

Distraction, choice and self-esteem effects on cognitive response facilitation

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From an integration of distraction–conflict theory and cognitive dissonance theory, it was hypothesized that distraction would increase, rather than disrupt, the proarguing of persons who had been given high choice to engage in discrepant behaviour, and would increase, rather than disrupt, the counterarguing of persons who had been given low choice to engage in such behaviour. Furthermore, it was expected that this cognitive response facilitation effect would more likely occur for persons high in self-esteem. The results supported the hypotheses and were interpreted as also confirming the notion that dissonance-related processes occur at the cognitive response level.

Distraction–conflict theory contends that distraction represents conflict or competing reaction tendencies and can be a source of drive (Baron, 1986). Drive or arousal has been found to facilitate those responses which are dominant in one's response hierarchy at the expense of the non-dominant ones (Allen, Kenrick, Linder & McCall, 1989; Kiesler & Pallak, 1976; Siddle & Mangan, 1971).

The usual finding of distraction–conflict theory research is that distraction facilitates performance on simple (dominant) tasks but impairs performance on more complex tasks (Baron, 1986, p. 13). Although most of the distraction–conflict theory research has been directed at explaining social facilitation effects, Baron (1986, p. 27) has recently called for the integration of distraction–conflict theory with other areas of distraction research, particularly with distraction–persuasion research.

The distraction–persuasion research is virtually monopolized by cognitive response interpretations. In its simplest form, a cognitive response analysis of persuasion contends that individuals generate and rehearse thoughts and ideas (cognitive responses or elaborations) when faced with incoming persuasive appeals. (An inexhaustive yet lengthy bibliography on cognitive response research is available upon request from the first author.) The dominant, evaluative nature of these cognitive responses dictates acceptance or rejection of the appeal (Greenwald, 1968; Perloff & Brock, 1980; Petty & Cacioppo, 1981, 1986*a,b*; Petty, Ostrom & Brock, 1981; Wright, 1980). Thus, if generating cognitive

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responses which are opposed to the position advocated in a message (counterarguing) is one's dominant cognitive response to a message, then decreased acceptance of the communication is likely; but if proarguing (the generation of cognitive responses favourable to the position advocated in a message) is dominant, then increased acceptance of the communication is likely.

The effects of distraction on cognitive responses have not always been consistent. Distraction has had either a disruptive effect on respondent counterarguing (Insko, Turnbull & Yandell, 1974; Keating & Brock, 1974; Petty, Wells & Brock, 1976) or a facilitative effect on respondent counterarguing (Lammers, 1982; Romer, 1979). Similarly, distraction has been observed either to inhibit respondent proarguing (Petty *et al.*, 1976) or to facilitate respondent proarguing (Insko *et al.*, 1974; Lammers, 1982). And, although distraction-persuasion researchers have usually hypothesized a disruptive effect of distraction on the audience's dominant cognitive response (Festinger & Maccoby, 1964; Lammers & Becker, 1980; Petty *et al.*, 1976), distraction-conflict theory provides compelling justification for the hypothesis that distraction can facilitate dominant cognitive response output.

The integration of distraction-conflict theory with distraction-persuasion research seems straightforward in the present context, for a distraction-conflict perspective suggests that it is simpler and easier to generate thoughts consistent with one's cognitive response set than it is to generate thoughts inconsistent with one's cognitive response set, especially under high distraction conditions. A cognitive response set may be thought of as a 'frame of mind' or readiness to generate evaluatively biased thoughts and elaborations, e.g. proarguments or counterarguments. Cognitive response sets have been effectively manipulated by specific verbal instructions (O'Neill & Levings, 1979; Ward & Russell, 1981; Yarkin, Harvey & Bloxom, 1981). Lammers (1982), for example, found that high distraction, relative to low distraction, increased the proarguing of persons who had been instructed to proargue and increased the counterarguing of persons who had been instructed to counterargue in anticipation of a controversial message.

Although the specific conditions under which distraction is likely to facilitate rather than inhibit cognitive responding are largely unexplored, Romer (1979) hypothesized from Rosenblatt's (1966) findings that distraction would be least likely to have a disruptive effect on cognitive responding when the message recipients are motivated to generate cognitive responses. In the present study, such motivation was experimentally induced in a forced compliance-like paradigm (Festinger & Carlsmith, 1959) by giving subjects either high or low choice to engage in discrepant behaviour. Previous dissonance theory research (e.g. Brock, 1968; Linder, Cooper & Jones, 1967; Pallak, Sogin & Van Zante, 1974) has demonstrated that individuals who freely choose to perform a counterattitudinal act subsequently experience dissonance arousal, and to reduce the aversive state they usually elect to change their attitude in a direction consistent with the behaviour.

Cognitive response approaches, such as the Elaboration Likelihood Model (Petty & Cacioppo, 1981, 1986*a,b*), suggest that dissonance reduction can occur at the cognitive response level (Petty & Cacioppo, 1981, p. 265). That is, dissonance reduction could be achieved by conjuring up thoughts which are favourable to, and consistent with the discrepant behaviour. The dissonance produced from freely choosing to listen to a counterattitudinal speech could be reduced by respondent proarguing. To think of

counterarguments would only serve to increase rather than reduce dissonance. Conversely, a person given little or no choice in the matter should be inclined to counterargue, for there is little or no dissonance to reduce. That person may even experience a negative reactance state and resort to increased counterarguing as a means of restoring the lost freedom (Brehm, 1966; Clee & Wicklund, 1980).

Baumeister & Tice (1984) recognized the possibility that dissonance reduction may begin at the cognitive response level. They pointed out that the typical choice manipulation used in the forced compliance paradigm makes subjects keenly aware that they have a choice. 'Thus, the manipulation might better be labeled salience of choice rather than choice per se. The salient reminder constitutes a cue that is presumed to *initiate the covert mental process* leading to attitude change' (p. 5, italics added). In any event, choice or the salience of choice is thought to affect cognitive responding.

Dissonance theorists, however, have advanced beyond the simple notion that choice alone will produce cognitive dissonance. In the words of Insko, Worchel, Folger & Kurkus (1975): '... choice per se provides rather weak cognitive glue ... Choice in combination with some additional circumstance or circumstances may, however, force acceptance of responsibility for negative consequences. These additional circumstances may include the *expenditure of high effort* preparing for the negative consequences ...' (p. 174, italics added).

Choice, then, may need to be combined with effort in order to produce dissonance effects. In the distraction-persuasion literature, distraction itself is presumed to be an acceptable manipulation of this kind of effort (Baron, Baron & Miller, 1973; Lammers & Becker, 1980; Petty *et al.*, 1976). Indeed, distraction and the effort to process a message may be inextricably confounded (Baron *et al.*, 1973).

The effects of choice and distraction may further be moderated by the individual difference variable of self-esteem. There are several reasons for suspecting this. Firstly, cognitive response activity appears to be directly related to self-esteem (Bither & Wright, 1973; Jaquish & Ripple, 1981; McGuire, 1968; Skolnick & Heslin, 1971; Wright, 1975). Secondly, Rule & Rehill (1970) found that distraction effects on attitude change were limited to high self-esteem subjects. (Unfortunately, they did not measure cognitive response activity.) And, thirdly, some dissonance theorists have contended that dissonance effects should be most evident for high self-esteem subjects (Aronson, 1968; Insko *et al.*, 1975; Manis, 1978; Wicklund & Brehm, 1976).

To summarize the foundation we have attempted to lay, distraction-conflict theory suggests that distraction can facilitate a cognitive response bias. Cognitive dissonance theory suggests that persons who have been given high choice to take a counterattitudinal position will show a tendency or bias to generate thoughts which are favourable towards the counterattitudinal position (proarguments); while persons given low choice to take a counterattitudinal stand will show a tendency or bias to generate thoughts which are negative toward the counterattitudinal position (counterarguments). Finally, self-esteem may moderate cognitive response effects. More specifically, these perspectives led to the following hypothesis: distraction will enhance rather than disrupt the proarguing of high self-esteem subjects given high choice to engage in discrepant behaviour; and will enhance rather than disrupt the counterarguing of the high self-esteem subjects who have been given low choice to engage in discrepant behaviour.

Method

Research design and participants

The design of the experiment was a $2 \times 2 \times 2$ factorial with distraction, choice and self-esteem as the between-subjects factors. Ninety-six introductory psychology undergraduates (48 females and 48 males) at an American midwestern university were recruited as participants and received partial course credit for their participation. Both sexes were recruited simply because of convenience and for the purpose of improving external validity. No *a priori* hypotheses concerning sex differences were made and no significant main or interactive effects of sex were found in the analyses. Consequently, the data were collapsed across sex in the analyses reported in this paper.

Self-esteem. The participants were preclassified as either high or low in self-esteem on the basis of a median split ($Md = 112$) of their self-esteem scores on the Texas Social Behavior Inventory (Helmreich, Stapp & Ervin, 1974) administered two months prior to the experiment. The range of possible self-esteem scores was 0 to 150. High and low self-esteem participants were randomly assigned in equal numbers to the distraction and choice conditions with the added restriction that an equal number of males and females be represented in each cell.

Procedure

Participants were run singly with a male graduate student as the experimenter. Each participant was seated in a cubicle at a small table facing a rear-projection screen. In his introductory statements, the experimenter told the participants that the English department was 'attempting to better train the English composition students in how to evaluate and criticize impromptu essays written by others', and that the 'English department had requested the assistance of the psychology department in collecting such essays'. The participants were told the essay was entitled, 'The student fees at the University of (the name of the students' own university was stated here) should be doubled'.

Choice manipulation. Participants in the high choice conditions were asked to volunteer to write the essay without fear of losing course credit if they refused. To enhance the perception of choice, the experimenter signed and returned the high choice participants' experimental course credit slips before proceeding. Participants in the low choice conditions were told they must write the essay in order to receive experimental credit. All participants were informed that prior to writing the essay they would be shown some slides containing 'helpful' arguments favourable to doubling student fees. Commitment to writing the essay was then obtained by having the participants place their signatures of agreement on essay title sheets. Prior research (e.g. Brock, 1968; Cooper, Fazio & Rhodewait, 1978) has shown that commitment to engage in discrepant or unjustified behaviour is necessary to arouse dissonance, but that actually performing the behaviour is not necessary. In the present study, the subjects were led to believe that they would be writing counterattitudinal essays, but they never actually had to do so.

Distraction-effort manipulation. The experimenter next told the participants that he was

also interested in people's ability to do two things at once, and that he would appreciate it if they would perform an additional task while they were reading the argument slides. The participants were asked to read aloud the argument slides and simultaneously to respond to a series of numbers called out over a set of headphones by pressing a switch with the same number.

Five argument slides were presented at a rate of 15 seconds per slide. While reading these slides aloud, high distraction participants manually responded to a total of 30 distractor numbers and low distraction participants responded to a total of five distractor numbers. The numbers, which ranged from one to four, were prerecorded on tape and were presented binaurally in a random order at random intervals during the 75-second slide sequence. When the participant heard a number and pressed a switch, the digit corresponding to the pressed switch appeared on the screen directly below the slide being read aloud. The distraction task, then, required active participation on the part of the subjects. Active distraction tasks, as opposed to more passive ones (e.g. passively being exposed to white noise), decrease the ability of the subjects to adapt to the distraction. Both the distraction-conflict approach (Baron, 1986) and the thought-disruption approach (Lammers & Becker, 1980; Petty *et al.*, 1976) stress the importance of using such distraction manipulations.

After all five slides had been read, the participants completed a questionnaire containing the dependent measures (cognitive responses and attitude) and the manipulation checks of choice and distraction-effort on 81-point, dotted-line scales. All participants were debriefed and thanked for their assistance.

Dependent measures

The order of the measures of cognitive response and attitude was counterbalanced on the questionnaire.

Cognitive response. Following the distraction task, the participants were asked to write down all their thoughts and ideas about the 'doubling of their student fees at the University of (omitted here)'. In accordance with previous cognitive response research (e.g. Cacioppo, 1979; Osterhouse & Brock, 1970), a time limit of 2.5 minutes was imposed on the thought-listing task. Each thought listed by the participants was later rated by two judges (one female and one male undergraduate). Those thoughts rated by the judges as being favourable towards doubling fees were scored as proarguments and those thoughts rated by the judges as being unfavourable were scored as counterarguments. Disagreements between the judges were resolved through discussion between themselves.

Attitude toward the topic. The attitude toward the advocated position was assessed by two items which asked participants to indicate on 81-point, dotted-line scales what they felt was the 'appropriate fee that students at the University of (omitted) should have to pay' and how 'favorable they were towards the proposal to double' their fees. Since responses to these two items were highly correlated ($r = .68, p < .05$), a global attitude index was computed for each participant by taking the mean of the responses to the two items.

Attitude toward the experiment. Forced compliance experiments (e.g. Festinger & Carlsmith, 1959; Insko *et al.*, 1975) often include a measure of attitude toward the task as a primary dependent measure. By way of comparison, the present study included a conceptually similar measure. Subjects were asked to rate on an 81-point, dotted-line scale how enjoyable the experiment was for them. This measure might also be considered an indirect indicator of mood.

Results

Participants' scores on each of the dependent variables and manipulation checks were analysed in $2 \times 2 \times 2$ univariate analyses of variance (ANOVAs) with distraction, choice and self-esteem as the between-subjects factors.

Manipulation checks

Distraction-effort manipulation checks. High distraction participants ($M = 35.44$) rated themselves as having been more 'distracted while reading the slides' than low distraction participants ($M = 24.02$, $F(1, 88) = 11.31$, $p = .015$). This main effect attested to the effectiveness of the distraction manipulation. Interestingly, a self-esteem main effect ($F(1, 88) = 10.90$, $p = .0018$) indicated that the low self-esteem participants ($M = 35.33$) rated themselves as having been more distracted than the participants high in self-esteem ($M = 24.13$). This finding suggests that these two groups either differed with respect to susceptibility to distraction (Bither & Wright, 1973; Siddle & Mangan, 1971) or the high self-esteem participants underrated their perceived distraction in order to maintain high self-esteem (Aronson, 1968). In either case, the presence of the self-esteem main effect does not limit the effectiveness of the distraction-effort manipulation, particularly since no other main or interaction effects on the distraction manipulation check were significant.

As in Petty *et al.* (1976) and Lammers & Becker (1980), the distraction manipulation in the present study was intended to be a manipulation of effort. Not surprisingly, this turned out to be the case. High distraction-effort subjects ($M = 29.7$) felt it was more 'difficult to read the argument slides out loud' than the low distraction-effort subjects ($M = 13.63$, $F(1, 88) = 21.45$, $p = .0001$).

Choice manipulation check. The choice manipulation proved to be effective. High choice participants ($M = 66.25$) felt they had been given more choice 'by the experimenter on whether or not to write the essay' than low choice participants ($M = 24.02$, $F(1, 88) = 92.52$, $p = .0001$).

Total cognitive response activity

Facilitation of total cognitive response generation. An analysis of the total number of cognitive responses produced by each subject (gross frequency of pro- and counterarguments combined) showed that distraction increased total cognitive response activity (low distraction $M = 3.28$ vs. high distraction $M = 4.54$, $F(1, 88) = 14.96$, $p = .0004$). This facilitation effect is in line with the previously discussed predictions of distraction-conflict theory and dissonance theory.

Table 1. Mean cognitive responses as a function of distraction, choice and self-esteem

Self-esteem	Choice	Distraction	
		Low	High
<i>Proarguments</i>			
High	High	1.25 _a	3.79 _b
High	Low	2.04 _{ab}	2.00 _{ab}
Low	High	1.88 _{ab}	1.79 _a
Low	Low	1.04 _a	2.38 _{ab}
<i>Counterarguments</i>			
High	High	2.08 _{ab}	1.38 _{ab}
High	Low	1.25 _a	2.71 _b
Low	High	1.50 _{ab}	2.04 _{ab}
Low	Low	2.08 _{ab}	2.08 _{ab}

Note. Within pro- and counterarguments, cell means holding no subscripts in common differ at $p < .05$, cell $N = 12$.

Pro- and counterargument facilitation. A significant distraction \times choice \times self-esteem interaction was found on both proargumentation scores ($F(1, 88) = 5.43, p = .021$) and counterargumentation scores ($F(1, 88) = 4.20, p = .041$; see Table 1). Duncan's Multiple Range Tests of the interaction means showed that the results fell in the predicted pattern (see Figs 1 and 2). Distraction produced an increase in the proarguing of the high choice, high self-esteem participants ($p < .05$) and in the counterarguing of the low choice, high self-esteem participants ($p < .05$). Distraction did not significantly affect the pro- or counterarguing of any other group.

The only other effect found to be significant on either pro- or counterargumentation was a distraction main effect on proargumentation which merely showed that high distraction participants ($M = 2.49$) wrote more proarguments than low distraction partici-

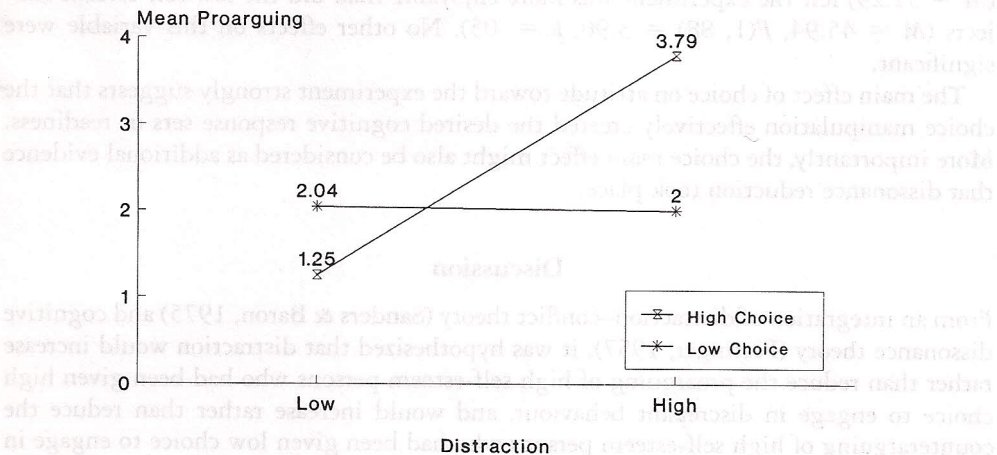


Figure 1. Distraction \times choice effect on mean proarguing of high self-esteem persons.

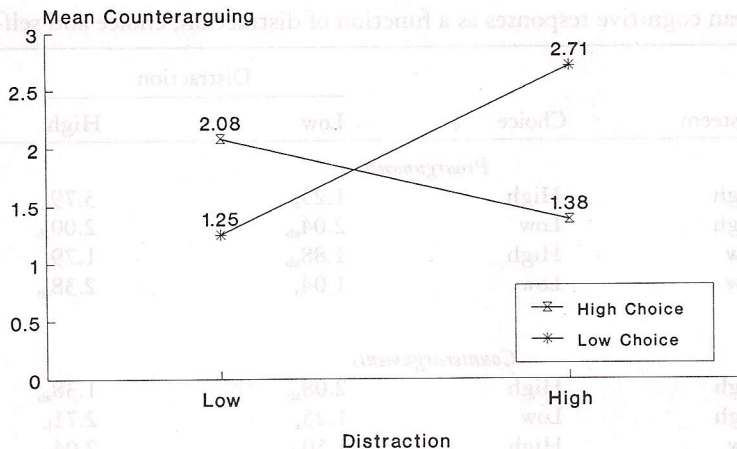


Figure 2. Distraction \times choice effect on mean counterarguing of high self-esteem persons.

pants ($M = 1.55$, $F(1, 88) = 4.77$, $p = .03$). This main effect, however, must be interpreted in terms of the second-order interaction just described.

Attitude measures

Attitude toward the advocated topic. A main effect of self-esteem on the global attitude index indicated that low self-esteem participants ($M = 22.20$) were more inclined to accept the advocated position than were high self-esteem participants ($M = 15.94$, $F(1, 88) = 5.22$, $p = .0247$). Otherwise, no significant effects were found on this variable.

Attitude toward the experiment. Main effects of choice and self-esteem indicated that high choice subjects ($M = 52.32$) felt the experiment was more enjoyable than did the low choice subjects ($M = 45.71$, $F(1, 88) = 4.48$, $p = .035$); and, high self-esteem subjects ($M = 52.29$) felt the experiment was more enjoyable than did the low self-esteem subjects ($M = 45.94$, $F(1, 88) = 3.90$, $p = .05$). No other effects on this variable were significant.

The main effect of choice on attitude toward the experiment strongly suggests that the choice manipulation effectively created the desired cognitive response sets or readiness. More importantly, the choice main effect might also be considered as additional evidence that dissonance reduction took place.

Discussion

From an integration of distraction–conflict theory (Sanders & Baron, 1975) and cognitive dissonance theory (Festinger, 1957), it was hypothesized that distraction would increase rather than reduce the proarguing of high self-esteem persons who had been given high choice to engage in discrepant behaviour, and would increase rather than reduce the counterarguing of high self-esteem persons who had been given low choice to engage in such behaviour. The results of the present study supported these hypotheses.

The results were also consistent with the contention that choice alone is 'weak cognitive glue' (Insko *et al.*, 1975, p. 174), and that choice and effort combined are necessary to produce dissonance arousal and reduction effects. Our results showed that, indeed, neither choice nor distraction alone were sufficient to produce effects on the type (pro- vs. counterarguing) of cognitive responding, although distraction alone did increase the overall amount of cognitive responding. In combination, however, choice and distraction produced the hypothesized effects on the type of cognitive responding for high self-esteem subjects.

It had been presumed that high choice would produce positive (proarguing) cognitive response tendencies and that low choice would produce negative (counterarguing) cognitive response tendencies, and that these 'dominant response tendencies' would be facilitated by the driveline properties of distraction. Although the effects of the high distraction manipulation were in line with these presumptions, there is room to wonder whether this is what happened at low distraction. Under low distraction conditions, the cognitive responding of high choice subjects did not differ significantly from the cognitive responding of the low choice subjects. While this lack of significance is not out of character with related studies (e.g. Insko *et al.*, 1975; Sanders & Baron, 1975), it causes one to wonder how strongly the cognitive response sets were actually operationalized by the choice manipulation. Some encouraging evidence on this, albeit indirect evidence, comes from the analysis of the attitude toward the experiment. High choice subjects enjoyed the experiment significantly more than did low choice subjects. Apparently, then, subjects were in a more positive frame of mind or cognitive response set under high choice than under low choice conditions. Overall, our data suggest that the choice manipulation provided an effective steering mechanism (cognitive response tendencies) to a system fuelled further by distraction.

Perhaps the most interesting aspect of the findings of the present study is that the thought disruption hypothesis cannot readily account for the observed cognitive response facilitation effects. Distraction-persuasion effects have been interpreted by either the dominant thought disruption hypothesis or by cognitive dissonance theory (Baron *et al.*, 1973). Dissonance theory had to concede some territorial rights when distraction experiments by Petty *et al.* (1976) and Lammers & Becker (1980) rather convincingly demonstrated the superiority of a thought disruption interpretation over a dissonance theory interpretation.

Unlike the thought disruption studies, however, we used the classic cognitive dissonance paradigm in which choice was directly manipulated. The Lammers & Becker (1980) and Petty *et al.* (1976) studies did not manipulate choice. And although subjects in those studies were not forced to participate, it remains possible that the perceived freedom of choice was not particularly high or salient among these participants. If so, the likelihood of finding dissonance effects would be attenuated even in the face of other manipulations which would normally produce dissonance, e.g. message position (Lammers & Becker, 1980) and message quality (Petty *et al.*, 1976). Possibly, then, distraction alone did not contribute sufficiently to dissonance arousal in those earlier thought-disruption studies. Distraction alone may simply not be powerful enough to produce sufficient effort justification effects (dissonance reduction effects). The results of our study and of others (e.g. Insko *et al.*, 1975) indicate that distraction may need to be combined with choice adequately to arouse dissonance.

The principal findings of the present study occurred at the cognitive response level of processing. Nothing much interesting happened at the attitude level. Although pro-arguing and counterarguing were correlated with attitude toward the topic ($r = +.32$ and $-.30$, $p < .05$, respectively), the treatment effects on attitude did not mirror the cognitive response data. Most cognitive response approaches presume that attitude changes, if any, will follow rather than precede shifts in cognitive responses. Since attitudes are farther down the processing hierarchy than cognitive responses, they may simply be less sensitive to treatment effects (Wright, 1974).

Regardless of the possible differential sensitivities of cognitive response and attitude measures, the effects of experimental treatments on cognitive responses are themselves considered to be important (Kassarjian, 1982). Moreover, the results of this study confirm a suggestion made by Petty & Cacioppo (1981) in their discussion of the Elaboration Likelihood Model—dissonance reduction processes can occur at the cognitive response level. We now wonder if dissonance reduction may have occurred at cognitive response levels in lieu of immediate changes in attitude. This conjecture may not be so far-fetched in light of demonstrations by the early cognitive response researchers that task performance facilitation can occur in lieu of attitude shifting as a means of reducing cognitive dissonance (Cottrell & Wack, 1967).

It is also noteworthy that the present study employed the 'hybrid' strategy to understand individual differences in the persuasion process (Eagly, 1981). This preferred approach 'proceeds by grafting a personality variable formulated in terms of personality theory onto a theory of attitude change' (Eagly, 1981, p. 182). Self-esteem was grafted onto dissonance theory for sound, theoretical reasons (Wicklund & Brehm, 1976). Persons high in self-esteem may be more likely to experience dissonance because of their greater propensity to be defensive and to appear consistent when making decisions (Aronson, 1968; Wicklund & Brehm, 1976). The results of the present study supported this notion, for dissonance effects on cognitive responding were indeed restricted to high self-esteem subjects. However, since self-esteem was a measured variable rather than a manipulated one, we are hesitant to go beyond a simple statement that our finding supports the contention that high self-esteem subjects are more likely to show dissonance effects. We would like to point out, however, that the relationship between self-esteem and dissonance susceptibility has received more armchair support than empirical support (see Wicklund & Brehm, 1976).

In sum, the results of the present study indicate that for high self-esteem persons, distraction can have a facilitative rather than a disruptive effect on cognitive responding, particularly when distraction acts as a source of arousal, as in a forced compliance paradigm. The direction of the increased cognitive responding can be determined by the cognitive response bias which, in turn, can be operationalized by the manipulation of perceived choice. Both distraction-conflict theory and dissonance theory can account for the findings. To provide a crucial test between these two theories was not a purpose of the present study, but in the interest of parsimony, we certainly encourage such a test.

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