The Effects of Recipient Posture on Persuasion
A Cognitive Response Analysis

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Two experiments were conducted to explore the relationship between the body posture of a message recipient and susceptibility to persuasive influence. In Experiment 1, recipients who were reclining comfortably during exposure to a counterattitudinal message showed more agreement with the message than recipients who were standing during exposure. In Experiment 2, posture (standing or reclining) and the quality of the arguments employed in the counterattitudinal message (cogent or specious) were varied in an effort to assess competing theoretical accounts of the posture effect. An interaction between posture and message quality emerged on the measure of postmessage agreement. Reclining subjects were differentially persuaded by the strong and weak arguments, but standing subjects were not. This pattern of results is consistent with the view that reclining recipients engage in more message-relevant thinking than standing recipients.

Recent research in social psychology has examined how the nonverbal body cues emanating from a communicator can affect the perceptions of a recipient and his or her susceptibility to influence. For example, McGinley, LeFevre, and

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McGinley (1975) found that people shifted their opinions more to agree with a communicator who displayed an open body posture (for example, elbows away from the body, legs stretched out) than a closed one (elbows close to the body, knees pressed together). Also, some studies have related variables such as communicator eye contact, degree of arm relaxation, body orientation, postural shifting, and arm and leg openness to subjects' perceptions of a communicator's attraction toward them and overall honesty (see, for example, Mehrabian, 1972). Presumably, people are more susceptible to influence from a communicator who likes them and is perceived as honest than from one who lacks these qualities (McGuire, 1969).

In sharp contrast to the accumulating research on communicator posture (see Argyle & Kendon, 1967; Mehrabian, 1981), we were unable to locate any published studies that dealt directly with the relationship between the body posture of a message recipient and persuasion. Yet work in this area may be important, since recipients of persuasive messages in real life are not always sitting like subjects in the typical laboratory experiment. Thus, the study of recipient posture and persuasion may be related to a variety of practical problems. For example: Do clinicians increase the suggestibility of their clients by requesting that they assume a reclining posture during psychotherapy? Are radio and television ads that reach a recipient in bed more or less effective than ads that reach a recipient who is standing in the kitchen?

A few studies have examined the effects of body posture on various cognitive and judgmental tasks (for example, Cacioppo, 1979; Morgan & Bakan, 1965; Phillips, 1977), and a few have explored the effects of recipient facial expressions and head movements on persuasion (for example, Rhodewaldt & Comer, 1979; Wells & Petty, 1980), but these studies offer little guidance in predicting a relationship between recipient body posture and persuasion. The present article reports two experiments that were designed to provide an initial exploration of this relationship. In Experiment 1, we sought primarily to ascertain whether or not recipient body posture could affect susceptibility to influence, and in Experiment 2 we examined the underlying mediation of the recipient posture effect observed in the first study.

EXPERIMENT 1

Method

PROCEDURE

A total of 78 undergraduates at Ohio State University participated individually in the study in order to partially fulfill an introductory psychology course requirement. Subjects were told they would be participating in a cooperative investigation between the psychology department and Tech-Headphones, Inc. Specifically, subjects were told that Tech-Headphones was funding a study that

would provide information about basic auditory processes and about how to design headphones to provide maximum listening pleasure in a wide variety of naturalistic settings.

Experimental Conditions. The subjects were told that most stereo headphones were designed to be used comfortably and effectively in only one body position. Their task would be to try a new headphone in a particular body position and then rate its comfort, quality, and other features on a questionnaire. Some subjects were told to stand while testing the headphone, others were told to sit in a wooden chair, and still others were told to lie either on a formica table (uncomfortable) or on a cushioned table (comfortable). Subjects were randomly assigned to one of these four conditions.

Persuasive Message. After the subject was in the appropriate body position, the investigator told the subject that he or she would hear a prerecorded segment from a recent broadcast on the campus radio station. Subjects donned their headphones and heard two minutes of rock music followed by a three-minute editorial advocating that the tuition at their university be increased by 20%. Briefly, the message stated that the tuition hike was recommended after an intensive two-year investigation; that increased revenue was needed to finance improvements in the library, the campus mass transit system, and physical and research facilities; and that studies had indicated that if the university could upgrade its quality, the average starting salaries of its graduates would increase substantially.

Following exposure to the message and some additional recorded music, all subjects were seated to complete the dependent variable booklets. Finally, the subjects were debriefed, thanked, and dismissed.

DEPENDENT VARIABLES

Subjects were told that because their own views about the music and editorial might influence the manner in which they rated the headphones, an indication of their own opinions was desired. The crucial attitude measure asked subjects: "In general, to what extent do you agree that the tuition should be increased?" Subjects responded on a 12-point scale on which 1 indicated "do not agree at all" and 12 indicated "agree completely."

After completion of the attitude scales, subjects were given 2½ minutes to list the thoughts they had while listening to the tuition editorial. Twelve 8-inch (20.32 cm) horizontal lines, each approximately 2 inches (5.00 cm) from the one above, created distinct boxes in which subjects were to write their ideas, one idea per box. After listing their thoughts, subjects rated their ideas as either + (in favor of a tuition increase), - (opposed), or 0 (neutral or irrelevant; see Cacioppo & Petty, 1981, for further details).

In addition to the attitude and thought listing measure, subjects completed several items supporting the cover story of 12-point rating scales (for example: How comfortable were you while listening through the headphones?). It was expected that some of these questions might prove useful in assessing the mediation of any posture effect observed.

Results

An analysis of variance on each of the dependent measures produced only two significant results. First, a significant effect on the measure of attitude toward a tuition increase was found, $F(3, 74) = 3.33$, $p < 05$. Pairwise comparisons employing the Duncan multiple range procedure revealed that subjects hearing the tuition message while lying on the cushioned table showed significantly more agreement with the message than subjects hearing the message in the standing position. The other two conditions (reclining without cushion and seated) yielded means between these two conditions. A second significant effect appeared on the measure of subjective comfort while listening to the message, $F(3, 74) = 7.47$, $p < .001$. Pairwise comparisons on this measure (where 1 indicated "not at all comfortable" and 12 indicated "very comfortable") revealed that subjects who were sitting or lying on the cushioned table during the message were significantly more comfortable than subjects who were standing or lying on the wooden table (see Table 1).

The subjects' cognitive responses to the message were generally positive. Across all cells, 57% of the issue-relevant thoughts listed by subjects in response to the arguments on tuition were favorable, and 43% were unfavorable. Average within-cell correlations between the attitude measure and the measures of thoughts and subjective comfort revealed that agreement with the tuition increase was positively related to the number of favorable thoughts generated ($r = .56$), negatively related to the number of unfavorable thoughts generated ($r = .51$), but unrelated to reports of subjective comfort while listening to the message ($r = .07$). The comfort ratings were also unrelated to either the number of favorable ($r = .03$) or unfavorable ($r = -.06$) thoughts generated.

Discussion

Experiment 1 provided the first support for the view that recipient body posture can effect susceptibility to a persuasive communication. Specifically, subjects who were lying comfortably while listening to the message showed significantly more agreement with the message conclusion than subjects who were standing while listening to the message.

There are a variety of possible theoretical accounts for this affect. One explanation stems from a clasical conditioning view of attitude formation (Staats & Staats, 1958). The classical conditioning approach has achieved support from studies showing that positive cues such as food, and negative cues such as electric shock, can affect attitudinal responses (Janis, Kaye, & Kirschner, 1965; Zanna, Kiesler, & Pilkonis, 1970). In the present experiment, the conditioning explanation would contend that the positive feelings of comfort produced by lying on the cushioned table, and the negative feelings of discomfort engendered by standing during the message, also became associated with the attitudinal advocacy. The evidence from Experiment 1 is rather weak for this explanation, however. Specifically, the comfort ratings of the various experimental conditions did not parallel the persuasion results well (for exam-

TABLE 1 Attitude and Comfort Scores for Each Recipient Posture (Experiment 1)

	Recline (Cushion)	*Recline (No Cushion)*	*Sit*	*Stand*
Attitude measure	7.60_{a}	6.95_{ab}	6.00_{ab}	5.63_{b}
Comfort measure	8.90_{a}	6.58_{b}	10.15_{a}	6.58_{b}

Note: Larger means indicate more agreement with the message and greater subjective comfort. Means within the same row without a common subscript are significantly different at the .05 level by the Duncan multiple range test.

ple, the two reclining conditions differed significantly in rated comfort but not in agreement with the advocacy), and the average within-cell correlation between comfort and attitudes was small and not statistically significant. Furthermore, ratings of the headphones and the music were unaffected by the posture manipulation, as might be expected by the conditioning hypothesis.

A second possibility is that subjects who heard the message while reclining comfortably were better able to recall the message arguments at the time of the attitude assessment and showed more persuasion as a result of this enhanced recall (compare Miller & Campbell, 1959). This explanation is also unlikely, however, because posture has not been shown to affect message comprehension or recall in previous research (Cacioppo, 1979), and even if posture did affect recall, recent attitude research has indicated that message recall is not a good predictor of attitude change (see reviews by Cialdini, Petty, & Cacioppo, 1981; Greenwald, 1968; and Perloff & Brock, 1980). Nevertheless, a measure of message recall was employed in our second experiment to test this hypothesis directly.

A third possibility is that recipient posture affected agreement with the message by modifying the nature of subjects' thoughts in response to the advocacy. The strong correlational link between subjects' cognitive response to the message and their subsequent agreement with it is consistent with this view, as is recent work in social psychology that has documented the importance of a variety of variables (distraction, forewarning, message repetition, and so forth) in affecting attitudes via their impact on subjects' cognitive responses (see Petty, Ostrom, & Brock, 1981, for a review).

Petty and Cacioppo (1981) have outlined two ways in which variables have been shown to affect persuasion via their impact on cognitive responses. One kind of variable works by systematically *biasing* the nature of the information processing that takes place. For example, a forewarning of persuasive intent inhibits persuasion by motivating counterarguing on the part of message recip-

ients (Petty & Cacioppo, 1979). On the other hand, having subjects engage in vertical head movements may increase persuasion by facilitating the production of favorable thoughts (Wells & Petty, 1980). One possible account for the present body posture data, then, is that a standing posture facilitates the production of negative thoughts (counterarguments) and/or that a reclining posture facilitates the production of positive (favorable) thoughts.

Folk wisdom and anecdotal evidence suggest that people in a standing posture are more prone to agitation and attack than people in the more passive sitting and reclining postures. For example, *Time* magazine reported that during the 1976 presidential debates between Carter and Ford, Carter's campaign staff was concerned about having their candidate appear to be attacking the incumbent President Ford too strongly. To remedy this, they wanted both candidates to be seated during the debate "because Carter, like most people, tends to be less agressive sitting down" (September 27, 1976, p. 11). Consistent with such folk wisdom, recent research indicates that people who are standing are viewed as more dominant than people who are sitting (Schwartz, Tesser, & Powell, 1982). If people who are standing also feel more dominant than people who are seated or reclining, this may predispose them to attack or counterargue threatening communications. Although there was a tendency in Experiment 1 for more unfavorable thoughts to be generated by standing than reclining subjects, and for more favorable thoughts to be generated by reclining than standing subjects, these differences were not significant.

A second way in which a variable can affect persuasion via cognitive responses is by influencing a person's motivation or ability to think *objectively* about the arguments presented. For example, repeating a message increases a person's ability to consider the merits of the arguments (Cacioppo & Petty, 1979), whereas distraction reduces a person's ability to scrutinize a message objectively (Petty, Wells, & Brock, 1976). This suggests a second possible cognitive response account for the data from Experiment 1. Reclining subjects may not have been more likely to generate a particular kind of cognitive response but may have been able to process the message more carefully. This greater ability to process the message when reclining than when standing may stem from the greater environment focus that has been reported for reclining individuals. For example, Wegner & Giuliano (1980) reported that subjects who had been reclining comfortably were less self-focused (as measured by their tendency to select first-person pronouns in a sentence completion task) than were subjects who had been seated or who had run in place. Scheier, Carver, and Matthews (in press) argue that the more attention allocated to the self, the less that is available for processing information from the external environment. Thus the subjects who were reclining in Experiment 1 may have been better able to think about the arguments in the externally originated persuasive message than those who were standing, because of their relatively low degree of self-focus. With greater thought about the external message, subjects would be more favorably impressed with the strengths of cogent arguments and more critical of

the flaws in specious ones. In Experiment 1, subjects generated primarily favorable thoughts in response to the arguments, indicating that they were compelling. If reclining subjects are better able to think about these compelling arguments than standing subjects, they should be more persuaded by them. This, of course, was the result observed.

In summary, then, there are two possible cognitive response explanations for the effects of recipient posture on persuasion. The first is that recipient posture systematically biases the nature of the cognitions elicited. Specifically, this explanation contends that a reclining posture facilitates the production of favorable thoughts and/or that the standing posture facilitates the production of counterarguments. The second explanation is that recipient posture affects the degree to which recipients scrutinize the message carefully. Specifically, this explanation contends that a reclining posture enhances thought over a standing one and should make reclining subjects better able than standing subjects to distinguish arguments that are cogent and compelling from arguments that are weak and specious. Experiment 2 was designed to replicate Experiment 1 and to test between the two cognitive response accounts of the effect of posture on persuasion.

EXPERIMENT 2

In addition to manipulating the posture of the message recipient (standing or reclining) in our second study, we varied the cogency of the arguments employed in the message (strong or weak). Given that a successful manipulation of argument quality occurs, it becomes possible to evaluate the two alternative cognitive response explanations for the effect of posture on persuasion. The first cognitive response approach (biased processing) predicts a main effect for the posture manipulation: Reclining subjects should show more agreement than standing subjects for both messages, because posture is thought to influence the nature (favorable or unfavorable) of the cognitive responses elicited.[1] On the other hand, the second cognitive response approach (objective processing) predicts an interaction between posture and argument quality. Specifically, the attitudes of reclining subjects should be more polarized in response to the strong and weak arguments than the attitudes of standing subjects, because if reclining subjects are more diligent than standing subjects in processing the message, they should better recognize the flaws in the weak arguments and the virtues in the strong ones.

Method

SUBJECTS

A total of 65 female undergraduates at the University of Missouri participated in order to earn extra credit in an introductory psychology course. The design was a 2 (argument quality: strong or weak) × 2 (body posture: standing or reclining) between-subjects factorial. Subjects participated in groups of up to

four in individual cubicles constructed so as to preclude verbal and visual contact and any differences in what standing and reclining subjects could see. All four experimental conditions could be conducted in one group session if enough participants were present.

EXPERIMENTAL CONDITIONS

Upon arrival at the lab, all subjects were given the same cover story as provided in Experiment 1 and were then randomly assigned to one of the experimental cubicles, where they were instructed either to stand or lie down on a cot while listening through the headphones. They were told that they would hear a brief excerpt from a recent campus radio broadcast. After all subjects had assumed the appropriate posture, they heard several minutes of instrumental music followed by an editorial message arguing that seniors be required to pass a comprehensive exam in their declared major as a requirement for graduation. Half the subjects heard a strong-arguments version of the editorial that provided persuasive evidence (statistics, data) in support of the exam (for example, employers gave higher starting salaries to graduates from schools with comprehensive exams). In contrast, the remaining subjects heard a weak-arguments version that relied more on quotations, personal opinion, and examples to support its position (for example, a friend of the speaker had to take a comprehensive exam and now had a prestigious academic position). The messages were equivalent in length, and each contained elaborations of eight arguments. The strong arguments were selected from a pool that elicited primarily favorable thoughts in a pretest, and the weak arguments were selected from a pool that elicited primarily unfavorable thoughts. The specific arguments were adapted from the "strong" and "very weak" messages described by Petty, Harkins, and Williams (1980).

DEPENDENT VARIABLES

All subjects were seated before responding to the dependent measures. The attitude measure in this study required subjects to rate the concept "comprehensive exam" on four 9-point semantic differential scales (harmful-beneficial, wise-foolish, good-bad, favorable-unfavorable) that were summed to form a general measure of communication acceptance. Following this measure, subjects completed on an 11-point scales some items relevant to the cover story (for example, sound quality of the headphones), rated their comfort while listening to the message, and rated how distracted they were from thinking about the editorial.

Next, subjects were given 2½ minutes to list their thoughts while listening to the tape. Two judges were employed to rate the thoughts as favorable, unfavorable, or irrelevant to the exam proposal. The judges showed high agreement in their ratings (average $r = .96$), and disagreements were resolved by a third judge. Finally, subjects were given 2½ minutes to list as many of the arguments provided in the message as they could recall. Two judges blind to the posture manipulation rated each argument recalled for accuracy ($r = .95$). Similar

statements of the same argument were only counted once. The average of the two judges' ratings was analyzed. Upon completion of the dependent measures, subjects were debriefed, thanked, and dismissed.

Results

EXPERIMENTAL MANIPULATIONS

The argument quality manipulation significantly affected the profile of elicited issue-relevant thoughts. When exposed to the strong arguments, 69% of subjects' issue-relevant thoughts were coded as favorable, and only 31% were unfavorable. On the other hand, when exposed to the weak arguments, 64% of the issue-relevant thoughts were coded as unfavorable and 36% favorable, $\chi^2(1) = 22,3$, $p < .005$. Clearly, the message quality manipulation was successful.

Three significant main effects emerged for the posture manipulation. First, subjects reported feeling more comfortable in the reclining ($M = 8.42$) than in the standing ($M = 6.86$) posture, $F(1,61) = 8.02$, $p < .006$. Subjects also reported that they were less distracted from thinking about the editorial in the reclining (4.30) than in the standing (5.58) posture, $F(1, 61) = 5.99$, $p < 02$. The average within-cell correlation between comfort and distraction was -.22, indicating that these two processes were relatively independent. Additionally, subjects generated more unfavorable thoughts in the reclining than in the standing posture, $F(1,61) = 7.55$, $p < .008$, but this effect must be interpreted in the context of a significant Posture × Argument Quality interaction. A Newman-Keuls analysis of this interaction revealed that reclining subjects generated significantly more negative thoughts ($M = 1.89$) than standing subjects ($M = .27$) only when the arguments presented were weak. When strong arguments were presented, standing ($M = .41$) and reclining ($M = .53$) subjects did not differ in unfavorable thought production. Finally, it is important to note that posture failed to affect argument recall. Overall, subjects recalled 4.45 of the eight arguments presented.

ATTITUDE DATA

A 2 × 2 analysis of variance on the attitude measure provided a test of the two alternative cognitive response views of how posture affects persuasion. First, the analysis revealed a main effect for argument quality: Subjects exposed to the strong arguments ($M = 10.29$) liked the comprehensive exam idea more than subjects exposed to the weak arguments ($M = 6.14$), $F(1,61) = 7.55$, $p < .003$. Of greater interest, however, was a significant Arguments × Posture interaction, $F(1,61) = 6.80$, $p < .02$ (see Figure 1), that provided support for the view that a reclining posture facilitates careful processing of a message over a standing posture. A decomposition of the interaction employing the Newman-Keuls procedure revealed that subjects did not attitudinally distinguish the strong from the weak arguments when they were processed in the standing posture, but that the arguments did differ significantly in their persuasibility when processed in the reclining posture.[2]

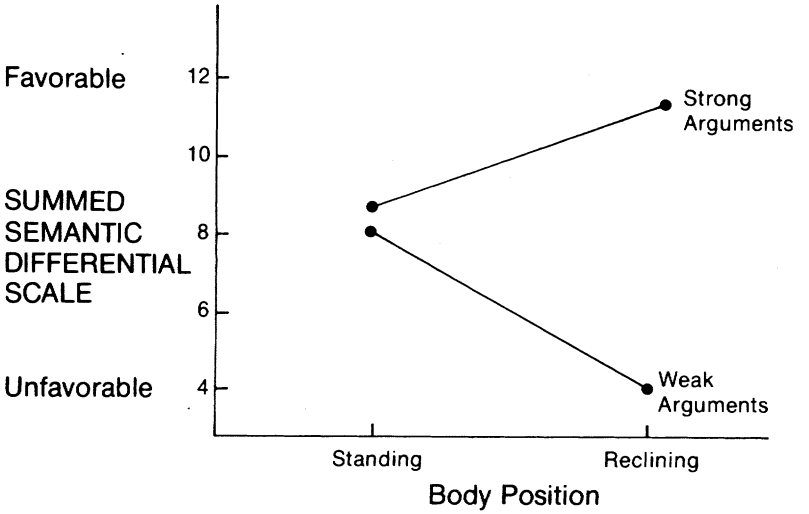

Figure 1: Attitudes as a Function of Argument Quality and Recipient Posture (Experiment 2)

Consistent with the results of Experiment 1, average within-cell correlations between the attitude measure and the measures of thoughts and subjective comfort revealed that attitudes toward senior comprehensive exams were positively related to the number of favorable thoughts generated ($r = .33$), negatively related to the number of unfavorable thoughts generated ($r = -.43$), but unrelated to the ratings of subjective comfort ($r = .10$). The comfort ratings were also unrelated to either the number of favorable ($r = .19$) or unfavorable ($r = .08$) thoughts listed. Finally, argument recall also failed to predict attitudes for either the strong ($r = .02$) or the weak arguments ($r = -.12$) message.

Discussion

Experiment 2 provided support for the view that the posture effect, initially observed in Experiment 1, is due to the propensity for subjects who are reclining comfortably to scrutinize a message more carefully than subjects who are standing. First, subjects who were reclining during message exposure reported feeling less distracted from thinking about the editorial than did standing subjects. On the measure of actual thought production, subjects generated significantly more unfavorable thoughts to the weak arguments when reclining than when standing. Subjects also tended to generate more favorable thoughts to the strong arguments when reclining than when standing, but this pattern was

not significant. Importantly, the crucial attitude measure revealed that reclining subjects were differentially persuaded by the strong and weak arguments, while standing subjects were not. In short, the available evidence suggests that because of enhanced thinking about the message, reclining subjects were better able than standing subjects to recognize the fallacies of the specious arguments and the merits of the cogent ones.

No support was obtained for any of the alternative explanations for the effects of posture on persuasion. Consistent with previous research on posture and recall (Cacioppo, 1979), the posture manipulations in Experiment 2 failed to have any effect on subjects' ability to recall the message arguments. Also, consistent with recent research on message recall and persuasion (Cacioppo & Petty, 1979; Insko, Lind, & LaTour, 1976), recall of message arguments was uncorrelated with message agreement. The classical conditioning view of the effect of posture on persuasion also received no support. Although subjects consistently rated the reclining posture as more comfortable than the standing posture, the posture manipulation in Experiment 2 did not produce a main effect on ratings of agreement with the editorial; rather, posture interacted with message quality in determining agreement. The interaction between posture and argument quality on the attitude measure and the measure of negative thought generation also argues against the view that posture systematically biases the nature of the cognitive responses elicited by a message.

The most compelling explanation for the present data appears to be that a reclining posture facilitates message-relevant thinking over a standing posture and thereby enhances the importance of message content in producing persuasion. Interestingly, recent research indicates that when subjects are not either motivated or able to process diligently the content of a persuasive message, peripheral cues in the persuasion situation assume greater importance than the message content in determining attitude change (Chaiken, 1980; Petty & Cacioppo. 1981). Thus, standing subjects, who were unaffected by the manipulation of message quality, might have been affected by a manipulation of source credibility or attractiveness, which would have enabled them to evaluate the issue without engaging in extensive thought about the arguments presented.

At least two important questions about recipient posture remain unaddressed by the present research. One concerns why a reclining posture facilitates and/or a standing posture inhibits message-relevant thinking. One possibility that we noted earlier is that reclining subjects may be less self-aware than seated or standing subjects, and that the enhanced self-awareness when standing may inhibit or distract a person from processing the externally originating message (Scheier et al., in press).

A second important question for future research concerns the limitations on the posture effect observed in the present studies, as well as the cognitive response explanation of this effect. In our research, the message recipients were in the reclining posture for only a brief period of time. If they had remained in the reclining posture for a relatively long period of time, perhaps relaxation

would have become so great that processing would have been inhibited. Also, the subjects in our study assumed their postures in social isolation. If an audience had been present, perhaps the reclining subjects would have been more self-conscious than the standing subjects, since the reclining posture is the more unusual one, at least in the laboratory. Although a wide variety of interesting questions remain to be addressed concerning recipient posture and persuasion, it does appear that for many of the communications that people receive daily addressing personally significant issues, the body posture of the message recipient can affect the extent of message processing and thereby his or her susceptibility to influence.

NOTES

[1]The conditioned comfort explanation described earlier would also predict a main effect for the posture manipulation, with reclining subjects showing more agreement for both messages than standing subjects.

[2]Although the greater attitudinal differentiation of strong from weak arguments in the reclining than in the standing posture appears to have resulted from the joint tendencies of reclining subjects to like the proposal more than standing subjects when the arguments were strong but less when they were weak, these simple effects were only marginally significant (p's $< .10$).

REFERENCES

Argyle, M., & Kendon, A. The experimental analysis of social performance. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 3). New York: Academic Press, 1967.

Berdach, E., & Bakan, P. Body position and the free recall of early memories. *Psychotherapy: Theory, Research, and Practice,* 1967, 4, 101-102.

Cacioppo, J. T. Effects of exogenous changes in heart rate on facilitation of thought and resistance to persuasion. *Journal of Personality and Social Psychology,* 1979, 37, 489-498.

Cacioppo, J. T., & Petty, R. E. Effects of message repetition and position on cognitive response, recall, and persuasion. *Journal of Personality and Social Psychology,* 1979, 37, 97-109.

Cacioppo, J. T., & Petty, R. E. Social psychological procedures for cognitive response assessment: The thought listing technique. In T. Merluzzi et al. (Eds.), *Cognitive assessment.* New York: Guilford Press, 1981.

Chaiken, S. Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology,* 1980, 39, 752-766.

Cialdini, R. B., Petty, R. E., & Cacioppo, J. T. Attitude and attitude change. In M. Rosenzweig & L. Porter (Eds.), *Annual review of psychology* (Vol. 32). Palo Alto, CA: Annual Reviews Inc., 1981.

Greenwald, A. G. Cognitive learning, cognitive response to persuasion, and attitude change. In A. G. Greenwald et al. (Eds.), *Psychological foundations of attitudes.* New York: Academic Press, 1968.

Insko, C. A., Lind, E. A., & LaTour, S. Persuasion, recall, and thoughts. *Representative Research in Social Psychology,* 1976, 7, 66-78.

Janis, I. L., Kaye, D., & Kirschner, P. Facilitating effects of "eating while reading" on responsiveness to persuasive communications. *Journal of Personality and Social Psychology,* 1965, 1, 181-186.

McGinley, H., LeFevre, R., & McGinley, P. The influence of a communicator's body position on opinion change in others. *Journal of Personality and Social Psychology,* 1975, 31, 686-690.

McGuire, W. J. The nature of attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (2nd ed., Vol. 3). Reading, MA: Addison-Wesley, 1969.

Mehrabian, A. *Nonverbal communication.* Chicago: Aldine-Atherton, 1972.

Mehrabian, A. *Silent messages: Emplicit communication of emotions and attitudes.* Belmont, CA: Wadsworth, 1981.

Miller, N., & Campbell, D. T. Recency and primacy in persuasion as a function of the timing of speeches and measurements. *Journal of Abnormal and Social Psychology,* 1959, 59, 1-9.

Morgan, R. F., & Bakan, P. Sensory deprivation hallucinations and other sleep behavior as a function of position, method of report, and anxiety. *Perceptual and Motor Skills,* 1965, 20, 19-25.

Perloff, R. M., & Brock, T. C. And thinking makes it so: Cognitive responses to persuasion. In M. E. Roloff & G. R. Miller (Eds.), *Persuasion: New directions in theory and research.* Beverly Hills, CA: Sage, 1980.

Petty, R. E., & Cacioppo, J. T. Effects of forewarning of persuasive intent and involvement on cognitive responses and persuasion. *Personality and Social Psychology Bulletin,* 1979, 5, 173-176.

Petty, R. E., & Cacioppo, J. T. *Attitudes and persuasion: Classic and contemporary approaches.* Dubuque, IA: William C. Brown, 1981.

Petty, R. E., Harkins, S. G., & Williams, K. The effects of group diffusion of cognitive effort on attitudes: An information processing view. *Journal of Personality and Social Psychology,* 1980, 38, 81-92.

Petty, R. E., Ostrom, T. M., & Brock, T. C. (Eds.). *Cognitive responses in persuasion.* Hillsdale, NJ: Erlbaum, 1981.

Petty, R. E., Wells, G. L., & Brock, T. C. Distraction can enhance or reduce yielding to propaganda: Thought disruption versus effort justification. *Journal of Personality and Social Psychology,* 1976, 34, 874-884.

Phillips, J. R. Relationship of field-dependence-independence to posture and judgment of time duration. *Perceptual and Motor Skills,* 1977, 44, 931-940.

Rhodewaldt, F., & Comer, R. Induced-compliance attitude change: Once more with feeling. *Journal of Experimental Social Psychology,* 1979, 15, 35-47.

Scheier, M. F., Carver, C. S., & Matthews, K. A. Attentional factors in the perception of bodily states. In J. T. Cacioppo & R. E. Petty (Eds.), *Social psychophysiology: A sourcebook.* New York: Guilford, in press.

Schwartz, B., Tesser, A., & Powell, E. Dominance cues in nonverbal behavior. *Social Psychology Quarterly,* 1982, 45, 114-120.

Staats, A. W., & Staats, C. K. Attitudes established by classical conditioning. *Journal of Abnormal and Social Psychology,* 1958, 57, 37-40.

Wegner, D. M., & Giuliano, T. Arousal-induced attention to the self. *Journal of Personality and Social Psychology,* 1980, 38, 719-726.

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