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The Effects of Involvement on Responses to Argument Quantity and Quality: Central and Peripheral Routes to Persuasion

Richard E. Petty
University of Missouri–Columbia

John T. Cacioppo
University of Iowa

A pilot study and an experiment were conducted to test the view that the number of arguments in a message could affect agreement with a communication by serving as a simple acceptance cue when personal involvement was low but could affect agreement by enhancing issue-relevant thinking when personal involvement was high. In addition to manipulating the personal relevance of the communication topic in each study, both the number and the quality of the arguments in the message were varied. In the pilot study, when the issue was of low relevance, subjects showed more agreement in response to a message containing six arguments (3 strong and 3 weak) than to messages containing either three strong or three weak arguments. Under high involvement, however, the six-argument message did not increase agreement over the message containing only three strong arguments. In the full experiment, subjects received either three or nine arguments that were either all cogent or all specious under conditions of either high or low involvement. The manipulation of argument number had a greater impact under low than under high involvement, but the manipulation of argument quality had a greater impact under high than under low involvement. Together, the studies indicated that increasing the number of arguments in a message could affect persuasion whether or not the actual content of the arguments was scrutinized.

Persuasion is defined by the presentation of persuasive arguments, and the accumulated research in social psychology has generally supported the view that increasing the number of arguments in a message enhances its persuasive impact (e.g., Eagly & Warren, 1976; Maddux & Rogers, 1980; Norman, 1976). Previous analyses of this effect have suggested that increasing the number of arguments in a message enhances persuasion by giving people more information to think about. More specifically, people are postulated to generate favorable issue-relevant thoughts in response to cogent issue-relevant arguments, and the more issue-relevant arguments presented (at least up to some reasonable limit; see Calder, 1978), the more favorable thoughts that should result and the more persuasion that should occur. For example, Calder, Insko, & Yandell (1974; Experiment 2) varied the number of prosecution and defense arguments in the case materials for a hypothetical trial and found that persuasion generally followed the preponderance of arguments. In addition to attitude measures, these authors included a measure of subjects' idiosyncratic thoughts about the trial (see Brock, 1967) and concluded that "beliefs are derived from thoughts about the communication; and these thoughts themselves are partially a function of the amount of objective information on either side of the case" (Calder et al., 1974, p. 86; see also Chaiken, 1980, and Insko, Lind, & LaTour, 1976, for additional evidence consistent with this view).

Although increasing the number of arguments may enhance persuasion by increasing favorable issue-relevant thoughts in some instances, we have suggested that increasing the number of arguments in a message can induce attitude change even if people are *not* thinking

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Requests for reprints should be sent to Richard E. Petty, Department of Psychology, McAlester Hall, University of Missouri, Columbia, Missouri 65211, or to John T. Cacioppo, Department of Psychology, University of Iowa, Iowa City, Iowa 52242.

about the arguments at all (Petty, Cacioppo, & Goldman, 1981). If people are unmotivated or are unable to think about the message, and no other salient cues are available, they might invoke the simple but reasonable decision rule, "the more arguments the better," and their attitudes might change in the absence of thinking about or scrutinizing the arguments. Accordingly, persuasion may require only that people realize that the message contains either relatively few or relatively many arguments. A major goal of this article is to provide empirical evidence for the view that the number of arguments in a message can affect persuasion either by affecting issue-relevant thinking or by serving as a simple acceptance cue.

Central and Peripheral Routes to Persuasion

In a recent review of the attitude-change literature (Petty & Cacioppo, 1981), we proposed that, even though the many different theories of persuasion have different terminologies, postulates, underlying motives, and particular effects that they specialize in explaining, most approaches to persuasion emphasize one of two distinct routes to attitude change. One, called the *central route,* says that attitude change results from a person's careful consideration of information that reflects what that person feels are the true merits of a particular attitudinal position. According to this view, if under scrutiny the message arguments are found to be cogent and compelling, favorable thoughts will be elicited that will result in attitude change in the direction of the advocacy. If the arguments are found to be weak and specious, they will be counterargued and the message will be resisted—or boomerang (change opposite to that intended) may even occur. To the extent that increasing the number of arguments in a message affects persuasion by enhancing issue-relevant cognitive activity, the central route to persuasion has been followed.

However, people are not always motivated to think about the information to which they are exposed, nor do they always have the ability to do so, yet attitudes may change nonetheless. Attitude changes that occur via the second or *peripheral route* do not occur because the person has diligently considered the pros and cons of the issue; they occur because the person associates the attitude issue or object with positive or negative cues or makes a simple inference about the merits of the advocated position based on various simple cues in the persuasion context. For example, rather than carefully evaluating the issue-relevant arguments, a person may accept an advocacy simply because it is presented during a pleasant lunch or because the message source is an expert. Similarly, a person may reject an advocacy simply because the position presented appears to be too extreme or because the source is unattractive. These cues (e.g., good food, expert and attractive sources, extreme positions) may shape attitudes or allow a person to decide what attitudinal position to adopt without the need for engaging in any extensive thought about the arguments presented. To the extent that a person agrees with a recommendation because of the simple perception that there are a lot of arguments to support it, the peripheral route to persuasion has been followed.

As we noted earlier, previous researchers have made the reasonable suggestion that the number of arguments in a message affects agreement by giving recipients more to think about (central route; see Calder et al., 1974; Chaiken, 1980; Insko et al., 1976) but have not tested the possibility that the number of arguments in a message might serve as a peripheral cue to the validity of the advocacy. Social psychological studies of leadership have strongly supported the view that attitudes and beliefs may be affected by the mere number of things that a person says (e.g., Bavelas, Hastorf, Gross, & Kite, 1965; Stang, 1973). For example, the greater the amount of information presented by a group member, the more likely that person is to be rated or chosen as a leader (e.g., Jaffe & Lucas, 1969; Regula & Julian, 1973; Sorrentino & Boutillier, 1975). It is important that the quantity of information presented by a group member has not been found to affect perceptions of leadership if group members have an alternative and more salient cue on which to base their judgments. For instance, Ginter & Lindskold (1975) varied the quantity of information that a group member (confederate) provided and whether she was introduced as an expert prior to the group interaction. The amount of the confederate's participation affected perceptions of leadership only when she was not described as an expert. When the expertise of the con-

federate was made salient, she received most of the leader nominations whether she said a little or a lot.

Similar effects have been observed in the persuasion literature. For example, in two experiments Cook (1969) varied the number of arguments in a message (1 vs. 8 in Experiment 1; 2 vs. 10 in Experiment 2) and the expertise of the message source. Although both experiments used similar topics (cultural truisms), in the first experiment subjects' attitudes were affected more by the expertise than by the number of arguments manipulation, and in the second study the opposite occurred. One possible explanation for this result is that in Experiment 1 the expertise manipulation was more salient than the number-of-arguments manipulation, but in Experiment 2 the reverse was true. In fact, the descriptions of the high- and low-expert sources averaged 87 words in the first study and only 7 words in the second experiment. These results suggest quite reasonably that when two peripheral cues compete, the more salient cue has more impact.

According to the central/peripheral analysis of attitude change, people should follow the central route to persuasion when their motivation and ability to think about the issue-relevant arguments presented are relatively high, but the peripheral route should be followed when either motivation or ability to scrutinize the message arguments is relatively low. Many variables have been shown to affect persuasion by enhancing or reducing the motivation and/or the ability to think about issue-relevant arguments (see Petty & Cacioppo, 1981, 1983, for reviews). Recent research suggests that if people have the ability to think about a message (i.e., the message is not too complex, few distractions are present, etc.), one important motivational moderator of the route to persuasion is the personal relevance of the advocacy. As an issue increases in personal relevance or consequences, it becomes more important and adaptive to form a reasoned and veridical opinion, and people become more motivated to devote the cognitive effort required to evaluate the issue-relevant arguments that are presented. Thus, when a message is high in personal relevance, the quality of the issue-relevant arguments in the message is an important determinant of persuasion (Petty & Cacioppo, 1979b). When personal relevance is low, however, people are less motivated to engage in the considerable cognitive work necessary to evaluate the issue-relevant arguments and they rely more on peripheral cues to evaluate the advocacy. Thus, when a message is low in relevance, variables such as the expertise or the likableness of the message source have a greater impact on attitude change than the nature of the arguments provided (Chaiken, 1980; Petty et al., 1981; Petty, Cacioppo, & Schumann, 1983).

The central/peripheral analysis suggests that manipulating the number of arguments in a message can induce persuasion via either the central or the peripheral route. Specifically, increasing the number of arguments in a message might enhance persuasion by invoking a simple decision rule, "the more the better," when the personal relevance of a message is low, because people are unmotivated to exert the cognitive effort necessary to evaluate the merits of the arguments (peripheral route). However, increasing the number of arguments in a message might enhance persuasion by affecting issue-relevant thinking when the personal relevance of a message is high, because when the advocacy has personal consequences, it is adaptive to exert the effort necessary to evaluate the true merits of the proposal (central route).[1]

Pilot Study

To provide an exploratory test of the idea that the number of arguments in a message could affect persuasion by either the central or the peripheral route, 46 undergraduates

[1] At first glance, our prediction that the number of arguments serves as a peripheral cue under low involvement might seem inconsistent with Chaiken's (1980) finding that number of arguments had a greater impact on attitudes under high than under low involvement. Our prediction and the previous data are not inconsistent because Chaiken employed only cogent arguments in her messages (S. Chaiken, personal communication, June 1983). If subjects engaged in more thinking about the message under high involvement, and more cogent arguments were presented to think about, more persuasion should result. Thus, Chaiken's high-involvement finding would be inconsistent with our hypothesis only if specious arguments had been employed. Also, we suspect that Chaiken's failure to find an effect for number of arguments under low involvement probably stems from the fact that a salient source manipulation was included in her study that provided an alternative and simpler acceptance or rejection cue when people were relatively unmotivated to think about the message (see also Cook, 1969, Experiment 1).

were asked to read one of three messages that they were led to believe had either high or low personal relevance. All of the messages concerned a faculty proposal to increase student tuition. In the high-involvement conditions, the message advocated that the tuition be increased at the students' own university, whereas in the low-involvement conditions, the message advocated that the tuition be increased at a distant, but comparable, university. The message that subjects read contained either three cogent arguments (e.g., part of the increased revenue could be used to decrease class size at the university, which would facilitate teacher/student interaction), three specious arguments (e.g., part of the increased revenue could be used to improve the blackboards at the university, which would impress campus visitors), or three cogent and three specious arguments (with the cogent arguments presented first). After reading the message, subjects made a slash on a 64-mm line to indicate the extent to which they agreed with the idea of raising tuition.

If the number of arguments in a message served as a peripheral cue to the validity of the message under low involvement, then subjects exposed to the six-argument message should express more agreement with the tuition increase than subjects exposed to either of the messages with three arguments. On the other hand, if subjects evaluated the nature of the arguments under high involvement, then the six-argument message should produce a level of agreement intermediate to the messages containing three strong and three weak arguments. A 2 × 3 (Involvement × Message) analysis of variance (ANOVA) on the attitude measure produced a main effect for message type, $F(2, 40) = 11.27$, $p < .001$, and an Involvement × Message interaction, $F(2, 40) = 2.72$, $p < .07$, that was consistent with our hypothesis. A Neuman-Keuls analysis of this interaction revealed that under low involvement, three strong arguments did not elicit significantly more agreement than three weak arguments, but six arguments (3 strong plus 3 weak) elicited significantly more agreement than either of the three argument conditions ($ps < .05$). Under high involvement, however, three strong arguments elicited significantly more agreement than three weak arguments ($p < .05$), but the six-argument message did not produce significantly more agreement than did the three strong arguments (although it did produce more agreement than the 3 weak arguments). These results are consistent with the view that under low involvement, people do not evaluate the message arguments, but the number of arguments in a message serves as a peripheral cue as to the worth of the advocacy. Thus, under low involvement, attitudes were affected by the mere number of arguments presented, and quality was unimportant (peripheral route). Under high involvement, however, people were motivated to think about the issue-relevant information presented and thus argument quality was more important than number (central route).

To ensure the reliability of the basic attitudinal effect observed in our pilot study, we conducted a conceptual replication using a different manipulation of involvement and a different attitude issue. In this study, in addition to manipulating the personal relevance of the message, subjects received either three or nine arguments that presented either all cogent or all specious reasons in favor of the advocated position. Also, in addition to the crucial attitude measure, several other measures were obtained. These included questions designed to check on the experimental manipulations and measures of subjects' idiosyncratic thoughts about the message.

Our major hypothesis was conceptually the same as that for the pilot study. Specifically, we hypothesized that under low issue involvement, the number of arguments in the message is a more important determinant of attitudes than is the quality of the arguments. Under low involvement, increasing the number of arguments, whether cogent or specious, should enhance agreement as subjects, who are not motivated to think about the arguments, would employ the simple decision rule, the more the better. On the other hand, under high involvement, we predicted that the quality of the message arguments is a more important determinant of attitudes than is number of arguments. Under high involvement, where subjects are motivated to think about the issue-relevant information, we expected that subjects would think about each new argument presented. If recipients think about each new argument under high involvement—generating favorable thoughts to cogent arguments and

unfavorable thoughts to specious ones—then attitudes in response to the cogent and to the specious arguments should be more polarized when nine, rather than only three, arguments are presented.

Method

Procedure

One hundred sixty-eight male and female undergraduates at the University of Missouri participated to earn extra credit in an introductory psychology course. The design was a 2 (issue involvement: low or high) × 2 (quality of arguments: weak or strong) × 2 (number of arguments: three or nine) factorial. Subjects were tested in groups of from 6 to 14 in a large classroom that precluded subject interaction. It was possible to conduct all experimental conditions in any one session if enough subjects were present.

On arrival at the appropriate location, subjects received a folder that contained an instruction sheet, an essay, and a questionnaire booklet. The instruction sheet explained that

> There are many sources of first impressions—looks, dress, voice, etc. Today we would like for you to look at a sample of what someone else has written and to try to form an impression of that person.

After reading these background comments and a brief description of the author of the passage (see below), all of the subjects were instructed to read the essay contained in the folder. They were also told that as soon as they finished reading the essay, they should respond to the questionnaire booklet and then give it to the experimenter at the front of the room. On completion of the dependent measures, subjects were escorted to another room, where they were thoroughly debriefed, thanked for their participation, and dismissed.

Independent Variables

Issue involvement. In the brief descriptions of the author that accompanied each essay, all of the subjects read that the author of the essay was a faculty member, who was chairperson of the University Committee on Academic Policy. The function of the committee was described as "advising the chancellor on changes in academic policy that should be instituted." In the high-involvement conditions, subjects read that the committee was working on academic changes to be initiated the next year. In the low-involvement conditions, they read that the committee was working on recommendations to take effect in 10 years. Additionally, subjects read:

> One of the changes being recommended for (next year/10 years from now) is the imposition of a requirement that seniors take a comprehensive exam in their major area prior to graduation. The exam would be a test of what the student had learned after completing the major, and a certain score would be required if the student was to graduate. The material you will read is the summary section of the report written by the chairperson in which he or she outlines the major reasons why the committee feels the exam policy should begin (next year/in 10 years).

Whereas in the pilot study involvement was manipulated by varying the institution for which the policy change was advocated (the subjects' university or a distant one), the present experiment manipulated involvement by changing the advocated date for implementation at the subjects' own institution. Previous research indicates that this manipulation does not affect attitudes per se (Petty et al., 1981) and is comparable to the involvement manipulation used in the pilot study (see Petty & Cacioppo, 1979a).

Argument quality. For all subjects, the essay began with the statement, "In summary, here are the major reasons why comprehensive exams for seniors should be instituted." Following this statement, one of two different kinds of arguments was presented: strong or weak. Nine separate strong and weak arguments were prepared and pretested (most were elaborations of the strong and the very weak arguments described by Petty, Harkins, & Williams, 1980). In a pretest in which subjects were instructed to think about the arguments, the strong arguments elicited primarily favorable thoughts and the weak arguments elicited primarily unfavorable thoughts in a postmessage thought listing (see Cacioppo, Harkins, & Petty, 1981, for a description of the thought-listing technique). In addition, pretest ratings of the strong and weak arguments revealed that they did not differ in the extent to which they were "difficult to understand," "hard to follow," or possessed "complex structure." The arguments did, of course, differ in their rated "persuasiveness."

Argument number. Each argument in the message was presented in a distinct, typed paragraph that covered about one third of an 8½ × 11 in. sheet of paper. Subjects were either exposed to all nine of the strong or weak arguments or to three strong or weak arguments randomly selected from the appropriate pool of nine. Specifically, in the three argument conditions, the nine strong and weak arguments were each divided into three unique sets of three arguments, and subjects were exposed to one of these sets. Because subsequent analyses revealed that the particular set of strong or weak arguments to which subjects were exposed failed to affect any of the key dependent measures, we will not discuss this feature of the experimental design further.

Dependent Variables

The first question in the dependent-variable booklet assessed subjects' attitudes toward the senior comprehensive exam proposal. The subjects were informed that because their personal opinions about senior comprehensive exams might bias their ratings of the author, the investigators wanted an indication of their personal feelings on the issue. Subjects were asked to respond to the phrase "Comprehensive Exams for Seniors are" on four 9-point semantic differential scales (good/bad, beneficial/harmful, foolish/wise, and unfavorable/favorable). Because the responses to these scales were highly intercorrelated (average $r = .88$), subjects' scores were summed to form one general index of attitude toward the senior comprehensive exam proposal.

Following the crucial attitude measure, subjects were asked to rate the author of the essay on a variety of dimensions (e.g., shy/outgoing, warm/cold) that were con-

sistent with the cover story.[2] Next, subjects responded to a few questions (described below) that were designed to assess the effectiveness of the experimental manipulations.

Finally, subjects were asked to list five thoughts that occurred to them as they were reading the author's proposal: "Your thoughts may have been about the author, or about the proposal, or neither. Just try to remember the thoughts that crossed your mind while you were reading the material." Five lines were provided for subjects to list their thoughts, one per line. This procedure is somewhat different from the typical methodology employed to assess subjects' idiosyncratic thoughts about a persuasive communication. In the typical assessment of cognitive responses (e.g., Brock, 1967; Cacioppo & Petty, 1979; Eagly, 1974; Greenwald, 1968; Insko et al., 1976; Wood, 1982), subjects are given a brief period of time (e.g., 2–10 min) in which to list their thoughts. The time limit is imposed to maximize the likelihood that subjects list only those thoughts that occurred during message exposure and that they do not have enough time to generate new thoughts (Cacioppo & Petty, 1981). Because previous research with the senior comprehensive exam issue revealed that subjects typically list about four to five thoughts on this topic, it was expected that five spaces would accommodate most subjects without forcing them to generate new responses. The major advantage of the present procedure was that it allowed all experimental groups to be conducted in one session, because subjects were allowed to read their messages (which varied in length) at their own pace and complete the thought listing without being timed. Two trained judges, who were blind to the manipulations and hypotheses, subsequently scored the thoughts listed as either favorable (i.e., a statement expressing a positive reaction to the comprehensive exam proposal or to the arguments in the message; e.g., "It's about time someone was concerned about a quality education"), unfavorable (i.e., a statement expressing a negative reaction to the arguments or proposal; e.g., "We should do what students want, not parents"), or neither. Interrater agreement was high (average $r = .92$), and disagreements were resolved through discussion.

Results

Manipulation Checks

Three variables were manipulated: argument quality (weak or strong), argument number (3 or 9), and issue involvement (low or high). Evidence for the effectiveness of the argument-quality manipulation comes from the postmessage thought-listing measure. Subjects generated significantly more favorable thoughts in response to the strong ($M = 1.82$) than to the weak ($M = .93$) message arguments, $F(1, 158) = 16.98$, $p < .0001$; and they generated more unfavorable thoughts in response to the weak ($M = 2.37$) than to the strong ($M = 1.33$) message arguments, $F(1, 158) = 19.61$, $p < .0001$.[3]

To check subjects' perceptions of the number of arguments contained in the message that they received, they were asked, "About how many arguments did the author put forth in favor of the advocated proposal?" Subjects were free to record any number they wanted, and those exposed to the nine-argument messages claimed that there were significantly more arguments in their messages ($M = 6.60$) than did subjects exposed to the three-argument messages ($M = 3.68$), $F(1, 158) = 87.17$, $p < .0001$. Thus, subjects had a general idea of how many arguments their messages contained, and this information could therefore serve as a peripheral cue.

Finally, to check the personal-involvement manipulation, subjects were asked to rate the likelihood that comprehensive exams would be instituted at their university before they graduated. On a scale ranging from *not very likely* (1) to *very likely* (11), subjects in the high-involvement conditions rated the likelihood as higher ($M = 6.78$) than did subjects in the low-involvement conditions ($M = 4.38$), $F(1, 158) = 34.16$, $p < .0001$. In addition, a main effect for argument quality, $F(1, 158) = 7.59$, $p < .007$, and an Argument Quality × Involvement interaction, $F(1, 158) = 4.69$, $p < .03$, appeared on this measure. The first effect indicated that subjects exposed to the strong arguments thought that it was more likely that their university would institute the exam requirement before they graduated than did subjects exposed to the weak arguments. The interaction revealed that the effect of argument quality on estimated likelihood was significant only for subjects exposed to the high-involvement message. This finding is consistent with our hypothesis that subjects would scrutinize the message more carefully under high- than under low-involvement conditions.

In sum, it appears that all three independent variables were manipulated successfully. High-involvement subjects perceived that it was

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[2] Only one of these measures was affected significantly by the manipulations. Subjects exposed to the strong arguments rated the author as more intelligent ($M = 8.9$) than subjects exposed to the weak arguments ($M = 8.2$), $F(1, 156) = 7.26$, $p < .008$.

[3] A preliminary analysis including sex as a factor produced neither main effects nor interactions involving sex on any of the key dependent measures. Thus, this variable was ignored in all subsequent analyses. In the pilot study, sex of subject was not recorded, and, thus, an analysis by sex could not be performed.

more likely that the exam proposal would affect them personally than did low-involvement subjects; subjects receiving the nine-argument messages perceived the messages to contain more arguments than did subjects receiving the three-argument messages; and subjects' thoughts reflected the quality of the arguments in the messages.

Attitudes and Thoughts

All cell means and standard deviations for the attitude and thought data are presented in Table 1. A three-way ANOVA on the index of attitude toward senior comprehensive exams produced three significant effects. First, a main effect for the argument-quality manipulation revealed, not surprisingly, that subjects exposed to the strong arguments ($M = 8.30$) had more favorable attitudes toward the exam proposal than did subjects exposed to the weak arguments ($M = 4.34$), $F(1, 158) = 18.74$, $p < .0001$. More important, however, was the appearance of two significant interactions. First, an Involvement × Number of Arguments interaction, $F(1, 158) = 3.98$, $p < .05$, revealed that the number manipulation had a stronger impact on attitudes under low personal-involvement conditions than under high personal-involvement conditions (see top panel of Figure 1). In fact, a simple effects test of this interaction revealed that increasing the number of arguments produced significantly more agreement under the low-involvement conditions, $F(1, 158) = 9.12$, $p < .01$, but not under the high-involvement conditions ($F < 1$). A complementary Involvement × Quality of Arguments interaction, $F(1, 158) = 13.04$, $p < .0004$, demonstrated that the argument-quality manipulation had a stronger effect under high personal-involvement conditions than under low personal-involvement conditions (see bottom panel of Figure 1). A simple effects test of this interaction revealed that the strong arguments produced significantly more agreement than did the weak arguments under the high-involvement conditions, $F(1, 158) = 32.87$, $p < .0001$, but not under the low-involvement conditions ($F < 1$). In sum, under low involvement, attitudes were affected by number of arguments but not quality, and under high involvement, attitudes were affected by quality but not by number.[4]

Although the interactions of both argument number and argument quality with issue involvement provided strong statistical support

Table 1
Means and Standard Deviations for Each Experimental Cell on the Attitude and Thoughts Measures

	Arguments			
	Weak		Strong	
Measure	3	9	3	9
Low involvement				
Attitude				
M	4.52	7.71	4.95	8.66
SD	7.40	5.57	4.73	6.09
Favorable thoughts				
M	1.14	1.19	1.48	1.57
SD	1.39	1.47	1.25	1.66
Unfavorable thoughts				
M	1.62	2.14	1.52	1.33
SD	1.56	1.82	1.36	1.24
High involvement				
Attitude				
M	4.10	1.05	8.32	11.30
SD	5.80	6.45	5.33	4.26
Favorable thoughts				
M	.75	.65	1.82	2.45
SD	1.12	.59	1.65	1.54
Unfavorable thoughts				
M	3.00	2.70	1.50	.95
SD	1.75	1.45	1.59	.82

Note. Attitude scores represent the sum of ratings on four 9-point semantic differential scales anchored at −4 and +4.

[4] In addition, three marginal effects emerged in the analysis. First, a main effect for the number-of-arguments manipulation, $F(1, 158) = 3.52$, $p < .06$, indicated that subjects tended to agree more with the nine- than with the three-argument messages. Second, a Number of Arguments × Quality of Arguments interaction, $F(1, 158) = 3.24$, $p < .07$, revealed that increasing the number of arguments enhanced persuasion only when the arguments were strong. When the arguments were weak, increasing the number of arguments had no effect. The overall lack of an effect of number of arguments on persuasion for weak arguments is consistent with the joint operation of tendencies for increasing the number of weak arguments to enhance agreement under low involvement (where number serves as a cue) but to reduce agreement under high involvement (where subjects think about the arguments). The differential impact of number and quality of arguments on attitudes yielded a marginal three-way interaction, $F(1, 158) = 2.37$, $p < .12$, which is discussed further in the text (see also Figure 2).

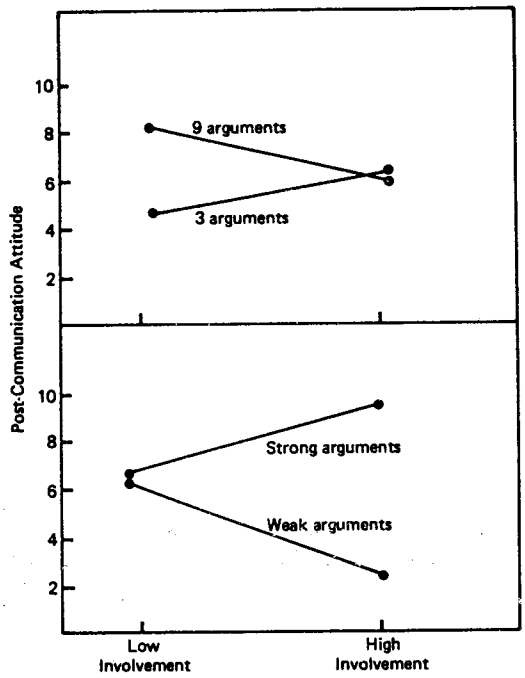

Figure 1. Top panel: Interactive effect of involvement and number of arguments on postcommunication attitudes. Bottom panel: Interactive effect of involvement and quality of arguments on postcommunication attitudes.

for our major hypothesis, we further explored the different effects of the number and quality of arguments manipulations under low- and high-involvement conditions by computing separate Number × Quality ANOVAs for the low- and high-involvement subjects. Under conditions of low involvement, the only effect to emerge was a significant main effect for the number manipulation, $F(1, 79) = 6.89$, $p < .01$. As can be seen in the left panel of Figure 2, under low-involvement conditions, increasing the number of arguments enhanced agreement for both strong and weak arguments. In sharp contrast, in the analysis on high-involvement subjects, two effects emerged. First, as can be seen in the right panel of Figure 2, a main effect for the argument-quality manipulation, $F(1, 79) = 34.57$, $p < .0001$, indicated that subjects showed more agreement to strong than to weak arguments. Second, a significant Number of Arguments × Quality of Arguments interaction, $F(1, 79) = 6.11$, $p < .02$, emerged. This interaction was the result of the joint tendencies for increasing the number of arguments to increase agreement when the arguments were strong, $F(1, 79) = 2.94$, $p < .10$, but to decrease agreement when the arguments were weak, $F(1, 79) = 3.06$, $p < .10$. As a result of these two tendencies, subjects showed greater attitudinal differentiation of the strong from the weak arguments when nine, rather than when three, arguments were presented.

An analysis of subjects' cognitive responses revealed two interaction effects in addition to the main effects already described in the section on manipulation checks. Specifically, an Involvement × Argument Quality interaction appeared on both the number of favorable, $F(1, 158) = 6.11$, $p < .01$, and the number of unfavorable, $F(1, 158) = 6.51$, $p < .01$, thoughts that the subjects listed. The interactions resulted from the subjects' tendencies to generate thoughts that were more consistent with the quality of the arguments when involvement was high rather than when involvement was low. Subjects tended to generate more favorable thoughts to the strong arguments and fewer favorable thoughts to the weak arguments when involvement was high rather than when involvement was low (see left panel of Figure 3) and to generate more unfavorable thoughts to the weak arguments and fewer unfavorable thoughts to the strong arguments when involvement was high rather than when involvement was low (see right panel of Figure 3). These joint tendencies resulted in a pattern where subjects' thoughts significantly differentiated the strong from the weak arguments only when the issue was high in relevance—favorable thoughts, $F(1, 158) = 20.94$, $p < .0001$; unfavorable thoughts, $F(1, 158) = 23.85$, $p < .0001$—and not when the issue was low in relevance (Fs = 1.36 and 1.92, respectively).[5]

[5] Consistent with these interactions, correlational analyses revealed that although subjects' issue-relevant thoughts were significantly related to attitudes under both low- and high-involvement conditions, the correlation between favorable thoughts and attitudes tended to be higher under high ($r = .56$) than under low involvement ($r = .33$; $Z = 1.83$, $p < .07$). Similarly, the correlation between unfavorable thoughts and attitudes tended to be higher under high ($r = -.52$) than under low involvement ($r = -.38$; $Z = 1.11$, *ns*). In addition, subjects' perceptions of the number of arguments in the message showed a marginal relationship to attitudes under low involvement ($r = .19$, $p < .09$), but not under high involvement ($r = .02$).

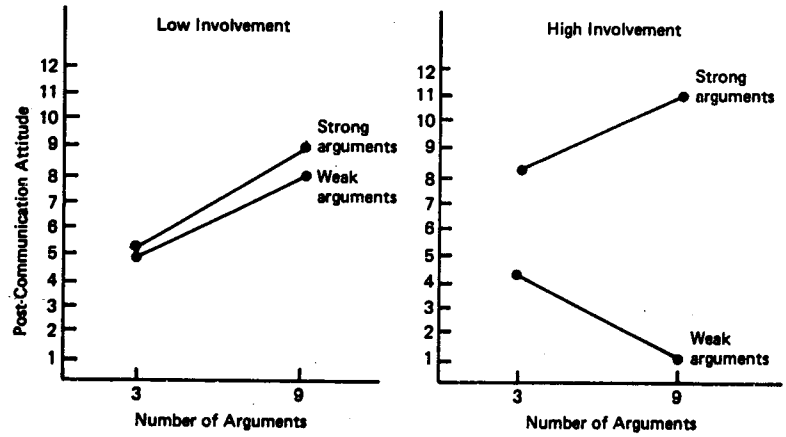

Figure 2. Mean postcommunication attitude in relation to argument quantity and quality for low- and high-involvement recipients.

Discussion

The present research provided initial evidence for the view that increasing the number of arguments in a message can affect attitude change either by enhancing issue-relevant thinking or by serving as a relatively simple acceptance cue. Thus, in the present studies it was observed that if college students were evaluating a relatively low-involvement proposal to raise tuition at a distant university (pilot study) or to institute comprehensive exams at their own university 10 years in the future, the students found the proposal to be more acceptable the more arguments that were presented in support of it. The quality of the arguments didn't have much impact. On the other hand, when the proposal concerned a relatively immediate increase in tuition or the institution of senior comprehensive exams at

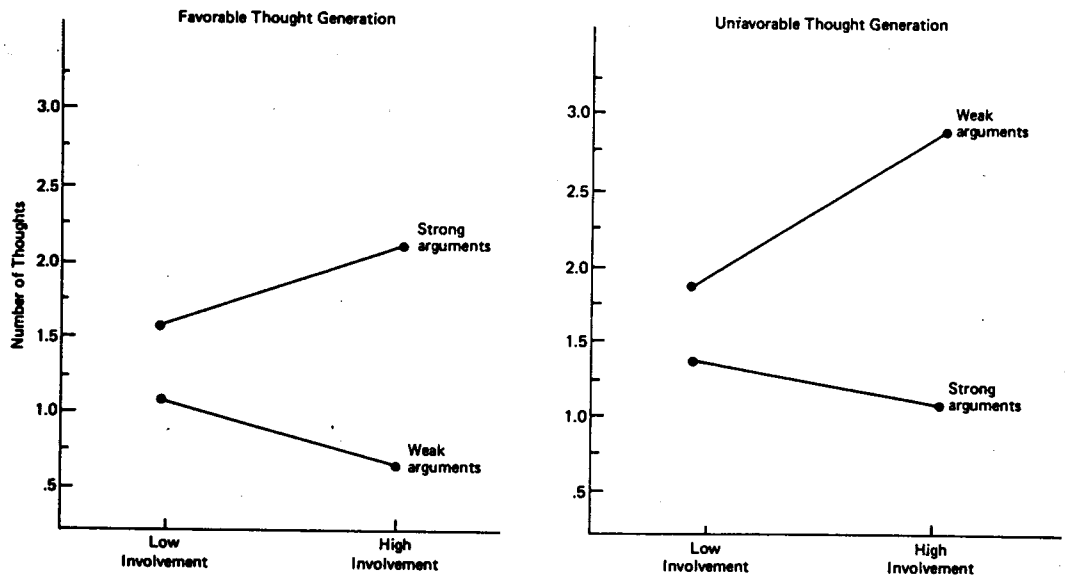

Figure 3. Interactive effect of involvement and quality of arguments on the mean number of favorable and unfavorable thoughts generated.

their own university, acceptance of the proposal depended more on the quality than on the number of issue-relevant arguments provided.

Previous persuasion studies exploring the effects of increasing the number of arguments have not manipulated quality of arguments, and thus it was not possible to tell if the greater agreement engendered by increasing the number of arguments resulted from increased thinking about the arguments or if the greater agreement resulted from the operation of a simple acceptance cue. The present data suggest that a manipulation of number of arguments can affect attitudes with or without issue-relevant thinking. If the arguments presented are thought about and are strong, then it is likely that the more arguments presented up to some limit (see Calder, 1978), the more favorable cognitions and the more agreement that will result. On the other hand, even if the arguments are not thought about, increasing the number of arguments can still increase agreement because people may employ the simple inference, the more the better, or make the assumption that the more arguments, the more carefully researched the proposal must be. Thus, if a persuasion study manipulates number of arguments but employs only cogent arguments (e.g., Calder et al., 1974; Chaiken, 1980; Eagly & Warren, 1976; Insko et al., 1976; Maddux & Rogers, 1980; Norman, 1976), both types of explanations (issue-relevant thinking and simple inference) make the same prediction: With more arguments, agreement should increase. A manipulation of quality of arguments allows a distinction of these two views because argument quality can affect attitudes only if people think about, scrutinize, and evaluate the information presented. Thus, by manipulating argument quantity and quality in the same study along with the personal relevance of the message, it was possible to determine whether different information-processing strategies were being employed under high and low involvement. The present data strongly indicate that the number of arguments in a message serves as a peripheral cue under low involvement but that the arguments presented are carefully evaluated under high involvement. In addition to issue involvement, other variables that affect a person's motivation and/or ability to scrutinize issue-relevant arguments (e.g., prior knowledge; Cacioppo & Petty, 1980) should also determine the extent to which the mere number of arguments in a message serves as a simple acceptance cue. In general, as motivation or ability to process arguments decreases, the more likely is the number of arguments in a message to affect persuasion by serving as a cue.

Although previous research on peripheral cues has focused on how attributes of the message source (e.g., expertise, attractiveness) can induce persuasion without issue-relevant thinking when people are either relatively unmotivated or unable to think about issue-relevant arguments (Chaiken, 1980; Chaiken & Eagly, 1983; Pallak, Murroni, & Koch, 1983; Petty et al., 1981, 1983), the present research provides an initial indication that features of the persuasive message may also serve as peripheral cues. Thus, in addition to number of arguments, message factors such as the length of the arguments and the complexity of the language employed in the message might also serve as simple cues as to the validity of the message (cf. Wood, Kallgren & Priesler, 1982). Furthermore, in addition to source and message factors, peripheral cues might also be associated with the audience (e.g., the presence of hecklers), the message recipient (e.g., the perception of accelerated heart rate), and the overall persuasion context (e.g., the presence of pleasant surroundings). According to the central/peripheral framework, when motivation or ability to expend cognitive effort are low, cues residing in any of these places may lead people to infer that they like or don't like the advocacy or that it is or is not worth supporting.

In introducing the present study, we noted that over the past 30 years of persuasion research, the theories of attitude change that have developed have tended to emphasize either issue-relevant thinking (central route) or some simple cue or inference that is capable of producing attitude change in the absence of issue-relevant thought (peripheral route). The approaches falling under the central route have emphasized factors such as (a) the cognitive justification of attitude-discrepant behavior (Festinger, 1957); (b) the comprehension, learning, and retention of issue-relevant information (e.g., Hovland, Janis, & Kelly, 1953;

McGuire, 1969); (c) the nature of a person's idiosyncratic cognitive responses to external communications (e.g., Greenwald, 1968; Petty, Ostrom, & Brock, 1981); and (d) the manner in which a person combines and integrates issue-relevant information into an overall evaluative reaction (e.g., Ajzen & Fishbein, 1980; Anderson, 1981).

In contrast to this focus on the extensive cognitive activity that is central to an evaluation of the merits of a particular attitudinal position, the peripheral approaches have emphasized factors such as whether or not (a) a simple inference can be made based on observing one's own behavior (Bem, 1972), (b) the advocacy falls within one's predetermined latitude of acceptance or rejection (Sherif & Sherif, 1967), (c) some transient situational utility is associated with adopting a particular attitude (Schlenker, 1980), and (d) an advocated position is classically conditioned to basic cues such as food and pain (e.g., Janis, Kaye, & Kirschner, 1965; Zanna, Kiesler, & Pilkonis, 1970) or is associated with secondary cues such as pleasant words or attractive sources (e.g., Kelman, 1961; Staats & Staats, 1958).[6]

The accumulated research on persuasion clearly indicates that neither the central nor the peripheral approaches can account for the diversity of attitude-change results observed (cf., Cialdini, Petty, & Cacioppo, 1981; Eagly & Himmelfarb, 1978). A general framework for understanding attitude change must consider that in some situations people are avid seekers and manipulators of information, whereas at other times people are best described as "cognitive misers" who eschew any difficult information-processing activity (McGuire, 1969). Given that there are two relatively distinct routes to persuasion, an important question for future research concerns the differential consequences, if any, of the attitude changes induced under each route. We have suggested that there may be two very important consequences of the route to persuasion (Petty & Cacioppo, 1980; 1983).

First, attitude changes induced via the central route may persist longer than changes induced via the peripheral route (Chaiken, 1980; Cialdini, Levy, Herman, Kozlowski, & Petty, 1976). When an attitude change is based on an extensive foundation of issue-relevant beliefs, and these beliefs are rehearsed, the attitude change is likely to persist because the issue-relevant beliefs are likely to remain salient (especially if they are self-generated; see Greenwald, 1968; Slamecka & Graf, 1978). Furthermore, even if a few of the favorable cognitions elicited at the time of message exposure are forgotten, others are likely to remain. On the other hand, attitude changes that result from one prominent cue (e.g., an attractive source) or one simple inference (e.g., if there are so many arguments, it must be good), would appear to be more vulnerable to forgetting. These changes are likely to endure only if the person has been exposed to the persuasive message many times, rendering the cue or inference relatively permanent. Even then, however, such attitude changes would appear to be highly susceptible to counterpropaganda, because the person has so little on which to base a positive or a negative opinion. Thus, the new attitude would be difficult to defend if challenged severely.

A second consequence of the two routes to persuasion is that attitudes formed or changed via the central route may be more predictive of behavior than attitudes formed or changed via the peripheral route (Pallak et al., 1983; Petty et al., 1983). People may have more confidence in attitudes that are based on issue-relevant thinking rather than on peripheral cues, and thus they may be more willing to act on these attitudes. In addition, attitudes based on issue-relevant thinking may be more salient in memory than attitudes based on peripheral cues, and thus people may be more able to act on them (see Fazio & Zanna, 1981).

Even if future work confirms our speculation about the consequences of the two routes to persuasion, this does not mean that the central route will necessarily be the preferred persuasion strategy. Although the possible benefits of the central route appear prepotent (i.e., greater temporal persistence and more predictive of behavior), a major disadvantage may

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[6] Our classification of different persuasion theories under either the central or the peripheral route is meant to be suggestive rather than absolute. For example, although self-perception processes may generally induce attitude change via a simple inference, under some circumstances (e.g., high involvement) the observation of one's own behavior might lead to extended issue-relevant thinking (Liebhart, 1979).

be the difficulty in inducing persuasion via this route. For persuasion to be induced via the central route, people must have both the ability and the motivation to think about the issue-relevant arguments presented, and the arguments presented must be very convincing and compelling when scrutinized. In laboratory research, it is possible for theory-testing purposes to fabricate cogent evidence and arguments for a given position. In most applied settings (e.g., advertising, psychotherapy, the courtroom), however, there are natural (and legal) constraints on the arguments that can be presented. Thus, for example, in a relatively uninteresting court case where the quality of evidence on each side is about equal, or the evidence is weak, an effective strategy might be to overwhelm the opponent with large amounts of evidence. It is interesting that although social psychologists have addressed how to inoculate people against persuasion via the central route (McGuire, 1964), little research has been conducted on strategies for inoculating people from the invidious use of the peripheral route.

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