjects were continuing to extract some information from the communication across levels of repetition. However, the within-cell correlations between recall and agreement in the experiment were near zero and nonsignificant, again indicating that the simple act of learning the message arguments was not sufficient for achieving agreement (cf. Cacioppo, Petty, & Morris, 1983; Greenwald, 1968; Insko, Lind, & LaTour, 1976; Petty, Cacioppo, & Schumann, 1983; Wood, 1982). Importantly, analyses of the thought-listing data indicated that the pattern of cognitive responses elicited by the repeatedly presented message paralleled that observed for attitudes toward the recommendation: The production of unfavorable thoughts decreased then increased, whereas the production of favorable thoughts tended to increase then decrease. The pattern observed for issue-irrelevant thinking (e.g., complaints of boredom), on the other hand, increased across repetitions, as would be expected if the repeated presentation of the same message was arousing feelings of tedium.

We might note that these results are unlikely to be limited to the laboratory, for Gorn and Goldberg (1980) recently reported that children who viewed commercials in the context of a Flintstone television program preferred a product (Danish Hill ice cream) more when they saw a commercial for the product a moderate (three) than a low (one) or high (five) number of times during the program. Gorn and Goldberg also recorded the spontaneous verbalizations produced by the children during the commercials. Like us, they found that high exposure frequencies were accompanied by clear expressions of displeasure and annoyance. Remarks such as “Oh, not again” and “Not another one” apparently were common in the high exposure frequency condition.

THEORETICAL ANALYSIS

These data led us to propose that message repetition guides a sequence of psychological reactions to a persuasive communication best conceptualized as a two-stage attitude-modification process (Cacioppo & Petty, 1979, 1980a; Petty & Cacioppo, 1981). The first component revolves around the fact that repeated presentations provide recipients with a greater opportunity to consider the content and implications of the content of a persuasive communication. That is, limitations in people’s information-processing can be partially overcome by presenting a (persuasive) communication repeatedly, with the cumulative elaboration likelihood increasing monotonically as repetition increases.

The second component of our model of message repetition concerns the biased nature of the recipients’ information processing activity. We reasoned that moderate repetitions of a persuasive message facilitated the relatively objective consideration of the merits of a recommendation, but that as tedium and reactance were aroused, the information processing turned agnostic and was increasingly directed toward the context of the appeal (e.g., thoughts were more likely to be directed toward the setting or the advertisement per se). One reaction available to recipients when they are exposed excessively to a persuasive communication is to take steps to avoid the appeal or to remove themselves from the persuasion setting (e.g., by turning the page in a magazine or selecting another station on the radio or television). Changes in attitude toward the recommendation would be unlikely in these instances.

In instances where the costs of avoiding the appeal are higher—such as when listening to a radio someone else controls, in a research setting, or in the midst of an interesting television program—the reactance or tedium elicited by overexposure to a persuasive communication may begin to bias the recipients’ cognitive responses (e.g., issue-relevant thinking, source-relevant thinking, ad-relevant thinking) such that the appeal is viewed through increasingly jaundiced eyes. Recent work in cognitive psychology on mood and information processing has outlined a mechanism capable of biasing cognitive responding at excessive exposure frequencies in the manner we have suggested. Specifically, it has been argued that some information in memory is stored with a mood feature, which can serve as a retrieval cue (e.g., Bower, 1981; Clark & Isen, 1982; Harvey, Enzle, & Ko, 1982; Isen, Shaliker, & Karp, 1978). This means that a positive mood increases access to information for which positive mood is a feature, and a negative mood increases access to information for which negative mood is a feature. If excessive exposures arouse a negative mood and activate negative memory bases, the negatively biased cognitive responses to the message can be directed toward the setting or advertisement, features that have no intrinsic link to the true merits of the recommendation, or they can be directed toward determining the merits of the arguments for the recommendation. To the extent that the former process predominates, overexposure should lead to negative attitudes toward both the advertisement and the attitude-object, but the negative attitudes toward the advertisement should be more enduring than the attitudes toward the recommendation since the cognitive responses, though perhaps central to the merits of the ad, are peripheral to the merits of the recommendation. This implies that attitudes toward the advertisement would manifest as an inverted-U function across exposure frequencies, whereas attitudes toward the recommendation would share this pattern initially but would unfold as a satiation effect over time. Indeed, relatively enduring negative attitudes toward the recommendation would be expected only to the extent that overexposure to an appeal led recipients to generate arguments against the merits of the recommendation (central route).
THE ROLE OF MESSAGE REPETITION: EMPIRICAL TESTS

We and our colleagues have recently completed several studies designed to examine various implications of the model of message repetition outlined above. The first two experiments were designed to address the notion that moderate levels of repetition can enable recipients to extract more from and think more about the arguments for a recommendation, whereas the next two experiments were designed to extend this work and to examine the effects of high levels of message repetition.

Recall that we suggested that moderate levels of message repetition provide people with additional opportunities to think about the merits of the appeal. Moderate repetition of a message is neither necessary nor sufficient for recipients being likely to think about the merits of a recommendation, but rather it is viewed as being a contributory cause. If, for instance, the message is sufficiently complex that recipients cannot complete their scrutiny of the implications and merits of the arguments in a single exposure, even if they were motivated to do so, then a moderate number of re-exposures to the message should enhance both the amount of information extracted from the message and their realization of the personal benefits or costs of the recommendation being accepted. In a test bearing upon this hypothesis, undergraduate students enrolled in introductory psychology participated in a study, which they believed concerned subjective judgments of the sound quality of audio-tapes. We constructed a set of strong and a set of weak arguments supporting the recommendation that all seniors be required to pass a comprehensive exam in their major area of study prior to their being allowed to graduate. (Strong arguments are defined operationally as those that elicit primarily favorable issue-relevant thinking, whereas weak arguments are defined as message arguments that elicit primarily unfavorable thoughts when people are instructed to think about them.) Half of the subjects were exposed to the strong set of arguments, and half were exposed to the weak arguments. In addition, some heard the message once, others heard it repeated three times. Immediately following the last presentation (either the first or third, depending upon condition), subjects were told that since their attitudes toward the recommendation might affect how they rated the sound quality of the audiotape, we wanted to know how they felt about the recommendation to institute senior comprehensive exams. Subjects' expressed their attitudes toward the exams using four semantic-differential scales.

The strong version of the message elicited more favorable thoughts, $F(1,110) = 8.19$, $p < .01$, fewer unfavorable thoughts, $F(1,110) = 11.33$, $p < .001$, and more positive attitudes toward the recommendation, $F(1,110) = 21.21$, $p < .001$, than the weak version of the message. The important question in the present study, of course, concerned whether moderate repeti-

![Fig. 4.4. The effects of argument quality and message repetition on agreement.](image)

The data from this study are consistent with the notion that moderate repetition of a persuasive message increases the ability of recipients to extract information from and scrutinize the message arguments and, therefore, to respond in a more discriminating manner to strong and weak arguments for a recommendation. In the present research, we have operationalized "moderate repetitions" as three presentations. Although the model we have outlined does not predict the number of repetitions that represents moderate repetition in an absolute sense, it does yield predictions about factors that increase or decrease the value representing "moderate repetition." For instance, to the extent that a persuasive message is: (a) sufficiently complex that scrutiny
of the message arguments cannot be completed in a single presentation, (b)
presented in a distributed rather than massed fashion, or (c) embedded
among a heterogeneous rather than homogeneous set of messages, the num-
ber of repetitions that will maximize the relatively objective processing of the
message arguments should increase. Thus, if the arguments for a recommen-
dation are strong, the preceding factors (e.g., distributed presentations)
should extend the point of "wearout" for the advertisement.

Corlett (1984) recently completed a conceptual replication of this study
using mock television advertisements rather than audiotaped editorials. The
advertisement concerned a little-known beer and was embedded among other
advertisements in a 60-minute television show. The advertisement provided
information about the ingredients and manufacturing process used in the
production of the beer. Throughout the monologue, a bottle of beer was de-
picted in the center of the screen. At the onset of the ad, the label of the beer
was facing away from the camera. As the ad began, the bottle began to rotate
slowly, completing a 180-degree rotation shortly before completion of the
advertisement.

Pilot testing was undertaken to develop descriptions (i.e., verbal argu-
ments for the product) that elicited primarily favorable thoughts (i.e., strong
arguments) or unfavorable thoughts (i.e., weak arguments) for the recom-
mendation to try the beer. For example, the water used in producing the beer
was described as coming from clear springs in the strong version of the
message, but was described as coming from the city water supplies in the
weak version of the message. Following pilot testing, strong and weak ver-
sions of the advertisements were produced. The strong and weak versions of
the advertisement were each designed to be 40 seconds in length and had iden-
tical visual components. A parallel set of advertisements were created except
that the speed of speech and rotation of the bottle was increased to complete
the advertisement in 30 rather than 40 seconds, yielding a more rapid presenta-
tion of the same strong or weak message arguments. This was done to ex-
amine whether slightly faster presentations disrupted viewers' message
processing.

After preparation of the stimulus materials, students were recruited for a
study in communication. Subjects viewed a color videotape of the Phil
Donahue Show. The show contained five commercial breaks and began and
ended with commercial breaks. Subjects were randomly assigned to the ex-
perimental conditions of 2 (Argument quality: strong vs. weak) × 2 (Speed
of Speech: normal vs. rapid) × 5 (Message Repetition: 0, 1, 3, 5, or 7)
between-subjects factorial. No more than one beer advertisement appeared
during any given commercial break, and all subjects who were exposed to the
advertisement (i.e., all except the 0-exposure conditions) saw the beer adver-
sitement during the final commercial break. Additional presentations of the
advertisement were distributed randomly throughout the remaining six com-
mercial breaks. Subjects in the 7-repetition condition, of course, were ex-
posed to the beer advertisement once during each commercial break. At the
conclusion of the videotape, subjects tried to recall message arguments and
expressed their attitudes toward various objects, including the advertised
beer.

Corlett (1984) found that the exposure of subjects to the target advertise-
dment during every commercial break (i.e., the 7-exposure condition) actually
had a detrimental effect on subjects' recall of the material in the advertise-
ment: recall increased with repetition until the 7-exposure condition, which
produced poorer recall than did five exposures and approximately the same
level of recall as did three exposures. This suggests that subjects turned their
attention away from the television advertisement when it appeared pre-
dictably and often. Results also showed that the manipulation of speed of
speech had no effect, perhaps because the manipulation of speed of speech
was modest and the message itself was neither long nor complex.

More interestingly, subjects' attitudes did not parallel their level of recall
of the advertisement, but rather Corlett found evidence for a higher-order in-
teraction. Specifically, repetition led men to develop more positive attitudes
toward the product when strong arguments were used and it led to more nega-
tive attitudes toward the product when weak arguments were used. This in-
teraction replicates the results reported above in which subjects listened to ei-
ther strong or weak arguments a single time or three times in succession.
Repetition led women, on the other hand, to develop slightly more negative
attitudes toward the beer regardless of the quality of the message arguments.
As Corlett (1984) noted, these results are interesting in light of the observa-
tions that: (a) males are estimated to consume 80% to 83% of all beer sold,
(b) the primary target audience for beer advertisements is men aged 18 to 49,
(c) men comprise the majority of the actors in beer commercials, and (d) beer
advertisements are more commonly placed in magazines and time-slots that
appeal generally to men. These results suggest that men may have been more
interested in and thoughtful about the simple beer advertisement than
women.

A factor to consider is that in all of our previous work on message repeti-
tion, people have received exactly the same message at each exposure fre-
quency. If the messages were varied somewhat, it is reasonable to propose
that tedium or boredom could be forestalled. In fact, in previous repetition
research in which the ads were varied rather than held constant, tedium ef-
fects have been rare (e.g., McCullough & Ostrom, 1974; but see Calder &
Sternthal, 1980). Thus, it might be hypothesized that tedium should occur at
higher levels of repetition when the repeated ads differ than when they are the
same.

In order to provide an initial exploration of the effects of involvement,
variation, and repetition on extent of thinking and attitudes, Schumann
(1983) conducted a study in which all three variables were manipulated. In this study, 360 undergraduates were exposed to 1, 4, or 8 advertisements for a fictitious new pen, the Omega 3, in the context of a simulated television program. The ads for the pen were either always identical or different and were viewed under conditions of either high or low involvement. All of the undergraduates were led to believe that they would be evaluating the format of a new television talk show that might appear on a local cable television station. The show was presented to subjects as a slide presentation with an accompanying audio portion. The slide show included a number of interview and information segments (e.g., interview with a punk rock group, information about college student cheaters, etc.), combined with brief commercial segments. After viewing the 45-minute simulated TV show, all subjects completed a questionnaire booklet which asked about the extent to which they thought about the key product (pens) during the presentation, and measured recall of and attitude toward the ad and product.

In the high involvement conditions, subjects were led to believe that after exposure to the simulated show and completing the questionnaire they would be allowed to select a ballpoint pen from several available brands. They were also told that one of the brands available was to be advertised in the simulated program. In the low involvement conditions, subjects were also led to believe that they would be allowed to select a free gift from among several available brands, one of which was to be advertised in the simulated program. However, the gift choice concerned an irrelevant product (mouthwash). In previous research, this manipulation has been shown to enhance thinking about the product-relevant information provided (Petty, Cacioppo, & Schumann, 1983).

Each of the ads for the Omega 3 pen contained six product-relevant arguments for the pen. In order to create the variation conditions, eight different versions of the pen ad were created. Several features of the ads were manipulated to create these different versions. Although the substantive content of the arguments remained the same in each, the ads presented the arguments in a different order, with slightly different wording, in a different print type, and with a different featured user of the pen (e.g., homemaker, artist, educator). In addition to presenting the ad visually, an audiotape was constructed for each ad that introduced the product and described a few of the product-relevant attributes that were also contained in the ad. In the same exposure repetition conditions, subjects saw and heard one of the eight versions of the ad either four or eight times. In the variation conditions, subjects saw and heard a different version of the ad either four or eight times.

In order to check on the extent to which repetition, variation, and involvement affected thinking, subjects were asked to indicate on a 10-point scale the extent to which they thought about pens during the slide presentation. A main effect for repetition, $F(2,344) = 34.38, p < .001$, revealed that subjects reported thinking more about pens as repetition increased. In addition, a main effect for variation, $F(1,344) = 3.69, p < .05$, revealed that subjects thought more about the ads when they were varied than when they were the same. A marginal Repetition × Variation interaction ($p < .09$) revealed that the variation effect was only apparent under the four and eight repetition conditions. Finally, an Involvement × Repetition interaction was also obtained on this measure, $F(2,344) = 3.60, p < .05$. This interaction resulted from the fact that increasing involvement enhanced reported thinking about pens in the one-exposure conditions, but not in the multiple-exposure conditions. Thus, as expected, all three variables had an impact on the reported amount of product-relevant thinking in which subjects engaged. Perhaps of most interest is that high involvement subjects began thinking about the advertised product earlier in the exposure sequence than low involvement subjects.

Subjects were given a free recall test in which they were asked to list all of the products for which they saw ads, and all of the brand names they encountered. The repetition manipulation was the only one to affect the recall measures. As repetition increased, so did the likelihood of recall of the product category, $F(2,348) = 9.07, p < .0001$, and the Omega 3 brand name, $F(2,348) = 20.75, p < .0001$.

Of most interest, however, were the measures of attitude toward the ad and the Omega 3 pen. Because the high and low involvement subjects showed quite different patterns on the attitude measures, separate Repetition × Variation analyses were conducted for each group. As a measure of attitude toward the ad, subjects were asked to rate how much they liked the ad on a 10-point scale. Under high involvement, no significant effects were obtained (see bottom panel of Fig. 4.5). Under low involvement, however, a significant Repetition × Variation interaction was obtained, $F(2,175) = 6.73, p < .005$. This interaction resulted from the fact that subjects had similar attitudes toward the same and different ads under the one- and four-exposure conditions, but significantly different attitudes toward the ads under eight-exposure conditions ($p < .05$). When the ads were different, attitudes toward the ad increased from four to eight exposures, but when the ads were the same, attitudes decreased from four to eight exposures (see top panel of Fig. 4.5). An analysis of attitude toward the product showed a similar pattern (see Fig. 4.6). Under high involvement, a curvilinear pattern was observed. Under low involvement, a marginal Repetition × Variation interaction ($p < .10$) revealed that attitudes toward the product increased from one to eight exposures when the ads were varied, but showed a curvilinear pattern when the ads were the same. Similar to the effect observed on the ad attitude measure, the variation manipulation affected product attitudes only when the ad was repeated eight times ($p < .10$).

In sum, these data provide some support for the view that tedium can be forestalled by varying the content of ads, but that it is only under low involvement conditions that this forestalling takes place. Under high involvement,
people are motivated to process the ad at relatively low repetition levels so that by high repetition levels, they tend to show a tedium effect whether the ads are the same or different. On the other hand, under low involvement, subjects show a tedium effect only if the ads are exactly the same in content, but not if they are varied.

The fact that the variation manipulation has no effect on high involvement subjects is consistent with our view that under high involvement people are motivated to think about the product-relevant information provided and the form of information presentation is not particularly important in determining their attitudes. The form of presentation was important in determining both ad and product attitudes for low involvement subjects, however. There are two possible reasons for this. One explanation makes the assumption that variation affects the attitudes of low involvement subjects via the peripheral route. The other makes the assumption that variation affects attitudes via the central route.

The peripheral route notion makes the assumption that low involvement subjects, being unmotivated to think about the product-relevant arguments, formed their attitudes simply on the basis of the pleasantness of the ads or the cue value of the ads. Repeating the same ads is likely to lead to boredom whereas presenting different ads is probably more interesting even if the ads are not scrutinized. These mood states may directly affect attitude ratings. Alternatively, when low involvement subjects saw different people associated with the product (in the different versions of ads), they may have assumed that the product was more popular. This "popularity cue" may have affected the attitudes of low involvement subjects without their engaging in any extensive product relevant thinking. Thus, variation may have affected the attitudes of low involvement subjects via the peripheral route.

On the other hand, the different versions of the ad may have motivated more product-relevant thinking on the part of the low involvement subjects and induced attitude change via the central route. Although low involvement subjects were generally unmotivated to think about the pen product, when they saw so many different ads, this may have piqued their curiosity and may have led them to scrutinize the product-relevant information provided. Since they were relatively unmotivated to think, it would take a relatively large number of exposures before this thinking could be completed. If the variations in the ad motivated increased thinking about the cogent arguments pro-
vided, favorable attitudes would result. In work currently in progress we are attempting to pin down these various possibilities. An important implication of this research is that if variation works via the peripheral route, the attitudes formed should be less enduring and less predictive of purchase intentions than if variation works via the central route.

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4. ROLE OF MESSAGE REPETITION IN PERSUASION