

# Heuristic Versus Systematic Information Processing and the Use of Source Versus Message Cues in Persuasion

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In Experiment 1, subjects read a persuasive message from a likable or unlikable communicator who presented six or two arguments concerning one of two topics. High response involvement subjects anticipated discussing the message topic at a future experimental session, whereas low involvement subjects anticipated discussing a different topic. For high involvement subjects, opinion change was significantly greater given six arguments but was unaffected by communicator likability. For low involvement subjects, opinion change was significantly greater given a likable communicator but was unaffected by the arguments manipulation. In Experiment 2, high issue involvement subjects showed slightly greater opinion change when exposed to five arguments from an unlikable (vs. one argument from a likable) communicator, whereas low involvement subjects exhibited significantly greater persuasion in response to one argument from a likable (vs. five arguments from an unlikable) communicator. These findings support the idea that high involvement leads message recipients to employ a systematic information processing strategy in which message-based cognitions mediate persuasion, whereas low involvement leads recipients to use a heuristic processing strategy in which simple decision rules mediate persuasion. Support was also obtained for the hypothesis that content-mediated (vs. source-mediated) opinion change would show greater persistence.

This research distinguishes between a systematic and a heuristic view of persuasion. Both conceptualizations regard message recipients as concerned with assessing the validity of the message's overall conclusion.

According to a systematic view, recipients exert considerable cognitive effort in performing this task: They actively attempt to comprehend and evaluate the message's arguments as well as to assess their validity in relation to the message's conclusion. In contrast, according to a heuristic view of persuasion, recipients exert comparatively little effort in judging message validity: Rather than processing argumentation, recipients may rely on (typically) more accessible information such as the source's identity or other non-content cues in deciding to accept a message's conclusion. In essence, a systematic view of persuasion emphasizes detailed processing of message content and the role of message-based cognitions in mediating opinion change, whereas a heuristic view de-emphasizes detailed information processing and focuses on the role of simple rules or cognitive heuristics in mediating persuasion.

Stimulated largely by traditional theorizing (e.g., Hovland, Janis, & Kelley, 1953;

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McGuire, 1968, 1969), much persuasion research has assumed that source, message, and audience variables affect opinion change to the extent that they influence either message reception (attention, comprehension) or yielding to what is received (cf. McGuire, 1968). To better understand the distinction between systematic versus heuristic processing, it is useful to differentiate yielding to persuasive argumentation from yielding to a message's overall conclusion. In a systematic view, independent variables (e.g., source factors) indirectly affect yielding to a message's conclusion and therefore persuasion via their direct impact on reception or argument-acceptance processes. According to a heuristic view, such variables may directly influence the recipient's willingness to accept the message's conclusion without necessarily influencing reception or acceptance of argumentation.

Research suggesting that good comprehension of persuasive argumentation often facilitates opinion change (e.g., Chaiken & Eagly, 1976; Eagly, 1974; Eagly & Warren, 1976) and research suggesting that distraction often enhances persuasion by interfering with recipients' abilities to critically evaluate persuasive argumentation (e.g., Osterhouse & Brock, 1970; Petty, Wells, & Brock, 1976) illustrate a systematic view of persuasion. Although little if any research has been explicitly guided by a heuristic view of persuasion, such a conceptualization seems warranted by research suggesting that recipients often agree or disagree with a message primarily on the basis of their reactions to non-content cues such as communicator credibility (Miller, Maruyama, Beaber, & Valone, 1976), perceived audience opinion (e.g., Landy, 1972; Silverthorne & Mazmanian, 1975), or external feedback about recipients' own internal states (e.g., Giesen & Hendrick, 1974; Hendrick & Giesen, 1976; Mintz & Mills, 1971). For example, Miller et al. (1976) found that faster (communicator) speech rates enhanced both perceptions of communicator credibility and persuasion. Finding no evidence that the persuasive impact of speech rate was mediated either by comprehension effects or by counterargument disruption, the authors concluded that subjects may have predicated their opinion judgments simply on

the basis of whether the communicator seemed credible. Such a conclusion calls to mind McGuire's (1969) "lazy organism" message-recipient who utilizes source-linked information as a cue for accepting or rejecting the message "without really absorbing the arguments used" (p. 198).

Heuristic information processing may involve the use of relatively general rules (scripts, schemata) developed by individuals through their past experiences and observations (cf. Abelson, 1976; Stotland & Canon, 1972). For example, persons may possess and utilize the rule or categorical script (Abelson, 1976) that statements by experts can usually be considered veridical, or that statements by generally trustworthy persons probably reflect those persons' honest opinions. With respect to source attractiveness, recipients may agree with attractive communicators because they employ the rule that "people generally agree with people they like." Such a script may derive from past experiences with others or, alternatively, may stem from a lower-order rule suggesting a fairly consistent association between the concepts of liking and interpersonal similarity (Stotland & Canon, 1972). Other heuristics may underlie the persuasive impact of other cues. For example, the finding that recipients are less persuaded when an overheard audience expresses disapproval (vs. approval) of a message (Landy, 1972; Silverthorne & Mazmanian, 1975) might reflect their use of a consensus heuristic: Recipients may reject such a message because most other recipients find it unacceptable.

When will recipients employ a systematic rather than heuristic processing strategy? A heuristic strategy has the economic advantage of requiring a minimum of cognitive effort. Certainly, judging message acceptability on the basis of noncontent cues is less effortful than receiving and analyzing persuasive argumentation. Countering this advantage, a heuristic strategy may be a less reliable means of judging message validity. In the long run, overreliance on simple decision rules may inflate Type 1 and Type 2 errors: Recipients may sometimes accept (reject) message conclusions they might otherwise have (correctly) rejected (accepted) had they invested

the time and effort to receive and scrutinize argumentation. A functional perspective suggests that recipients will employ a systematic strategy when reliability concerns outweigh economic concerns, and a heuristic strategy when economic concerns predominate.

Reliability concerns should be paramount and a systematic strategy therefore employed when recipients perceive that it is important to formulate a highly accurate or veridical opinion judgment. Recipients are likely to hold such a perception under conditions of high "issue involvement" (Kiesler, Collins, & Miller, 1969) or high "response involvement" (Zimbardo, 1960). That is, when recipients receive messages on personally important topics or when recipients feel that their opinion judgments have important consequences for themselves (e.g., recipients may expect to discuss or defend their opinions, or to engage in behavior congruent with their expressed opinions) or for others (e.g., jurors' verdicts). When asked for an opinion on an unimportant topic or when one's opinion judgment is perceived as inconsequential, recipients may give economic concerns greater weight and employ a heuristic processing strategy.

This analysis has implications regarding the relative impact of source and message variables on persuasion. In the systematic view, recipients focus primarily on message content. Although source or other noncontent cues may sometimes be used as aids in assessing the validity of persuasive argumentation, such cues may be used in only a secondary manner. Thus, when recipients employ a systematic processing strategy, message characteristics (e.g., amount, comprehensibility, validity of persuasive argumentation) may exert a stronger impact on persuasion than source characteristics (e.g., credibility, likability). Conversely, in the heuristic view of persuasion, recipients avoid detailed processing of message content and instead rely on information such as the source's identity in judging message acceptability. Thus, when recipients employ a heuristic strategy, source characteristics may exert a greater impact on persuasion than message characteristics.

Consistent with the above reasoning, previous researchers have shown that source credibility significantly affects persuasion un-

der conditions of low, but not high, issue involvement (Rhine & Severence, 1970) and response involvement (Johnson & Scileppi, 1969). Also, Petty and Capioppo (1979) recently found that a manipulation of argument strength had a greater persuasive impact when issue involvement was high. The present research systematically explored the utility of the systematic versus heuristic analysis of persuasion and its implications regarding the persuasive impact of source and message cues.

### Experiment 1

Subjects read a persuasive message containing six or two arguments from a likable or unlikable communicator under conditions of high or low response involvement ("consequences"). It was expected that high involvement subjects would employ a systematic processing strategy and would therefore show greater opinion change in response to messages containing six arguments but would be unaffected by the likability manipulation. In contrast, it was expected that low involvement subjects would employ a heuristic strategy and would therefore express greater agreement with the likable communicator but would be unaffected by the arguments manipulation.

The experiment also explored opinion persistence. It was assumed that opinion change would persist to the extent that it was bolstered by topic-relevant cognitions. It was also assumed that recipients who adopted a belief on the basis of who the communicator was would possess fewer supportive cognitions than recipients who adopted a belief on the basis of what the communicator said. These assumptions led to the hypothesis that the presumably content-mediated (initial) opinion change manifested by high involvement subjects would show greater persistence than the presumably source-mediated opinion change manifested by low involvement subjects. To test this hypothesis, subjects' opinions were reassessed approximately 10 days after their laboratory participation.

### Method

#### *Subjects*

Subjects were 207 male and female University of Massachusetts undergraduates who participated for

extra course credit in sessions containing up to six subjects. Nine subjects were eliminated because they suspected an influence attempt (three) or questioned the cover story (six). Data from 15 others were discarded because they were not administered the delayed opinion posttest (13), or because they associated the posttest with their laboratory participation (two).<sup>1</sup>

### *Procedure*

At the first (in actuality, the only) session of a "two-session experiment on opinions and group discussions," the experimenter explained that subjects would receive "discussion topics," give their opinions on these topics, and respond to another questionnaire. Subjects learned that at "the second session" they would be individually interviewed about their opinions on their assigned topics and then discuss their opinions in groups. After this introduction, each subject received a list of five topics and, via a sham random drawing, was assigned one of two topics (sleep habits or the trimester system) from this list.

Justifying the persuasive message, the experimenter stated that subjects would read an opinion interview conducted in a related study to "get an idea of what their own interview would be like." The experimenter noted that the related study had used the same topics but had employed university administrators and faculty, rather than undergraduates, as subjects. Subjects then received an interview transcript (persuasive message, see below) to read. Afterwards, subjects completed a questionnaire that solicited their opinions on all five topics.

"As a second experimental focus" subjects next completed a questionnaire assessing their "reactions to the interview transcripts." This questionnaire contained the remaining dependent measures (see below). Finally, subjects were excused after being told that they would be scheduled for "Session 2" later in the semester.

Approximately 10 days later (mean delay = 10.39 days; range = 8–15 days), subjects were telephoned by an experimenter who was blind to experimental condition. Under the guise of conducting a campus opinion survey, the experimenter solicited subjects' agreement with various opinion statements, two of which corresponded to the positions advocated in the messages presented at the laboratory session. After probing for suspicion regarding the relationship between the posttest and the laboratory session, the experimenter thanked subjects for cooperating in the telephone survey. Subsequently, debriefing letters were mailed to all participants.

### *Interview Transcripts*

The transcripts began with an interviewer asking an interviewee (communicator) for background information. The communicator was portrayed as a male university administrator who worked with

various student organizations. After praising or insulting undergraduates in response to a question from the interviewer, the communicator was asked for his opinion on his "assigned" topic (sleep habits or trimester system). The remainder of the transcript consisted of the communicator's statement of his overall position (see below) and his presentation of various supportive arguments.

### *Independent Variables*

*Perceived consequences.* Response involvement, or perceived consequences, was manipulated by presenting subjects with a message on a topic identical to or different from the topic they were assigned to be interviewed on and discuss at the "second experimental session." Some subjects assigned to the sleep/trimester topic received a sleep/trimester message (high consequences), whereas others received a trimester/sleep message (low consequences).

*Communicator likability.* Likability was manipulated via the communicator's response to the interviewer's question, "How do you like working with undergraduates?" (cf. Eagly & Chaiken, 1975; Jones & Brehm, 1967). This response appears below. Phrases specific to the likable or the unlikable version are enclosed in parentheses or brackets, respectively.

Well, as a matter of fact, I (really enjoy it a lot) [don't really enjoy it very much]. When I first started my job here at the university I was a little apprehensive about the idea of working so much with undergraduates. Over the years, (however, I've realized that my apprehension was unjustified) [I'm sorry to say, I think that my apprehension has been justified]. The undergraduates who I've met both in my work with various student organizations and in other settings as well, strike me as being pretty (responsible and mature) [irresponsible and immature]. They're really (concerned) [unconcerned], I think, with their role in society. I don't know, of course, but sometimes I think that the public too often (underestimates) [overestimates] the ability and maturity of today's college student. They (just don't give undergraduates enough credit) [give undergraduates more credit than they deserve]. Anyway, (it's no wonder that) [sometimes I wonder why] I continue to do the work I do. . . . For me, working with undergraduates (has been pretty) [really hasn't been very] rewarding.

*Topic and position advocated.* Two topics, sleep habits and the trimester system, were used. The positions advocated in the persuasive messages were "People should sleep much less than 8 hours per

<sup>1</sup> Including these 15 subjects in analyses performed on initial opinion change and other measures assessed at the laboratory session yielded findings virtually identical to those reported in the text.

night," and "The university should switch from its two-semester system to a trimester system." Topics and positions were selected after pretesting with an additional 50 subjects who indicated their agreement with various opinion statements. The major selection criterion was that the two statements be counterattitudinal and have similar mean ratings on the 15-point agreement scale ( $M_s = 10.72$  and  $10.54$  for sleep and trimester topics, respectively, where 1 signified strong agreement). Because of the study's focus on response involvement (consequences) rather than issue involvement, an additional criterion required the topics to be rated similarly and not extremely on personal importance. The sleep and trimester topics were considered "neither important nor unimportant" ( $M_s = 8.07$  and  $7.34$ , respectively, on a 15-point scale) by pilot subjects ( $N = 22$ ).

**Number of arguments.** Amount of persuasive argumentation was varied by preparing messages containing six or two supportive arguments. Two renditions of each message type were written. Each rendition of the longer message presented the same six arguments in a different (randomly selected) order. Each rendition of the shorter message contained two different arguments drawn randomly from the pool of six.

### Measuring Instruments

**Opinions.** Immediately after message exposure, subjects indicated their agreement with the overall positions stated in the persuasive messages (see above) by marking 15-point scales anchored by *agree strongly* and *disagree strongly*. During the delayed telephone posttest, subjects indicated their agreement with similarly worded opinion statements by responding orally to 5-point scales anchored by *definitely agree* and *definitely disagree*.

**Thoughts.** On the questionnaire assessing their "reactions to the interview transcript," subjects were first given 3 minutes to list their "thoughts" about the communicator's statements. Thoughts were scored by two independent raters as message-oriented or communicator-oriented (M, C) and as positively, negatively, or neutrally valenced (+, -, 0). Examples of statements placed in each category along with interrater reliability coefficients (Pearson  $r_s$ ) are: M+ ( $r = .86$ ): "The economic advantages of the trimester agree with me"; M- ( $r = .88$ ): "Reason for trimester not sound logically"; M0 ( $r = .86$ ): "He said REM (sleep) can be controlled"; C+ ( $r = .85$ ): "He was very polite"; C- ( $r = .82$ ): "He was a little close-minded"; C0 ( $r = .75$ ): "Hesitant about talking about self."<sup>2</sup>

**Source perception.** Subjects next rated the communicator on 15-point bipolar adjective scales. Positive poles of the 12 scales used were warm, knowledgeable, modest, intelligent, approachable, competent, likable, trustworthy, pleasing, sincere, friendly, and unbiased.

**Message comprehension.** Next, subjects were asked to write down the message topic, its overall

position, and each supportive argument that the communicator had presented. An argument was scored correct if in the opinion of two independent raters ( $r = .86$ ) it accurately summarized an argument appearing in the message. All subjects recalled the message's topic and all but four (retained in the analyses) accurately specified its overall position.

**Other measures.** To measure the effort subjects expended processing message content, the experimenter covertly recorded the time each subject spent reading the interview transcript. On the last page of the reactions questionnaire, subjects rated the message topic's importance, their desire to be well informed on the topic, the effort they had spent reading the message, the relative amount of time they had spent thinking about the communicator's arguments (vs. his personal characteristics), and their interest in the communicator's arguments (all on 15-point scales). Subjects also indicated their age, sex, and assigned topics. In the laboratory, subjects wrote down their interpretations of the study; over the telephone, they were asked if they'd been in any similar opinion surveys. These responses were coded for suspicion.

### Results

The design included two levels each of perceived consequences, communicator likability, number of arguments, message topic, subject sex, and message rendition (nested within levels of topic and number of arguments). Since preliminary analyses yielded few effects due to message rendition, all reported analyses ignored this variable. Of the few sex and topic effects yielded by the reported analyses, only those relevant to the major hypotheses are presented here.

<sup>2</sup> Statements that could not be placed into any of the six categories were coded as "other thoughts" and were not analyzed. It should be noted that the present thought-scoring procedure parallels to a certain extent scoring procedures typically used by persuasion researchers (e.g., Osterhouse & Brock, 1970). Statements traditionally referred to as counterarguments and source derogations are, in the present scheme, termed negative message-oriented thoughts and negative communicator-oriented thoughts, respectively. Statements commonly referred to as supportive thoughts are, in the present scheme, termed positive message-oriented or communicator-oriented thoughts depending on whether they refer more to the message or more to the communicator. For each type of thought, each independent rater judged the number of such thoughts listed by each subject. Interrater reliability was calculated separately for each thought category by determining the correlation between the two raters' judgments.

### Check on Experimental Conditions

The communicator who praised (vs. insulted) undergraduates was judged more likable,  $M_s = 4.22$  versus  $8.83$ ,  $F(1, 151) = 125.14$ ,  $p < .001$ . Subjects recalled more persuasive arguments when the message contained six (vs. two) arguments,  $M_s = 2.81$  versus  $1.56$ ,  $F(1, 151) = 76.18$ ,  $p < .001$ . Finally, the consequences manipulation successfully induced the conditions thought necessary to foster systematic versus heuristic information processing: High (vs. low) consequences subjects expressed a greater desire to be well-informed on the message topic,  $M_s = 6.24$  versus  $7.05$ ,  $F(1, 151) = 3.69$ ,  $p < .06$ .

It is important to note that assignment to topics did not lead subjects to "strategically" shift their opinions (cf., Cialdini, Levy, Herman, Kozlowski, & Petty, 1976): Topic Assigned  $\times$  Topic Received analyses of variance on subjects' initial and delayed opinions on the two topics yielded no significant effects due to topic assignment ( $F_s < 1.0$ ). The topic-received main effect was significant on all four opinion measures ( $p_s < .05$ ), indicating that the persuasive messages successfully shifted subjects' opinions.

### Opinions

Mean opinion change scores for the primary experimental conditions appear in Table 1.<sup>3</sup> Analysis on subjects' initial opinion change scores revealed main effects due to communicator likability,  $F(1, 151) = 4.16$ ,  $p < .05$ ; number of arguments received,  $F(1, 151) = 6.14$ ,  $p < .05$ ; and message topic,  $F(1, 151) = 4.56$ ,  $p < .05$ . Overall, greater initial change occurred given the likable (vs. unlikable) communicator ( $M_s = 2.54$  vs.  $1.51$ ), six (vs. two) persuasive arguments ( $M_s = 2.67$  vs.  $1.47$ ), and trimester (vs. sleep) messages ( $M_s = 2.60$  vs.  $1.59$ ).

Planned comparisons on initial opinion change yielded findings supportive of the study's major hypothesis. As Figure 1 illustrates, high consequences subjects showed greater initial opinion change in response to six (vs. two) arguments,  $F(1, 151) = 4.62$ ,  $p < .05$ , but were unaffected by communicator likability,  $F(1, 151) < 1.0$ . In contrast, low consequences subjects showed greater

Table 1

*Initial and Delayed Opinion Change as a Function of Perceived Future Consequences, Communicator Likability, and Number of Arguments Presented: Experiment 1*

Opinion change	Likable communicator		Unlikable communicator	
	Six arguments	Two arguments	Six arguments	Two arguments
High perceived consequences				
Initial	2.79	2.20	3.28	.48
Delayed	3.02	2.48	2.15	.94
Low perceived consequences				
Initial	3.16	1.98	1.41	.95
Delayed	2.53	.70	1.54	.47

Note. Cell  $n_s$  range from 20 to 26.

initial opinion change given the likable (vs. unlikable) communicator,  $F(1, 151) = 3.92$ ,  $p < .05$ , but were unaffected by the amount of argumentation provided,  $F(1, 151) = 1.48$ ,  $n.s.$  Although these results conformed to predictions, the differences between consequences conditions proved statistically weak on an overall basis. Of the interactions implied by the major hypothesis, neither the Consequences  $\times$  Arguments nor Consequences  $\times$  Likability interactions reached significance in the full analysis of variance ( $p_s = .24$  and  $.25$ ,

<sup>3</sup> Initial opinions were measured on 15-point scales and delayed opinions on 5-point scales. For comparability, subjects' delayed opinion scores were transformed to 15-point scales (see Minium, 1970, p. 115). Opinion change scores were formed by subtracting the mean opinion expressed by an internal control group from each subject's (initial or delayed) opinion. All subjects receiving a sleep message formed an internal control group on the trimester topic for subjects reading a trimester message, and all subjects who received a trimester message served as internal controls on the sleep topic for subjects reading a sleep message. The opinions expressed by internal control subjects did not differ significantly from those expressed by an external control group of opinion-only pilot subjects: For the sleep topic,  $M = 10.23$  versus  $M = 10.72$  for internal and external controls, respectively,  $t(137) = .80$ ; for the trimester topic,  $M = 10.32$  versus  $M = 10.54$  for internal and external controls, respectively,  $t(142) = .34$ .

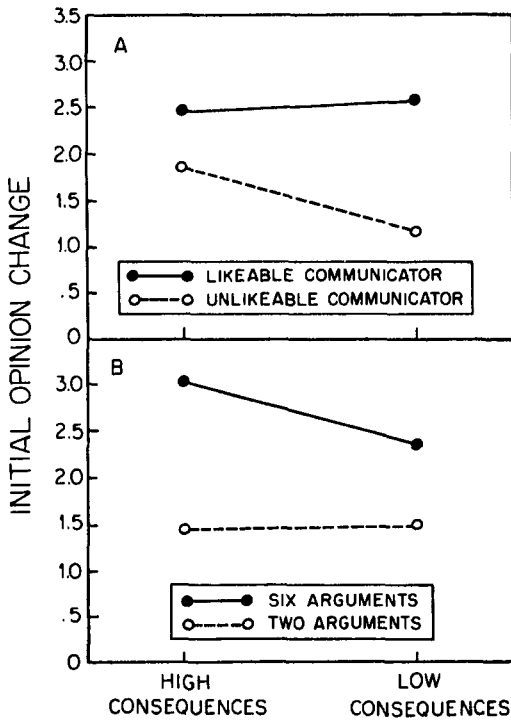


Figure 1. Panel A depicts initial opinion change as a function of communicator likability and perceived consequences; Panel B depicts initial opinion change as a function of number of arguments presented and perceived consequences.

respectively), and the Consequences  $\times$  Arguments  $\times$  Likability interaction attained only marginal significance ( $p < .10$ ).

To explore opinion persistence, a repeated measures analysis of variance employing time of posttest (initial vs. delayed) as an additional design factor was performed. A time of posttest main effect,  $F(1, 151) = 3.96$ ,  $p < .05$ , revealed an overall trend for opinion change to dissipate over the 10-day posttest interval ( $M_s = 2.07$  vs.  $1.76$ ).<sup>4</sup> The Time  $\times$  Consequences  $\times$  Likability interaction,  $F(1, 151) = 4.00$ ,  $p < .05$ , showed a data pattern roughly in accord with the hypothesis that greater persistence would be shown by high consequences subjects. Regardless of communicator likability, the opinion change manifested by high consequences subjects remained relatively stable between posttests:  $M_s = 2.48$  versus  $2.78$ ,  $F < 1.0$ , for likable communicator;  $M_s = 1.88$  versus  $1.54$ ,  $F < 1.0$ , for unlikable communicator. In contrast,

opinion change declined significantly for low consequences subjects exposed to the likable communicator,  $M_s = 2.59$  versus  $1.65$ ,  $F(1, 151) = 7.24$ ,  $p < .01$ , although not for those exposed to the unlikable communicator,  $M_s = 1.18$  versus  $1.00$ ,  $F < 1.0$ . The nonsignificant decrement in the latter condition probably reflects the fact that initial change in this cell was low and only marginally greater than zero,  $t(43) = 1.99$ ,  $p < .10$ .

Paralleling the initial opinion change findings, the repeated measures analysis also yielded between-subjects effects due to likability ( $p < .05$ ), arguments ( $p < .05$ ), and a marginal effect due to message topic ( $p < .10$ ). In addition, a Consequences  $\times$  Likability  $\times$  Arguments  $\times$  Topic interaction ( $p < .05$ ) was obtained. This interaction indicated that the primary experimental variables exerted a stronger impact on opinions within trimester (vs. sleep) message conditions even though the patterning of opinion change means was generally consistent within both topics.

#### Comprehension and Thoughts

In addition to the manipulation check noted earlier, the analysis on argument recall yielded a consequences effect ( $p < .005$ ) and a Consequences  $\times$  Arguments interaction ( $p < .05$ ). Overall, high (vs. low) consequences subjects recalled more arguments ( $M_s = 2.40$  vs.  $1.98$ ), and this difference was most pronounced given six persuasive arguments. Subjects reading trimester (vs. sleep) messages also recalled more arguments ( $p < .001$ ).

Analyses were performed on each type of thought emitted by subjects ( $M+$ ,  $M-$ ,

<sup>4</sup>Subjects' opinions were reassessed between 8 and 15 days after the initial posttest (mean delay = 10.39 days). Analysis of variance on days between posttest yielded no significant effects. Thus all experimental groups were subjected to approximately the same delay interval. Also, unless they were playing the role of "cooperative" subjects to the hilt, the low rate of suspicion or innocent mention of their earlier laboratory experience expressed by subjects during the "telephone opinion survey" suggested that the experiment had been successful in divorcing the context of the delayed posttest from the context of the initial opinion posttest.

M 0, C +, C -, C 0) and also on three derived indices: Message-oriented minus communicator-oriented thoughts (regardless of valence), positive minus negative thoughts (regardless of orientation), and total thoughts expressed. For brevity, only the analyses on the derived indices are reported. Relatively more message-oriented than communicator-oriented thoughts were expressed by high (vs. low) consequences subjects ( $p = .06$ ), and also by subjects exposed to six (vs. two) arguments ( $p < .005$ ) and the likable (vs. unlikable) communicator ( $p < .005$ ). A likability effect on positive minus negative thoughts ( $p < .001$ ) indicated that the likable communicator elicited more positive than negative thoughts, whereas the unlikable communicator elicited more negative thoughts. No effects obtained on total thoughts expressed.

#### Source Perception

A factor analysis (varimax rotation) of the source ratings yielded two rotated factors, labeled *attractiveness* (e.g., warm, likable, friendly) and *expertise* (e.g., knowledgeable, intelligent, competent). These factors accounted for 55.8% and 10.2% of the variance, respectively. Factor scores were computed for each subject and treated by analysis of variance. The trustworthy, sincere, and unbiased scales, which loaded highly on neither factor, were analyzed separately. These analyses revealed that the likable (vs. unlikable) communicator was viewed as more attractive, expert, trustworthy, sincere, and unbiased ( $ps < .005$ ).

#### Other Dependent Variables

High (vs. low) consequences subjects spent more time reading the persuasive message ( $p < .005$ ) and reported spending more time thinking about the communicator's arguments than his personal characteristics ( $p < .01$ ). Subjects exposed to six (vs. two) persuasive arguments also took longer to read the message ( $p < .001$ ), spent more time thinking about the communicator's arguments ( $p < .001$ ), expressed a greater desire to be well informed on the topic ( $p < .005$ ), reported exerting greater effort reading the message

( $p < .05$ ), and rated the topic as being more important ( $p < .001$ ).

#### Correlational Analyses

Correlational analyses provided further information regarding the cognitive mediation of initial opinion change. Correlations between opinion change and perceptions of the communicator (source ratings, positive and negative communicator-oriented thoughts) were generally low and nonsignificant, with the exception of perceived expertise, which correlated positively with opinion change within both low and high consequences conditions ( $r = .29$ ,  $p < .005$ , and  $r = .25$ ,  $p < .05$ , respectively). As anticipated by the systematic versus heuristic analysis of persuasion, argument recall and both positive and negative message-oriented thoughts were significantly correlated with initial opinion change within high consequences conditions (recall:  $r = .26$ ,  $p < .05$ ; M+:  $r = .41$ ,  $p < .001$ ; M-:  $r = -.32$ ,  $p < .001$ ), but only negligibly related within low consequences conditions (recall:  $r = .06$ ; M+:  $r = .20$ ,  $p < .10$ ; M-:  $r = -.16$ ,  $p < .15$ ).

Multiple regression analyses using initial opinion change as the criterion variable were also performed.<sup>5</sup> Within high consequences conditions, greater initial opinion change was predicted primarily by a greater number of both positive message-oriented thoughts ( $p < .05$ ) and positive communicator-oriented thoughts ( $p = .07$ ), fewer negative message-oriented thoughts ( $p = .10$ ), and greater argument recall ( $p = .11$ ). Within low consequences conditions, variables that significantly or marginally predicted greater initial opinion change included heightened percep-

<sup>5</sup> Two (regular) multiple regression analyses were performed, one employing data from high consequence subjects ( $n = 89$ ) and one using data from low consequence subjects ( $n = 94$ ). Both analyses employed the following predictor variables: age, time spent reading the message, self-reported time spent thinking about the communicator's argumentation (vs. personal characteristics), attractiveness factor scores, expertise factor scores, arguments recalled, positive and negative communicator-oriented thoughts, and positive and negative message-oriented thoughts.

tions of communicator expertise ( $p < .05$ ) and a greater number of positive communicator-oriented thoughts ( $p = .06$ ).

### Experiment 2

A conceptual replication of the first experiment was conducted in order to extend the generality of the systematic versus heuristic analysis. This study included only the most theoretically interesting combinations of the arguments and likability variables and manipulated issue involvement ("personal relevance") rather than response involvement. In the  $2 \times 2$  design of Experiment 2, subjects read a message consisting of either five persuasive arguments from an unlikable communicator or one persuasive argument from a likable communicator under conditions of either high or low personal relevance. It was predicted that subjects in high personal relevance conditions would be more persuaded by five arguments from an unlikable communicator than by one argument from a likable communicator. Conversely, low personal relevance subjects were expected to show greater opinion change in the one-argument/likable-communicator condition than in the five-arguments/unlikable-communicator condition. Experiment 2 did not examine opinion persistence and did not include the full set of dependent measures employed in Experiment 1.

### Method

#### Subjects

Subjects were 80 University of Toronto undergraduates enrolled in the author's introductory psychology course who volunteered to remain after class one evening to participate in an "impression formation" experiment.

#### Procedure

Each subject received one of four versions (representing the four experimental conditions) of an experimental booklet. The instructions printed on the cover page informed subjects that they would record their impressions of a "target speaker" after first reading a "partial transcript of an interview with the target" and a "transcript of a speech made by the target."

**Communicator likability.** The first page of the booklet presented the "interview transcript." The target speaker (communicator) was portrayed as a

University of Toronto (U of T) administrator who had previously held a similar position at the University of British Columbia (UBC). Similar to the device employed in Experiment 1, the communicator's likability or unlikability was conveyed via his response to the interviewer's question, "By the way, how do you like U of T compared to UBC?" In essence, the likable communicator responded by praising U of T students and faculty and extolling the virtues of living in Toronto (at the expense of UBC and Vancouver), whereas the unlikable communicator responded by derogating U of T students and faculty and the city of Toronto (to the benefit of UBC and Vancouver).

**Personal relevance of message topic.** The next page of the booklet informed subjects that they would read a transcript of the "target's speech on the issue of switching from a two-semester to a trimester system at the university." It was stated that the speech had been presented to a university committee charged with studying the issue. High (vs. low) personal relevance was manipulated by stating that, if the Committee approved a switch, the university would adopt the trimester system in the 1981 (vs. 1985) academic year.

**Persuasive message.** The last page of the booklet contained the persuasive message, whose overall position stated that "the University of Toronto should switch from its current two-term system to a trimester system." Opinion data from an independent group of control subjects ( $N = 125$ ) indicated that U of T undergraduates disagreed moderately with this position ( $M = 10.33$  on a 15-point scale on which 15 signified extreme disagreement). In the message, the communicator first stated his overall position and, if portrayed earlier as unlikable, provided five arguments supporting this position. If the communicator had been portrayed as likable, he presented only one supportive argument (drawn randomly from the pool of five arguments). Both messages ended with the communicator restating his overall position on the message topic.

**Dependent measures.** After examining their experimental booklets, subjects were given a one-page questionnaire. Subjects first wrote down the communicator's overall position (all subjects satisfactorily recalled the position) and then indicated their agreement with this position by marking a 15-point scale anchored by *strongly disagree* and *strongly agree*. Next, subjects rated the communicator on the following 15-point bipolar adjective scales: warm-cold, likable-unlikable, friendly-unfriendly, and sincere-insincere. On 15-point scales, subjects next indicated how personally relevant they considered the message topic to be, the relative amount of time they had spent thinking about the communicator's arguments (vs. personal characteristics), and the extent to which they typically agreed (disagreed) with people they liked (disliked). Subjects also indicated their sex and wrote down their interpretations of the experiment. Three subjects (retained in the analyses) were assessed as being suspicious of an influence attempt (two) or the cover story (one).

### Results

The design included two levels each of subject sex, personal relevance of message topic, and source-argument pairing (unlikable communicator - five arguments vs. likable communicator - one argument). Since preliminary analyses revealed no sex differences, subject sex was ignored in the reported analyses.

#### Check on Experimental Conditions

Subjects informed that the university planned to adopt the trimester (if approved) in 1981 (vs. 1985) judged the trimester issue to be significantly more personally relevant:  $M_s = 5.58$  versus  $7.42$ ,  $F(1, 76) = 5.62$ ,  $p < .025$ ). No other effects were significant on this measure. The only significant effect on subjects' likableness ratings was due to the source-argument pairing variable,  $F(1, 76) = 10.11$ ,  $p < .005$ : The communicator who praised (vs. insulted) U of T students and faculty and complimented (vs. derogated) Toronto was regarded as more likable ( $M_s = 5.82$  vs.  $7.75$ ).

#### Opinion Change

Opinion change scores (see Table 2) were formed by subtracting the mean opinion of the control group from each subject's opinion. As expected, the Relevance  $\times$  Source-Argument Pairing interaction proved significant on these scores,  $F(1, 76) = 4.30$ ,  $p < .05$ . Within low personal relevance conditions, significantly greater opinion change occurred among subjects in the likable-communicator/one-argument condition than in the unlikable-communicator/five-arguments condition,  $F(1, 76) = 4.52$ ,  $p < .05$ . Within high relevance conditions, nonsignificantly greater opinion change occurred among subjects in the unlikable-communicator/five-arguments (vs. likable/one-argument) condition,  $F < 1.0$ . No other effects were significant on opinion change.

*Other measures.* The likable communicator (who presented one argument), compared to the unlikable communicator (who presented five arguments), was viewed as more likable ( $p < .005$ ), warmer ( $p < .005$ ),

Table 2

*Mean Opinion Change and Use of the Liking/Agreement Rule as a Function of Personal Relevance and Source-Argument Pairing: Experiment 2*

Dependent variable	Unlikable/ five arguments	Likable/ one argument
High relevance		
Opinion change	3.73	2.78
Use of liking/ agreement rule	7.25	10.30
Low relevance		
Opinion change	2.18	4.68
Use of liking/ agreement rule	8.75	8.95

*Note.* Higher numbers indicate greater opinion change and greater use of the liking/agreement rule. Cell  $ns = 20$ .

and friendlier ( $p < .001$ ), but as less sincere ( $p < .05$ ). No other effects were significant on these ratings.

It had been expected that low relevance subjects would report greater use of the liking/agreement rule. Although the means were in the expected direction, the relevance effect proved nonsignificant ( $F < 1.0$ ) on subjects' reports of the extent to which they typically agreed (disagreed) with people they liked (disliked).<sup>6</sup> Analysis of this measure (see Table 2 for means) did yield a source-argument pairing effect ( $p < .025$ ), and more

<sup>6</sup> Because this item appears to ask for self-reported use of the liking/agreement heuristic over an extended period of time, it is quite reasonable to argue that subjects' responses would not necessarily be affected by their present level of involvement (indeed, the results on this item conformed only partially to predictions). The rationale for including this item and thinking that it might reflect high and low involvement subjects' differential use of the liking/agreement rule is similar to the logic underlying Bem's (1972) self-perception hypothesis. Just as we might expect a person's presumably stable self-description of how honest he or she is typically to be influenced by a recent and salient honest (or dishonest) behavior on his or her part, it was expected that subjects' self-reports of their typical use of the liking/agreement heuristic would be influenced by whether or not they had just employed this rule in making their opinion judgments.

interestingly, a Relevance  $\times$  Source-Argument Pairing interaction ( $p < .05$ ). The first effect indicates greater reported use of the liking/agreement rule among subjects in likable-communicator/one-argument (vs. unlikable/five-arguments) conditions. The interaction indicates that among subjects exposed to five arguments from an unlikable communicator, greater use of the liking/agreement rule was, as expected, reported by subjects within low relevance conditions. However, among subjects receiving only one argument from a likable communicator, those within high personal relevance conditions reported greater use of this heuristic.

No significant effects were obtained on subjects' ratings of the amount of time they had spent thinking about the communicator's arguments versus his personal characteristics.

### Discussion

The systematic versus heuristic analysis of persuasion suggests that high levels of response or issue involvement lead message recipients to employ a systematic information processing strategy in forming their opinion judgments, whereas low levels of involvement lead recipients to employ a more economic heuristic strategy. Based on the assumption that systematic processing maximizes the persuasive impact of message cues and minimizes the impact of noncontent cues and that heuristic processing minimizes the persuasive impact of message cues and maximizes the impact of noncontent cues, it was hypothesized that the initial opinion judgments of high involvement subjects would be more strongly influenced by the amount of argumentation provided in the message than by the communicator's likability, whereas the reverse would be true for low involvement subjects.

The two experiments provided converging evidence for this hypothesis. In the first study, high consequences subjects exhibited significantly greater initial opinion change in response to messages containing six arguments but were unaffected by the communicator's likability. Conversely, low consequences subjects exhibited significantly greater opinion change in response to the likable

communicator but were unaffected by the amount of argumentation provided. In Experiment 2, subjects for whom the message topic was high in personal relevance showed slightly greater opinion change when receiving five arguments from an unlikable communicator than when receiving one argument from a likable source. In contrast, subjects for whom the topic was low in personal relevance exhibited significantly greater opinion change when they received one argument from a likable (vs. five arguments from an unlikable) communicator.

Analyses on the supplementary measures included in Experiment 1 yielded additional support for the assumptions underlying the major hypothesis. The fact that high consequences subjects expressed a greater desire to be well informed on the message topic corroborated the assumption that the consequences manipulation would engender differing levels of motivation for in depth information processing. The data were also generally consistent with the assumption that these differing motivational sets would lead high consequences subjects to employ a systematic processing strategy in which message-based cognitions would primarily mediate opinion change and would lead low consequences subjects to employ a heuristic strategy in which their perceptions of the communicator would primarily mediate persuasion. High, compared to low, consequences subjects spent more time reading the persuasive message, reported spending more time thinking about the communicator's argumentation (vs. his personal characteristics), recalled more arguments, and generated relatively more message-oriented (vs. communicator-oriented) thoughts. Further, correlational analyses revealed that argument recall, positive message-oriented thoughts, and negative message-oriented thoughts were significantly correlated with and relatively good predictors of initial opinion change ( $ps < .11$ ) for high consequences subjects. In contrast, these variables were negligibly correlated with and poor predictors of initial opinion change ( $ps > .28$ ) for low consequences subjects. Finally, although perceptions of communicator expertise were significantly correlated with opinion change within both consequences conditions, per-

ceived expertise proved to be a significant predictor of initial opinion change for low consequences ( $p < .05$ ), but not high consequences ( $p > .31$ ), subjects.

### *Communicator Likability and Opinion Change*

Although the opinion data of Experiment 1 were consistent with the suggestion that the persuasive impact of communicator likability might reflect recipients' use of a simple schema such as "people generally agree with persons they like," the study provided no direct support for this simple information processing mechanism. Further, because the likable communicator was regarded not only as more attractive but also as more expert, sincere, trustworthy, and unbiased than his unlikable counterpart, it is probably unwise to interpret the impact of the likability manipulation on opinion change and other measures as reflecting the unique effect of communicator likability, unconfounded by other source dimensions. The fact that subjects' perceptions of communicator expertise related more strongly to opinion change than their perceptions of communicator attractiveness underscores this point. Indeed, the finding that expertise (and not attractiveness) predicted initial opinion change for low consequences subjects suggests that if, as proposed here, these subjects did employ a simple decision rule in forming their opinion judgments, it was most likely one based on their perceptions of the communicator's expertise.

It is important to note that the likability manipulation of Experiment 1 had little impact on measures presumed to reflect subjects' processing of message content (e.g., argument recall, time spent reading the message, time spent thinking about the communicator's argumentation vs. time spent thinking about his personal characteristics). These findings are consistent with previous research (e.g., Norman, 1976; Snyder & Rothbart, 1971) and compatible with a heuristic view of persuasion: Communicator characteristics such as likability may often directly affect recipients' tendencies to accept or reject a message's overall conclusion without necessarily influencing their processing of persuasive argumentation.

To more directly explore recipients' possible use of a liking/agreement rule, subjects in Experiment 2 were asked to indicate the extent to which they typically agreed (disagreed) with people they liked (disliked). The findings obtained on this measure conformed only partially to predictions. Among subjects receiving five arguments from an unlikable communicator, low relevance subjects reported greater use of the liking/agreement rule, as expected. However, among subjects receiving one argument from a likable communicator, high relevance subjects reported greater use of this heuristic. It is possible that although high relevance subjects in this condition may have been primarily oriented toward assessing message content, they may have considered a message containing only one argument a meager basis for assessing message validity. Consequently, these subjects may have felt it necessary to rely also on information regarding the communicator's likability in forming their opinion judgments. This interpretation, although tentative, suggests that aside from low levels of involvement, recipients may rely heavily on source (or other noncontent) cues in judging message acceptability when the message's argumentation provides an insufficient basis on which to predicate an opinion judgment. In support of this conjecture, McCroskey (1969) found that communicator credibility significantly affected opinion change only when the persuasive message contained minimal (vs. strong) evidence in support of its overall conclusion (for an elaborated discussion of factors other than involvement that may enhance the persuasive impact of source cues, see Chaiken, 1978).

### *Persistence of Opinion Change*

As noted previously, Experiment 1 provided adequate support for the assumption that message-based cognitions would primarily mediate initial opinion change within high consequences conditions, whereas source-oriented cognitions would primarily mediate opinion change within low consequences conditions. This assumption led to the hypothesis that greater opinion persistence would be manifested by high consequences subjects.

In accord with this hypothesis, opinion change remained relatively stable over time within high consequences conditions but dissipated within low consequences conditions, although the decrease was significant only for low consequences subjects exposed to the likable communicator. The failure to detect a significant decrement within the low consequences/unlikable communicator condition is understandable, since initial change in this cell was not reliably different from zero, presumably because subjects used the communicator's unlikability as a discounting cue.

The present persistence findings and analysis of persuasion are relevant to the sleeper effect phenomenon. First, the data showed no hint of a sleeper effect: There was no trend, within or across consequences conditions, for agreement with an unlikable communicator to increase with the passage of time. The traditional "discounting-cue" explanation for the sleeper effect (Hovland, Lumsdaine, & Sheffield, 1949) holds that over time, the discounting cue (e.g., communicator unlikability) becomes dissociated from the message so that the persuasive impact of message content gradually becomes manifest (McGuire, 1969). Cook and Gruder (Note 1) have suggested that the sleeper effect is likely to be observed only if (among other criteria) (a) the message is convincing and has a strong initial impact on opinions and (b) the discounting cue significantly inhibits the persuasive impact the message would typically have. An implicit assumption of their analysis as well as earlier analyses (Hovland et al., 1949; McGuire, 1968) is that recipients have adequately processed message content—otherwise it is unlikely that over time, the persuasive impact of message content could possibly manifest itself.

The systematic versus heuristic analysis of persuasion suggests that Cook and Gruder's (Note 1) two criteria may be met and, consequently, that the sleeper effect may be observed only when involvement is at some moderate level. When involvement is high, the present analysis suggests that the persuasive impact of potential discounting cues (e.g., low levels of credibility, likability) will be minimal. Thus, unless perhaps a discounting cue is made salient after recipients have pro-

cessed message content, it is unlikely that Cook and Gruder's second criterion typically would be met. Conversely, when involvement is low, the present analysis suggests that message content has a minimal impact on opinions and that recipients generally predicate their opinions on the basis of their reactions to noncontent cues. Given low levels of involvement, then, it is unlikely that Cook and Gruder's first criterion would often be met.

### *Involvement and Persuasion*

Finally, the current research has implications for understanding the impact of involvement on opinion change and opinion persistence. The fact that involvement exerted no main effect on initial opinion change in either experiment, as well as some recent demonstrations that greater involvement sometimes facilitates persuasion (e.g., Pallak, Mueller, Dollar, & Pallak, 1972; Petty & Cacioppo, 1979), contradicts earlier theorizing (e.g., Sherif, Sherif, & Nebergall, 1965; Triandis, 1971) and research (Miller, 1965; Sherif & Hovland, 1961) suggesting that greater involvement typically lowers message persuasiveness. The systematic versus heuristic analysis, which argues that greater involvement heightens recipients' tendencies to scrutinize message content, suggests that high involvement can both facilitate and inhibit persuasion depending on the quality of persuasive argumentation. Indeed, Petty and Cacioppo (1979) recently found that involvement heightened persuasion when a message contained strong arguments but inhibited persuasion when the message presented weak arguments. On the other hand, the finding in Experiment 1 that high consequences subjects showed relatively greater opinion stability suggests, in accord with previous correlational evidence (Watts, 1967), that opinion change induced under high involvement conditions results in greater persistence. This greater persistence presumably occurs because high involvement fosters in depth processing of message content, which leads recipients to possess more topic-relevant cognitive supports for their adopted opinions.

## Summary and Conclusions

The present research generally supports the distinction made between a systematic view of persuasion, with its emphasis on detailed information processing and the mediational role of content-based cognitions, and a heuristic view of persuasion, with its focus on the role of simple rules or cognitive heuristics in mediating opinion change. Admittedly, the research was more successful in documenting the cognitive mediation of opinion change specified by a systematic view of persuasion than it was in documenting the cognitive mediation specified by a heuristic conceptualization. Yet the overall pattern of findings supports the utility of the latter conceptualization and suggests that it may be worthwhile for persuasion researchers to further explore the conditions under which recipients may engage in heuristic information processing and to explore more systematically the kinds of simple information processing mechanisms that may often underlie persuasion effects.

The research also provides some support for the hypothesis that content-mediated opinion change should persist longer than source-mediated persuasion. Finally, the relevance of the systematic versus heuristic analysis of persuasion to the sleeper effect phenomenon and the role of involvement in persuasion are discussed. With regard to the former, it is suggested that the preconditions thought necessary for obtaining the sleeper effect (Cook & Gruder, Note 1) may not often occur when involvement levels are set very high or low. With respect to involvement itself, it is argued that although heightened involvement can both facilitate and inhibit the immediate impact of a persuasive message, change induced under conditions of high (vs. low) involvement should show greater persistence.

## Reference Note

1. Cook, T. D., & Gruder, C. L. *The sleeper effect predicted from the discounting cue hypothesis: A living phenomenon*. Unpublished manuscript, Northwestern University, 1979.

## References

- Abelson, R. P. Script processing in attitude formation and decision making. In J. S. Carroll & J. W.

- Payne, *Cognition and social behavior*. Hillsdale, N.J.: Erlbaum, 1976.
- Bem, D. J. Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 6). New York: Academic Press, 1972.
- Chaiken, S. *The use of source versus message cues in persuasion: An information processing analysis*. Unpublished doctoral dissertation, University of Massachusetts—Amherst, 1978.
- Chaiken, S., & Eagly, A. H. Communication modality as a determinant of message persuasiveness and message comprehension. *Journal of Personality and Social Psychology*, 1976, 34, 605–614.
- Cialdini, R. B., Levy, A., Herman, P., Kozlowski, L. T., & Petty, R. E. Elastic shifts of opinion: Determinants of direction and durability. *Journal of Personality and Social Psychology*, 1976, 34, 663–672.
- Eagly, A. H. Comprehensibility of persuasive arguments as a determinant of opinion change. *Journal of Personality and Social Psychology*, 1974, 29, 758–773.
- Eagly, A. H., & Chaiken, S. An attribution analysis of the effects of communicator characteristics on opinion change: The case of communicator attractiveness. *Journal of Personality and Social Psychology*, 1975, 32, 136–144.
- Eagly, A. H., & Warren, R. Intelligence, comprehension, and opinion change. *Journal of Personality*, 1976, 44, 226–242.
- Giesen, M., & Hendrick, C. Effects of false positive and negative arousal feedback on persuasion. *Journal of Personality and Social Psychology*, 1974, 30, 449–457.
- Hendrick, C., & Giesen, M. Self-attribution of attitude as a function of belief feedback. *Memory and Cognition*, 1976, 4, 150–155.
- Hovland, C. I., Janis, I. L., & Kelley, H. H. *Communication and persuasion*. New Haven, Conn.: Yale University Press, 1953.
- Hovland, C. I., Lumsdaine, A. A., & Sheffield, F. D. *Experiments on mass communication*. Princeton, N.J.: Princeton University Press, 1949.
- Johnson, H. H., & Scileppi, J. A. Effects of ego-involvement conditions on attitude change to high and low credibility communicators. *Journal of Personality and Social Psychology*, 1969, 13, 31–36.
- Jones, R. A., & Brehm, J. W. Attitudinal effects of communicator attractiveness when one chooses to listen. *Journal of Personality and Social Psychology*, 1967, 6, 64–70.
- Kiesler, C., Collins, B., & Miller, N. *Attitude change*. New York: Wiley, 1969.
- Landy, D. The effects of an overheard audience's reaction and attractiveness on opinion change. *Journal of Experimental Social Psychology*, 1972, 8, 276–288.
- McCroskey, J. C. A summary of experimental research on the effects of evidence in persuasive communication. *Quarterly Journal of Speech*, 1969, 55, 169–176.
- McGuire, W. J. Personality and susceptibility to social influence. In E. F. Borgatta & W. W. Lam-

- bert (Eds.), *Handbook of personality theory and research*. Chicago: Rand McNally, 1968.
- McGuire, W. J. The nature of attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (2nd ed., Vol. 3). Reading, Mass.: Addison-Wesley, 1969.
- Miller, N. Involvement and dogmatism as inhibitors of attitude change. *Journal of Experimental Social Psychology*, 1965, 1, 121-132.
- Miller, N., Maruyama, G., Beaber, R. J., & Valone, K. Speed of speech and persuasion. *Journal of Personality and Social Psychology*, 1976, 34, 615-624.
- Minium, E. W. *Statistical reasoning in psychology and education*. New York: Wiley, 1970.
- Mintz, P. M., & Mills, J. Effects of arousal and information about its source upon attitude change. *Journal of Experimental Social Psychology*, 1971, 7, 561-570.
- Norman, R. When what is said is important: A comparison of expert and attractive sources. *Journal of Experimental Social Psychology*, 1976, 12, 294-300.
- Osterhouse, R. A., & Brock, T. C. Distraction increases yielding to propaganda by inhibiting counterarguing. *Journal of Personality and Social Psychology*, 1970, 15, 344-358.
- Pallak, M. S., Mueller, M., Dollar, K., & Pallak, J. Effect of commitment on responsiveness to an extreme consonant communication. *Journal of Personality and Social Psychology*, 1972, 23, 429-436.
- Petty, R. E., & Cacioppo, J. T. Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, 1979, 37, 1915-1926.
- Petty, R. E., Wells, G. L., & Brock, T. C. Distraction can enhance or reduce yielding to propaganda: Thought disruption versus justification. *Journal of Personality and Social Psychology*, 1976, 34, 874-884.
- Rhine, R. J., & Severence, L. J. Ego-involvement, discrepancy, source credibility, and attitude change. *Journal of Personality and Social Psychology*, 1970, 16, 175-190.
- Sherif, M., & Hovland, C. I. *Social judgment*. New Haven, Conn.: Yale University Press, 1961.
- Sherif, C. W., Sherif, M., & Nebergall, R. E. *Attitude and attitude change*. Philadelphia, Pa.: Saunders, 1965.
- Silverthorne, C. P., & Mazmanian, L. The effects of heckling and media of presentation on the impact of a persuasive communication. *Journal of Social Psychology*, 1975, 96, 229-236.
- Snyder, M., & Rothbart, M. Communicator attractiveness and opinion change. *Canadian Journal of Behavioral Science*, 1971, 3, 377-387.
- Stotland, E., & Canon, L. K. *Social psychology: A cognitive approach*. Philadelphia, Pa.: Saunders, 1972.
- Triandis, H. *Attitude and attitude change*. New York: Wiley, 1971.
- Watts, W. A. Relative persistence of opinion change induced by active compared to passive participation. *Journal of Personality and Social Psychology*, 1967, 5, 4-15.
- Zimbardo, P. G. Involvement and communication discrepancy as determinants of opinion conformity. *Journal of Abnormal and Social Psychology*, 1960, 60, 86-94.

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