

# Effects of Message Repetition on Argument Processing, Recall, and Persuasion

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Previous research has suggested that message argument scrutiny is enhanced by moderate levels of message repetition, whereas tedium develops at high levels of message repetition. Such a conceptualization implies that responses to messages containing strong versus weak arguments should be affected differently by a moderate level of message repetition. This prediction was tested in a study of 102 undergraduates assigned randomly to the cells of a 2 (Argument Quality: Strong vs. Weak)  $\times$  2 (Message Repetition: One vs. Three) between-subjects factorial design. Analyses revealed the predicted interaction on the measure of postcommunication attitudes, providing convergent evidence that moderate levels of message repetition can increase or decrease persuasion by enhancing argument scrutiny.

Although the process of persuasion is usually studied using single-message presentations, *message repetition* is prevalent in advertising, institutional appeals, and social interactions. Not only does theory suggest that message repetition can interact with other persuasion factors (see review by Petty & Cacioppo, 1986), but under this heading one finds studies of repeated presentations of novel stimuli (e.g., Stang, 1975), repeated presentations of an assertion or political slogan (e.g., Miller, 1976), repeated presentations of a single set of message arguments supporting a recommendation (e.g., Cacioppo & Petty, 1980), presentations of the same verbal message in combination with various musical or pictorial elements (e.g., Sawyer, 1981), and presentations of various versions of the same message (e.g.,

McCullough & Ostrom, 1974). The present research focuses explicitly on repeated presentations of the same message.

Cacioppo and Petty (1979) proposed a two-stage argument elaboration model of message repetition. A distinctive prediction from this model is the focus of the present research. Briefly, the first stage in the model represents the additional opportunity (and, hence, ability) people have with repeated presentations to think about the message arguments. Given that an individual is also motivated to think about the advocacy (e.g., as in the case of personally relevant appeals; cf. Petty & Cacioppo, 1979), moderate repetition is posited to result in a greater realization of the meaning, interconnections, and implications of the message arguments—that is, greater message elaboration. A more biased stage of message processing was also posited and represents the tedium or psychological reactance that results from high levels of message repetition. The consequent negative affect was posited to bias the subsequent information processing activity by, for instance, making negative associations and elaborations more accessible (i.e., mood congruence effects; see Bower, 1981).

Cacioppo and Petty (1979) reported two experiments that supported this model. In the first experiment, individuals (a) either did not hear a communication (control) or heard a communication, one, three, or five times in succession, (b) rated their agreement with a recommendation, and (c) listed the message arguments they could recall. In the second experiment, individuals heard a communication one, three, or five times in succession, rated their agreement, provided retrospective verbal reports using the thought-listing technique, and listed the message arguments they could recall. The messages employed in both experiments contained strong and compelling arguments. As predicted by the two-stage model, results of both experiments revealed that agreement increased from low- to moderate-exposure frequencies and then decreased as exposure frequency increased further. Contrary to Stang's (1975) learning-leads-to-liking model, agreement was unrelated to the simple number of recalled message arguments (cf. Cacioppo & Petty, 1980; Sawyer, 1981). Analyses of the retrospective verbal protocols, on the other hand, revealed that the production of favorable thoughts mimicked the pattern found for agreement, whereas counterargumentation followed the opposite pattern (first decreasing, then increasing, as exposure frequency increased). These data regarding issue-relevant thinking are consistent with expectations from the two-stage model given that the recommendation was at least moderately involving and that the message consisted of strong arguments. That is, the evidence uniquely favoring Cacioppo and Petty's (1979) two-stage model of message repetition rests on the validity of the retrospective thought-listing procedure as an index of message processing. However, the thought-listing data observed under a moderate level of repetition could reflect a justification for a

positive attitude engendered by mere exposure rather than enhanced argument processing of the strong message leading to more agreement.

The present study was conducted, therefore, to test another distinctive prediction based on the first stage of the two-factor model: that moderate repetition of the same communication leads to more thought about and understanding of the message arguments. Moreover, to test this elaboration enhancement hypothesis, emphasis was placed on a manipulation developed by Petty, Wells, and Brock (1976) to gauge the extent to which individuals thought about message arguments (i.e., argument quality) rather than about the thought-listing data per se. Briefly, if a condition is established in which motivation and ability to process issue-relevant arguments is rather low, then subjects should show little differentiation of strong and weak arguments in this condition. However, if a manipulation enhances argument processing in a relatively objective way, then subjects should show greater differentiation of strong and weak arguments. In the present context, if moderate repetition enhances argument processing in a relatively objective way, then moderate repetition of a message with strong arguments should tend to produce more agreement when scrutiny is high than when scrutiny is low, but a message with weak arguments should tend to produce less overall agreement when scrutiny is high than when scrutiny is low. In contrast, the mere exposure model applied to message repetition predicts a main effect for moderate exposure frequency (cf. Sawyer, 1981).

## METHOD

### Subjects and Design

One hundred two undergraduates participated in order to earn extra credit in an introductory psychology course. Subjects were led to believe that the study primarily concerned the subjective judgment of the sound quality of audiotaped communications. Subjects were tested in groups of 20 or fewer while seated individually at cubicles constructed to eliminate verbal or visual contact with one another during the study. Subjects were assigned randomly to the cells of a 2 (Message Repetition: One vs. Three Exposures)  $\times$  2 (Argument Quality: Strong vs. Weak) between-subjects factorial design.

### Materials

Strong and weak versions of an argument were adapted from those outlined in Petty and Cacioppo (1986). The strong message was defined operationally such that when pilot subjects were instructed to think about the

message, the thoughts that they generated were predominantly favorable toward the recommendation. The weak message was also ostensibly in favor of the same advocacy, but when pilot subjects were instructed to think about the message, the thoughts they generated were predominantly unfavorable. The strong and weak versions of the message were also equated for overall believability and familiarity (see Petty & Cacioppo, 1986, Chap. 2).

### Procedure

Subjects were asked to evaluate the sound quality of an audiotape prepared by a faculty committee for possible broadcast in the university community. Subjects were told that the audiotape would be presented once (in the one-exposure condition) or several times (in the three-exposure condition) because the media plan called for the summary of the committee's report to be aired on several different occasions.

All subjects donned headphones and listened to an appeal by a fictitious faculty committee that stated all seniors should be required to pass a comprehensive exam in their major area of study prior to graduation. Subjects heard either eight strong or eight weak arguments supporting this recommendation. Both strong and weak versions of the message were presented in the same session, whereas the number of times the message was presented (one vs. three) was varied between experimental sessions. Immediately after hearing the strong or weak message one or three times, subjects completed their dependent variable booklet.

### Dependent Variables

Subjects first read that, because their attitude toward the committee's recommendation to institute senior comprehensive exams at their university might affect how they rated the sound quality of the audiotape, they should begin by indicating their attitude using a 9-point semantic differential scale ranging from *unfavorable* (1) to *favorable* (9). Subjects used 9-point scales to rate (a) the sound quality of the audiotaped message, on a scale ranging from *very poor* (1) to *very good* (9); (b) how much mental effort they expended thinking about the message, on a scale ranging from *none* (1) to *very much* (9); (c) how personally important they felt the recommendation to be, on a scale ranging from *not at all* (1) to *very important* (9); and (d) how distracted they felt while listening to the audiotape, on a scale ranging from *not at all* (1) to *very much* (9).

Subjects were next given 2.5 min to list the thoughts and ideas that occurred to them during the audiotape presentation(s) using the thought-listing procedure (cf. Cacioppo & Petty, 1981). Immediately afterward, subjects scored each listed thought as *favorable* (+), *unfavorable* (-), or

*neutral/irrelevant* (0) toward the recommendation to institute senior comprehensive exams. Finally, subjects were given 5 min to list all the message arguments they could recall. The session ended with a complete debriefing.

Two judges independently determined how many of the eight arguments were recalled by each subject. Judges were unaware of the experimental hypotheses and the exposure-frequency condition. Listings of different versions of the same argument were counted as one argument. Interrater reliability was +.79, and judges' counts were averaged to obtain a measure of the number of arguments correctly recalled by each subject.

## RESULTS

### Preliminary Analyses

Preliminary analyses revealed that the strong, in contrast to the weak, version of the message elicited more favorable thoughts ( $M_{\text{strong}} = 1.84$ ,  $M_{\text{weak}} = 1.06$ ),  $F(1, 101) = 8.19$ ,  $p < .01$ , and fewer unfavorable thoughts ( $M_{\text{strong}} = 1.43$ ,  $M_{\text{weak}} = 2.63$ ),  $F(1, 101) = 11.33$ ,  $p < .01$ . These results are consistent with expectations for strong versus weak versions of the persuasive appeal.

### Test of Experimental Hypothesis

Not surprisingly, analyses also revealed that the strong, in contrast to the weak, version of the message resulted in more positive attitudes toward the recommendation ( $M_{\text{strong}} = 5.81$ ,  $M_{\text{weak}} = 4.08$ ),  $F(1, 101) = 21.21$ ,  $p < .01$ . The major experimental hypothesis, however, was that this main effect would be qualified by a significant Message Repetition  $\times$  Argument Quality interaction on the postcommunication measure of attitudes. Results confirmed this hypothesis,  $F(1, 101) = 4.80$ ,  $p < .05$ . The cell means are illustrated in Figure 1. Newman-Keuls comparisons further revealed that the postcommunication attitudes resulting from a single exposure to the strong and weak versions of the message differed only marginally ( $p < .10$ ), whereas the postcommunication attitudes following three exposures to the strong or weak versions differed significantly ( $p < .05$ ). In sum, the attitude data displayed in Figure 1 support the prediction from the elaboration enhancement hypothesis rather than the mere exposure hypothesis as it has been applied to *message* repetition.

### Ancillary Analyses

Further analyses revealed that the attitude data were unrelated to subjects' ability to recall the message arguments per se but were similar in form to

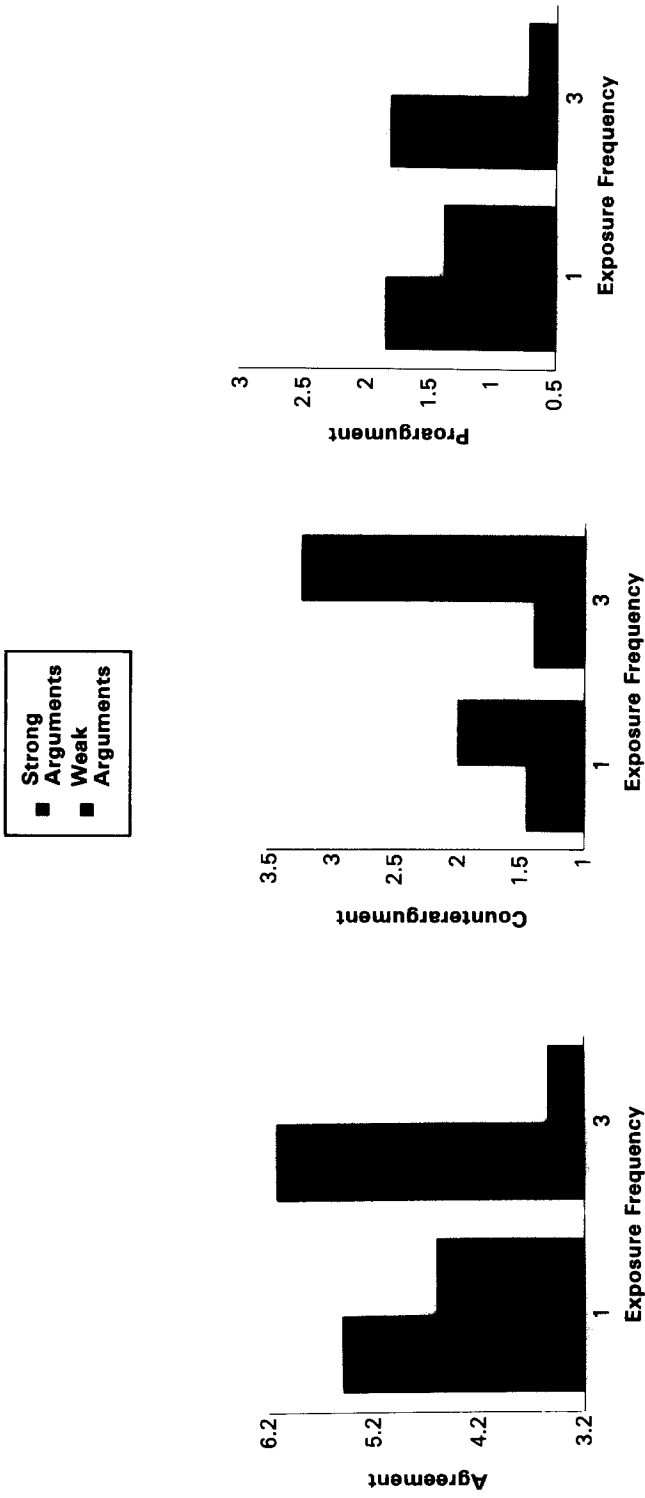


FIGURE 1 Agreement (left panel) and frequency of unfavorable thoughts (middle panel) and favorable thoughts (right panel) as a function of exposure frequency and argument quality.

subjects' issue-relevant thinking as indexed by the thought-listing procedure. Specifically, analyses of the subjects' recall of the message arguments revealed two main effects: (a) Arguments from the strong version of the message were recalled more poorly than those from the weak version ( $M_{\text{strong}} = 4.16$ ,  $M_{\text{weak}} = 5.04$ ),  $F(1, 101) = 7.00$ ,  $p < .01$ , and (b) arguments were better recalled after three presentations than after one ( $M_{\text{three}} = 5.29$ ,  $M_{\text{one}} = 3.91$ ),  $F(1, 101) = 17.13$ ,  $p < .01$ . Contrary to Stang's (1975) learning-leads-to-liking hypothesis, neither the interaction test nor Newman-Keuls comparisons revealed a pattern parallel to subjects' postcommunication attitudes.

Cell means for the cognitive response data are summarized in Figure 1. Analyses also revealed that the interaction tests were not significant, although Newman-Keuls comparisons replicated the pattern observed for the attitude data. One presentation of the strong versus the weak version of the message stimulated statistically equivalent numbers of favorable thoughts and equivalent numbers of unfavorable thoughts ( $ps > .10$ ), whereas three presentations of the strong versus the weak version of the message differentially stimulated the production of favorable and unfavorable thoughts ( $p < .05$ ; see Figure 1).

Finally, analyses of subjects' ratings of the audiotapes revealed that none were statistically significant.

## DISCUSSION

The early work on repetition and attitudes used materials that were, for the most part, meaningless to subjects (e.g., Chinese ideographs) and supported repeated exposures as *the* important factor in creating more positive attitudes and greater recall (e.g., Zajonc, 1968). This tradition fueled explanations such as Stang's (1975) learning-leads-to-liking hypothesis for Zajonc's "mere-exposure" effect, and these explanations were generalized to messages generally (e.g., see Sawyer, 1981). Cacioppo and Petty (1979) suggested that the processes mediating the attitudinal effects of repeated stimulus presentations *differed* when using meaningful rather than meaningless material, with the former involving a more active and constructive role by the recipient than does the mere exposure effect. It was further suggested that, for instance, moderate levels of repetition enhance people's ability to attend to the appeal; to access relevant associations, images, and experiences from memory; to elaborate more upon the externally provided message arguments in light of the associations from memory; to draw inferences about the merits of the arguments; and consequently to consolidate their attitude toward the recommendation.

To test the hypothesis that moderate repetition affects persuasion by

increasing the opportunity to scrutinize arguments in a relatively objective manner, the present study involved exposing students, either once or three times in succession, to a set of eight strong or weak arguments about instituting senior comprehensive exams. The elaboration enhancement interpretation predicts the joint outcome that more favorable attitudes are fostered by moderate repetition of strong arguments, whereas less favorable attitudes are fostered by moderate repetition of weak arguments. In contrast, the simple message learning hypothesis and the mere exposure hypothesis as applied to message repetition (see Sawyer, 1981) hold that more positive attitudes develop as the number of exposures to the same message increases. Results of the present study supported Cacioppo and Petty's (1979) elaboration enhancement hypothesis for the effects of repetition on responses to persuasive arguments.

This is not to suggest that memory is unimportant, but rather that comprehension, associations, elaborations, and inferences are more important than verbatim memory for the arguments. Interestingly, recent research on memory using meaningful rather than meaningless materials similarly shows that memory is a more idiosyncratic and constructive process than initially believed. Whereas memory was once believed to represent a grooving-in of stimulus traces with repetition, memory for meaningful material (e.g., text) is now conceived as a construction—a story, scenario, or design—based on the raw input (e.g., see Johnson & Hasher, 1987). Hence, research from both fields are converging on the importance of the manner in which individuals relate the incoming information to their prior knowledge and on specifying the conditions under which more or less working memory is allotted to this task.

Finally, the most common finding in the area of message repetition, particularly in applied settings (e.g., advertising), is that the persuasive effect of a communication first increases then wears out as repetition increases (e.g., Appel, 1971; Grass & Wallace, 1969). Studied by Cacioppo and Petty (1979) and by Gorn and Goldberg (1980) support the notion that wearout is determined by the reactance and tedium that results from frequent presentations of a given stimulus. The present research further supports the notion that moderate repetition can increase or decrease regard for an attitude object depending on the manner in which recipients related the message arguments to their own knowledge and opinions on the issue. Decreases in attitudes toward an object following moderate levels of advertising are probably uncommon because, given the cost of media time, most poor advertisements are eliminated prior to public exposure, and those that are not are quickly withdrawn or replaced. Indeed, one procedure by which this is accomplished is similar to the procedure employed in the present research—through preliminary research using a representative



sample from the target population to identify audience interests, aspirations, and counterarguments (e.g., using the thought-listing technique; see Alwitt & Mitchell, 1984). Cacioppo and Petty's (1979) model of message repetition and persuasion further suggests, however, that moderate repetition should enhance thoughts most when recipients have some prior knowledge about the topic, when the topic and ad execution are sufficiently relevant and interesting that recipients are motivated to devote the cognitive resources to thinking about the issue, and when the associations and implications evoked by the message arguments are sufficiently rich that their pool is not easily exhausted.

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