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The reinstatement of dissonance and psychological discomfort following failed affirmations

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Abstract

The research in this article examined the consequences of a failed attempt to reduce dissonance through a self-affirmation strategy. It was hypothesized that disconfirming participants' affirmations would reinstate psychological discomfort and dissonance motivation. In Experiment 1, high-dissonance participants who affirmed on a self-relevant value scale and received disconforming feedback about their affirmations expressed greater psychological discomfort (Elliot & Devine, 1994) than either affirmation-only participants or low-dissonance/affirmation disconformed participants. In Experiment 2, disconfirmation of an affirmation resulted in increased attitude change. The results of both experiments suggested that a failed attempt to reduce dissonance reinstates psychological discomfort and dissonance motivation. We discuss how the reduction of psychological discomfort may play a role in the success of affirmations in reducing dissonance-produced attitude change. Copyright © 2000 John Wiley & Sons, Ltd.

Festinger's (1957) theory of cognitive dissonance has contributed to our understanding of human social behavior for nearly 40 years. The simplicity of its maxims combined with a compelling blend of cognition and motivation made it a paradigmatic social psychological enterprise (Jones, 1998). The experience of cognitive dissonance was originally described by Festinger (1957) as resulting from a need for psychological consistency that follows a non-fitting relation among cognitions. Dissonant relationships among cognitions create a state of psychological discomfort that motivates the individual, in a drive-like manner, to reduce the dissonant state. In discussing the temporal sequence of dissonance, from induction to reduction,

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Festinger (1957) proposed that many intersessionary events might be brought to bear on the process increasing (e.g. reminders of the inconsistency) or decreasing (e.g. by adding consonant cognitions) the magnitude of dissonance.

Researchers have recently returned to mine forgotten treasures from Festinger's original monograph. For example, Elliot and Devine (1994) reported evidence to suggest dissonance is experienced as psychological discomfort, and they distinguished this state from a more specific form of negative affect directed toward the self. Similarly, Simon, Greenberg, and Brehm (1995) explored Festinger's discussion of trivialization, demonstrating that people may reduce dissonance by decreasing the importance of, or trivializing, the cognitions or the relationship between the dissonant cognitions. Beauvois and Joule (1996) have returned to Festinger's discussion of the dissonance ratio, defined as the number of dissonant cognitions divided by the number of dissonant cognitions plus the number of consonant cognitions, and given it primacy in understanding dissonance processes. A number of new derivations of dissonance theory have also been advanced (e.g. hypocrisy, see Stone, Aronson, Crain, Winslow & Fried, 1994; disidentification, see Aronson, Blanton & Cooper, 1995). Festinger's original version of dissonance theory continues to provide researchers with novel hypotheses about how people deal with discrepancies among a variety of cognitions.

We sought to explore another of Festinger's original propositions concerning the process of dissonance reduction. Specifically, in his discussion of dissonance reduction, Festinger (1957) wrote:

> ... it is worth while to emphasize that ... the presence of pressures to reduce dissonance, or even activity directed toward such reduction, does not guarantee that the dissonance will be reduced ...In fact, it is quite conceivable that in the process of trying to reduce dissonance, it might even be increased. This will depend upon what the person encounters while attempting to reduce the dissonance. The important point to be made is that ... if attempts to reduce dissonance fail, one should be able to observe symptoms of psychological discomfort. (pp. 23–24)

There are at least two intriguing predictions in this passage that have not received much empirical attention. First, there is the possibility that attempts to reduce dissonance can backfire. Over the years, dissonance researchers have investigated a myriad successful dissonance reduction strategies, including attitude and behavior change, derogating the source of an inconsistency (Glass, 1964), distraction (Zanna & Aziza, 1976), misattribution of arousal (Zanna & Cooper, 1974), ingestion of arousal-reducing substances (e.g. tranquilizers) (Cooper, Zanna & Taves, 1978), and more recently, strategies for self-enhancement (e.g. self-affirmation or self-evaluation maintenance, see Tesser & Cornell, 1991). However, very little research has examined the conditions under which a dissonance reduction strategy might fail. Second, Festinger implied that when an attempt to reduce dissonance does fail, a person's psychological discomfort may reemerge or continue. If this is true, then a failed reduction strategy should motivate a search for, and the use of, another reduction strategy.

The purpose of this research was to examine what happens when an individual attempts to reduce dissonance through a strategy of self-affirmation (Steele, 1988) and it fails. Experiment 1 investigated whether disconfirmation of an affirmation rearouses psychological discomfort. Experiment 2 investigated whether disconfirmation of an

affirmation reinstates dissonance and ultimately leads to dissonance-produced attitude change.

SELF-AFFIRMATION THEORY

The search for the precise motivation that drives the dissonance engine has undergone special scrutiny and has resulted in several theoretical revisions. For example, one model holds that dissonance is based primarily on a need for self-consistency (Aronson, 1969; Thibodeau & Aronson, 1992) while another holds that dissonance motivates the need to undo or reverse unwanted consequences of behavior (Cooper & Fazio, 1984). One of the alternative accounts of the motivation that underlies dissonance phenomena is the theory of self-affirmation (Steele, 1988). Steele proposed a motivational system whose goal is to confer integrity upon the self. It is the threat to self-integrity inherent in the dissonant act and not the inconsistency itself that commences the motivational drive. Self-affirmations minimize threats to the self-image, reducing the aversive state without directly resolving, or even attending to, the inconsistency. Given that the focus of self-affirmation theory is on an overarching ego protective system, any intervening event following the induction of dissonance that bestows integrity onto the self should reduce dissonance. Attitude change is but one example of a self-affirmation, because dissonance motivates a need to 'maintain a phenomenal experience of the self ... as adaptively and morally adequate' (Steele, 1988, p. 262).

By adding an affirmation manipulation in between the dissonant act and the attitude measure, Steele's research has demonstrated that self-justifying attitude change can be eliminated even after the induction of dissonance. For example, in one representative study by Steele and Liu (1983, Study 1) participants who identified themselves as politically and economically oriented during pre-testing did not show attitude change if they had been given an opportunity before the attitude measure to complete the economic and political subscales of the Allport–Vernon Study of Values. In these experiments, participants who were not oriented towards the particular value subscales used as the affirmation manipulation showed self-justifying attitude change. The specific value dimension did not matter so long as it was valued by the participant. Subsequent research has supported the tenets of self-affirmation in the free choice paradigm (Steele, 1988) and by demonstrating that the activation of positive self-resources prior to a dissonant act is ample defense against the implications of a dissonant act (e.g. Steele, Spencer & Lynch, 1993; Stone, 1999). Similar to self-affirmation effects, Tesser and Cornell (1991) found that positively comparing oneself to a close other (e.g. outperforming the close other) following the writing of a counterattitudinal essay also reduced dissonance. Thus, drawing on valued aspects of the self or other 'affirmational resources' has been shown to affect the dissonance process both before induction (Steele, Spencer & Lynch, 1993) and as a means to reduction of dissonance (Steele & Liu, 1983).

CRITIQUES OF SELF-AFFIRMATION THEORY

Recent research has suggested some limitations to the primacy and effectiveness of affirmations in reducing dissonance. In Stone, Wiegand, Cooper and Aronson (1997)

participants chose a direct dissonance reduction strategy despite an equally available self-affirmation strategy. Direct resolution of dissonance occurred even when the opportunity to affirm the self was rated as more important for participants' global self-worth. Stone *et al.* concluded that dissonance sufferers prefer to confront directly the source of their arousal rather than simply access other positive features of the global self.

Other research has suggested that not all affirmational content is equally effective in reducing dissonance. Steele and Liu (1983) showed that even an affirmation unrelated to the dissonant act could reduce dissonance and attenuate justifying attitude change. Aronson, Blanton, and Cooper (1995) and Blanton, Cooper, Skurnik and Aronson (1997) have shown that it is only because the affirmation was unrelated to the dissonant act that the affirmation was successful in its reduction of dissonance. Specifically, participants in the Aronson *et al.* study 'disidentified' with the positive traits (compassionate and independent) related to the discrepancy while embracing those positive traits (objective and open-minded) that were consistent with the decision to engage in the dissonant act. The avoidance of, or disidentification with, references to the violated standard—references with positive enhancement for the self but negative implications *vis-à-vis* the dissonant act—is reminiscent of Festinger's (1957) claim that dissonance sufferers would avoid amplifying cues of the dissonant cognitions in the environment. In Blanton *et al.*, positive feedback about self-concept dimensions related to the dissonant act (i.e. compassionate) increased the need for self-justification of a dissonant essay. The opportunity to focus on positive self-attributes that reminded participants of the discrepancy was not dissonance reducing, but was dissonance enhancing.

These papers suggest that in the search for other positive aspects of the self, a person needs to avoid reflecting upon positive attributes that are related to the discrepancy responsible for his or her dissonance arousal. Blanton *et al.* (1997, p. 691) concluded that 'irrelevant affirmations treat only the ''symptoms'' of dissonance motivation, namely the psychological distress, but do not ''cure'' dissonance insofar as they do not discard the aversive consequences that caused the distress in the first place'.

We were interested in other ways in which affirmations may fail in dissonance reduction. We hypothesized that because affirmations appear to reduce psychological discomfort without 'curing' the cognitive discrepancy, their disconfirmation should reinstate psychological discomfort and dissonance motivation; that is, threats to an affirmation should reexpose the original dissonance.

It is not hard to imagine conditions under which attempts at reducing the psychological discomfort and negative arousal could veer astray and lead a person back to the original source of his or her discomfort. Consider Donna, a first-year undergraduate, who through subtle peer pressures ends up advocating an opinion inconsistent with her attitudes (e.g. that drinking glorifies the spirit rather than demonizes it). That negative state of arousal could be dealt with in many ways. She might change her attitudes toward drinking. She might seek other routes to reduce the negative state, such as going to a movie or watching television. Or she might try to affirm on other valued aspects of herself. If she considers herself a good tennis player, she might set up a match; if she prides herself on her gourmet cooking skills, she might invite a friend over for dinner. Just the swinging of the racquet, the slicing of the vegetables, the filling out of a value scale would likely reduce the negative affect

aroused by her inconsistent declarations. The affirmation attempt, however, may not be successful. Tennis is a competitive game with a winner and a loser; meals sometimes burn.

Would her reduced dissonance survive a failed affirmation? One possibility is that following dissonance arousal, the mere act of affirmation is sufficient protection to prevent the initial threat from rearousing psychological discomfort and dissonance. After all, if, as in the study by Steele and Liu (1983), just thinking about the global self prevents specific actions from mounting a serious threat to self-integrity, then it might not take much self-focused attention for the affirmational process to function. Once a person has had an opportunity to think more broadly about himself or herself, the protection offered by affirmation may take hold and reminders of a specific unwanted behavioral outcome would no longer present a threat to self-integrity.

Alternatively, the ability of an affirmational strategy to prevent the rearousal of dissonance may be contingent upon its ability to go unchallenged. If something challenges the validity of the affirmation itself, it may not prevent a person from returning to the source of his or her arousal and seeking another strategy for dissonance reduction. For example, after a failed tennis match or a burned meal, Donna, upon reflection, may realize her discomfort stems not solely from the match or the meal, but rather from her counterattitudinal advocacy. After this failed affirmation, Donna's dissonance might be rearoused and she may be as likely to change her attitude towards drinking as she would have been before her affirmation attempt.

Based on Festinger's original proposition, we hypothesized that if the validity of a reduction strategy, such as an affirmation, is challenged, it may cause the affirmation to fail at dissonance reduction. Furthermore, once that affirmation is undermined, reinstatement of psychological discomfort and dissonance motivation may lead a person back to resolve directly the discrepancy that caused the discomfort in the first place.

PSYCHOLOGICAL DISCOMFORT AND FAILED REDUCTION STRATEGIES

Festinger's (1957) observation suggests that reduction strategies are effective to the degree they reduce psychological discomfort, or the negative affect associated with dissonance. As a first attempt to examine this idea, we investigated the role of psychological discomfort in the success of affirmations and in the reinstatement of dissonance.

Although an accumulated body of research has demonstrated that dissonance is a physiological state of arousal (Croyle & Cooper, 1983; Elkin & Leippe, 1986; Losch & Cacioppo, 1990), research has only recently begun to explore the precise affective foundations of dissonance. In one recent set of studies, Elliot and Devine (1994) analyzed the affective components of dissonance by measuring three affective states: psychological discomfort (or negative affect), negative affect directed towards the self (negative-self), and positive affect. Across two experiments, they found that the only difference between dissonance and no-dissonance control groups was along the psychological discomfort index, suggesting that the affective consequence of the dissonant act was to elevate psychological discomfort. The arousal of dissonance did

not influence other types of affect, including positive affect and negative affect towards the self. Furthermore, participants given an opportunity to change their attitudes expressed reduced levels of psychological discomfort, similar to participants in no-dissonance (i.e. low choice) control groups. The reduction of psychological discomfort following attitude change provided further support for the contention that feelings of discomfort drive the dissonance reduction process.

Dissonance reduction strategies such as self-affirmation might also reduce dissonance by alleviating feelings of psychological discomfort (Tesser, Martin & Cornell, 1996). Steele (1988; Steele & Liu, 1983), however, has suggested that self-affirmations reduce dissonance through value affirmation and not through mood enhancement. Steel and Liu (1983), for example, state that their reinstatement condition would have threatened any positive mood produced by the affirmation manipulation and yet the participants showed no attitude change; mood, however, was not measured. Similarly, Steele *et al*. (1993) manipulated mood in the free-choice paradigm; although their manipulations produced substantial differences in mood, they produced no differences in self-justifying attitude change. However, they acknowledged that they could not rule out a mood explanation for the effectiveness of self-affirmations because their results were based on a null effect. Finally, Steele and Liu (1983) conducted an additional study in which participants completed a mood scale and a self-concept measure following a value scale; the results suggested that the value scale did not enhance mood but did bolster participants' self-concepts. This latter study, however, was not conducted in a dissonance-producing situation. Therefore, it remains possible that self-affirmations that occur within a dissonance situation serve to alleviate the psychological discomfort that arises following a dissonant act.

We sought to test the hypotheses that affirmations reduce the psychological discomfort associated with dissonance, and that their failure reinstates this particular form of negative affect. We predicted that participants who self-affirmed by completing a self-relevant value scale would re-experience psychological discomfort and dissonance if that affirmation was disconfirmed or negated. Furthermore, we predicted that participants experiencing the disconfirmation of their affirmations would report as much or more psychological discomfort and attitude change as participants in the high-choice condition of a typical induced-compliance study, and greater than participants in the affirmation condition. In addition, to control for misattribution of either arousal or negative affect directed towards the self caused by the negative feedback onto the psychological discomfort index or onto the attitude measure, we conducted a low-choice/affirmation disconfirmed control condition. This latter group, we hypothesized, would not re-experience psychological discomfort and dissonance because having engaged in counter-attitudinal advocacy under conditions of low-choice, no original dissonance would have been aroused, no contingent affirmation applied, and thus, no psychological discomfort and dissonance rearoused.

EXPERIMENT 1

Overview

All participants prepared and made a counter-attitudinal speech against a popular campus event under either high or low choice conditions. Consistent with the procedure developed by Steele and Liu (1983), participants in the self-affirmation

condition filled out the Allport–Vernon–Lindsey Scale of Values (AVLS) before reporting their current affective state and their attitudes toward the campus policy (high-choice only). Others, following the affirmation and before receiving the affect and attitude measures, received negative feedback suggesting they were lowest on the two AVLS dimensions on which they had scored highest in a pretest. In every condition, participants completed an affect measure before they completed the attitude measure.

Thus, the experimental design was a one-way comparison among four experimental conditions: (a) high-choice/speech only; (b) high-choice/affirmation; (c) low-choice/affirmation disconfirmed; (d) high-choice/affirmation disconfirmed. The primary dependent measures were the attitudes reported towards the popular campus event and the pattern of responses across three affect indices (psychological discomfort, negative-self affect, and positive affect, see Elliot & Devine, 1994).

Method

Participants

Participants were 38 undergraduates enrolled in introductory psychology who participated for partial course credit. As a prerequisite for participating in a number of different studies in social psychology, participants filled out a pretest measure The first half of the AVLS was included in the pretest packet. The AVLS consists of six dimensions, measuring value orientation with respect to political, economic, social aesthetic, religious and theoretical issues. As a measure of each participant's value orientation, we took the two dimensions on which each participant scored highest. We chose this idiographic approach, based on previous research by Steele and Liu (1983), to maximize the number of available participants; regardless of each participant's two highest dimensions, we could provide the appropriate feedback to each participant.

The data from four participants were excluded before the analysis. Specifically, three were excluded because they expressed suspicion during the debriefing, and one because the speech the participant gave was not counter-attitudinal. The participants removed from the analyses were distributed equally across the conditions. A total of 34 participants remained in the final sample.

Speech topic

The topic all participants were asked to speak about was the Nude Olympics. The Nude Olympics are a 25-year-old tradition at Princeton University in which sophomores run naked outdoors on the evening of the first snowfall of the year. The majority of students views the Nude Olympics as a unique tradition and participation in the event as a matter of personal choice. Despite recent institutional proposals for a ban on the Nude Olympics, students are generally favorable toward the annual event (Claire, 1994). Pilot testing demonstrated that advocating a ban on the Nude Olympics would be counter-attitudinal for most participants, but to do so for a campus committee

would not be perceived as extraordinary given the current debate about the campus policy.

Computer and feedback

In order to allow participants to self-affirm, they completed the second half of the AVLS (overall split half reliability = 0.90, see Allport, Vernon & Lindzey, 1960) on a Dell 486 personal computer with a 15 inch color monitor. The second half of the AVLS consists of 15 situations or questions followed by four possible attitudes or answers (representing four of the six possible dimensions); participants are instructed to rank order the answers according to their personal preference.[1] Presentation of the scale was programmed so that each item appeared on a single screen and participants could rank their responses by typing numbers on the keyboard. The program then prompted participants to confirm their responses by pressing the enter key, or make changes before confirming their final rankings for each item. Once participants advanced to the next item, they could not return to view previous items.

To provide idiographic negative feedback, computer programs were created to represent all possible combinations for feedback on two of the six values measured by the AVLS (economic, political, social, aesthetic, religious, theoretical). Participants were randomly assigned by a research assistant to either the high or low choice speech condition and then, depending on their assignment, the appropriate computer program was launched before their arrival in the lab. To keep the experimenter blind to condition, some idiographic programs were created that could randomly assign either no feedback or negative feedback in the high-choice conditions. For programming reasons, another set of idiographic programs was created that always provided negative feedback; these programs were launched by the research assistant when a participant was randomly assigned to the low-choice/affirmation disconfirmed condition. Thus, although the experimenter always knew who was assigned to high and low choice, within the high-choice conditions, the experimenter did not know who was to receive feedback until after participants had completed their speech and the computer version of the AVLS.

Procedure

Upon arrival in the lab, participants were told that the purpose of the research was to investigate the relationship between personality and the cogency of arguments. Ostensibly, the research hoped to tease apart the strength of a speaker's arguments

[1]Our use of the AVLS differed slightly from Steele and Liu's (1983) manipulations. In Experiment 1 of Steele and Liu, participants completed twenty items from part one of the AVLS, which consisted of statements with only two alternative answers; each of their chosen statements could be answered with either a political or economic answer. In their Experiment 3, participants completed ten items from part one of the AVLS, all of which included a possible aesthetic answer. In one of their experiments they used more items than we did and in one of their experiments they used fewer items. In our experiments, most of the fifteen statements used as the affirmation manipulation included at least one of those two dimensions. For example, a participant whose two highest dimensions were political and economic (as in Experiment 1 of Steele and Liu) would see one of these dimensions in fourteen of the fifteen questions. Therefore, our manipulation appears to be consistent with and equivalent to previous self-affirmation manipulations.

from non-verbal cues such as facial expressions or attractiveness. The experimenter explained that in order to investigate the effect of a speaker's personality on persuasion independent of non-verbal cues, participants would audio-tape a persuasive message and complete some personality measures. Participants were further told that the 1960 Presidential debate was the type of example that was driving the study and that the research sought to understand the anomalous finding that those who heard the debate on the radio believed Nixon emerged victoriously, whereas television viewers were more impressed by Kennedy's performance.

The experimenter explained that the Committee on Undergraduate Education had agreed to fund the research provided that the audio-taped speech concern a current topic of interest to the Committee. Participants were told that the Committee was interested in several campus policies and the types of arguments that students use to defend or reject them. The experimenter noted that the Committee would use these arguments when making its decisions next year. Participants were told that because the research was interested in the characteristics of their speech and not the contents of their speech, they would be randomly assigned to speak on one side of a topic of interest to the Committee. Ostensibly, this would allow the research to measure the cogency on both sides of each issue, as well as provide the Committee with a full spectrum of arguments. Finally, participants were told that they had been assigned randomly to audio tape a persuasive argument against the Nude Olympics (e.g. Cooper & Duncan, 1971).

Manipulating choice

Participants in the *high-choice* conditions were asked if they would be able to make the speech. To reinforce the high-choice manipulation, participants were asked to sign a consent form releasing their speech. The form read: 'I understand that my speech will be used by the Committee on Undergraduate Education to assist with decisions regarding campus issues. I know that I am not required to make the speech requested of me'.

Participants in the *low-choice* condition were told that because of random assignment, they would have to make a speech against the Nude Olympics. Low-choice participants did not read the consent form provided to participants in the high-choice conditions.

All participants were allowed to construct an outline before making their speech. When they were ready, the experimenter turned on a real-to-reel tape recorder and participants recorded their speech by speaking into a microphone. The speeches were only recorded once and, following each speech, the experimenter remarked 'That was good, really very convincing. I think the Committee will find it useful.'

At this point in the procedures, the order of events varied according to the four experimental conditions:

- *Speech-only condition* Participants in the high-choice/speech-only condition were then told that the experimenter was interested in measuring the influence of emotion on persuasion and hoped to distinguish between the effects of personality and those of emotion on persuasion; they were given a measure of their current mood state to fill out. These participants were then told, 'We now have a personality measure for

you to fill out, but before you do that, here is something I forgot to give to you before. The Committee wants to see your opinions on all nine issues they are interested in'. Thus, participants in the speech-only condition first completed the affect measure, followed by the attitude measure, a measure of self esteem (the SSES, described below) and two questions asking them to evaluate the cogency and persuasiveness of their speeches.

- *Using the computer to manipulate feedback* After they completed their speech, participants in the affirmation-only and negative feedback conditions were also asked to complete some personality measures. The first measure, however, was administered by a computer. As described above, the experimenter first explained how to complete the AVLS using the computer. She then exited the room while participants completed the self-affirming value survey.
- *Affirmation-only condition* For high-choice participants randomly assigned by the computer to the affirmation-only condition, the computer program simply ended after they completed the AVLS. Specifically, when they completed the measure, the computer screen read 'Thank you for participating'. At this point, the experimenter re-entered the room and collected the affect and attitude measures and the other dependent measures as described above.
- *Negative-feedback conditions* For high- and low-choice participants who were randomly assigned by the computer to receive negative feedback, at the completion of the AVLS, the computer screen began flashing the phrase 'Computing Values Scale'. After 15 seconds, the computer beeped and displayed the question: 'Display value profile?' The experimenter then re-entered the room, took note of the message on the screen, and explained that, because the value scale had been entered on the computer, she would be able to provide immediate feedback about their value orientation. She then depressed the enter key to advance the program to the negative feedback screen.

The feedback was presented on the computer as standardized Z-scores (see Figure 1). Whichever two dimensions the participant had actually scored highest on in the pretest were then presented as the two dimensions the participant allegedly scored lowest on while completing the AVLS on computer. Specifically, participants were told that their scores on their two highest dimensions were below the average for other college students in the Northeast. To illustrate the meaning of the numbers, the experimenter presented a graph of a normal curve and showed participants that they were 'approximately' one standard deviation below the midpoint of the distribution on those two dimensions. Participants' scores on the other dimensions were presented as falling near the midpoint (zero) of the distribution. After explaining the other dimensions, the experimenter noted that there was another personality measure to be completed and that she had forgotten to give the attitude measure earlier in the experiment. Participants then completed the dependent measures in the same order as described above.

Once the experimenter had collected all the dependent measures, participants were fully debriefed using the process-debriefing method discussed in Ross, Lepper and Hubbard (1975). Participants who received negative feedback were told they had actually scored very high on the two dimensions the computer scored as only average. They were also told about the perseverance of false feedback on self-beliefs, its causes, its consequences and ways of reversing its effects. In addition, participants were

The Allport–Vernon–Lindsey Scale of Values

POLITICAL SUBSCALE	−0.91
ECONOMIC SUBSCALE	−0.83
AESTHETIC SUBSCALE	0.11
SOCIAL SUBSCALE	0.09
RELIGIOUS SUBSCALE	0.02
THEORETICAL SUBSCALE	0.08
COMPOSITE INDEX SCORE	0.11

Note: Scores less than 0.50 do not differ significantly from the mean

Figure 1. Example of negative feedback after filling out value scale

probed for any suspicions they might have about the speech or the negative feedback. None of the participants challenged the validity of the feedback during the debriefing interview. Whereas many reported that the feedback was upsetting and unsettling, all participants in the present analysis reported that the negative feedback disconfirming their value-orientation was believable and credible.[2] Participants were then thanked and paid for their participation.

Dependent measures

Affect measure Participants completed an eleven-item affect questionnaire modeled after that described by Elliot and Devine (1994). The measure, entitled the 'Taylor–Watson Index of Affect', instructed participants to rate their current mood state by circling a number on a 7-point Likert scale anchored from 1 (does not apply at all) to 7 (applies very much). The psychological discomfort items included uncomfortable, uneasy, and bothered. The negative-self items included angry toward myself, dissatisfied with myself, disgusted with myself, and annoyed with myself. The positive affect items included happy, good, friendly, energetic, and optimistic.

Attitude measure All participants were asked for their level of agreement with nine statements, each concerning undergraduate life. They responded on an eleven-point rating scale anchored by the words Disagree (1) and Agree (11). The second statement 'The Nude Olympics should be banned' was the critical dependent measure. Participants were also given a two-item questionnaire asking them to rate the cogency and persuasiveness of their speeches on seven-point scales. These final two items were included to ensure that any observed attitudinal differences were caused by the

[2]It is possible that the false feedback might have raised suspicion given that participants had just completed the AVL scales. In our view, this is unlikely for two reasons. First, value orientation was determined on the AVL by combining fifteen responses across the forced-choice format. It seems unlikely that participants were able to compute their scores while completing the scale, especially given that they could not return to view previous items on the computer version. Second, we note that discrediting the feedback would most likely have reduced the observed support for the hypothesis. If participants did not believe the feedback, it seems unlikely that they would have reported psychological discomfort and changed their attitudes.

experimental manipulations and not by self-perceived cogency or persuasiveness of the participants' speeches. In addition, prior research has shown that dissonance can be reduced by discounting the strength of one's essay (Simon *et al.*, 1995), particularly when participants' attention is self-focused (Scheier & Carver, 1980); negative feedback might increase self-focused attention.

State Self-Esteem Scale (SSES) To measure whether the negative feedback affected self-esteem independent of dissonance arousal, participants were asked to complete the State Self-Esteem Scale (SSES, see Heatherton & Polivy, 1991). The SSES was designed to measure short-lived changes in self-esteem and is composed of three correlated factors: performance, social, and appearance self-esteem. It has been shown to be sensitive to experimentally engineered failures as well as therapeutic treatments.

Results

Affect measures

Affect sub-indices were created using the factors developed by Elliot and Devine (1994). Each sub-index had similar internal consistency to that reported by Elliot and Devine: psychological discomfort (Cronbach's alpha = 0.81); negative-self (Cronbach's alpha = 0.90); positive affect (Cronbach's alpha = 0.83). In addition, the psychological discomfort and negative-self indices were not reliably correlated ($r = 0.23$, $p < 0.23$).

First, a 4 (experimental conditions) × 3 (affect indices) mixed model ANOVA was conducted using the affect measures as a within factor. The main effect for condition was significant, $F(3,30) = 4.45$, $p = 0.01$, as was the main effect for the affect indices, $F(2,60) = 15.85$, $p < 0.001$. The two significant main effects were qualified by the predicted condition × affect measures interaction, $F(6,60) = 3.92$, $p < 0.003$.

In order to explicate the meaning of the interaction, separate one-way ANOVAs were conducted on each of the affect indices across experimental condition. The one-way ANOVA on the negative affect index was significant, $F(3,30) = 7.32$, $p < 0.001$. As seen in Figure 2, planned comparisons showed that the high-choice/speech only condition ($M = 3.4$) displayed significantly greater psychological discomfort than the affirmation condition ($M = 1.4$), $t(30) = 4.00$, $p < 0.001$ and the low-choice/affirmation disconfirmed condition ($M = 2.1$), $t(30) = 2.53$, $p < 0.02$. The high-choice/affirmation disconfirmed condition ($M = 3.3$) also manifested significantly greater discomfort than both the affirmation condition, $t(30) = 3.65$, $p < 0.001$, and the low-choice/affirmation disconfirmed condition, $t(30) = 2.24$, $p < 0.04$. High-choice/affirmation disconfirmed participants did not express greater levels of psychological discomfort that high-choice/speech only participants, $t(30) < 1$. The results demonstrate that, as predicted, participants for whom dissonance was aroused or rearoused showed significantly higher levels of psychological discomfort relative to participants for whom dissonance was successfully reduced through a self-affirmation strategy. Moreover, participants in the high-choice/affirmation disconfirmed condition displayed significantly greater psychological discomfort than participants in the low-choice/affirmation disconfirmed

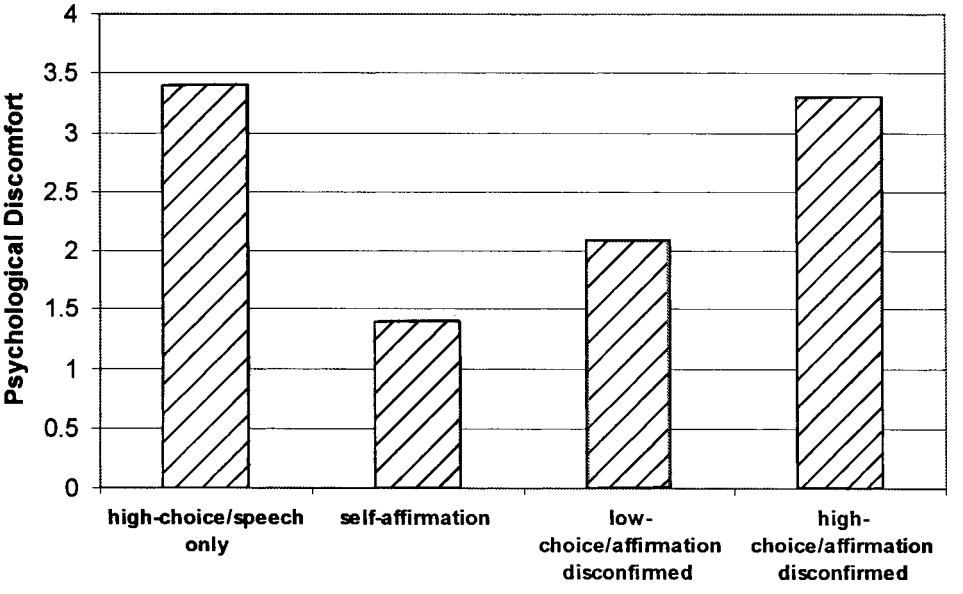

Figure 2. Level of psychological discomfort expressed by experimental condition

condition. This indicates that negative feedback alone did not induce psychological discomfort; however, negative feedback that disconfirmed an affirmational strategy clearly reinstated psychological discomfort. Failures to reduce dissonance through a self-affirmation strategy did not increase levels of psychological discomfort above experiencing dissonance without affirmational failure.

The one-way ANOVA conducted on the neg-self index was also significant, $F(3,30) = 3.41$, $p = 0.03$. The high-choice/affirmation disconfirmed condition ($M = 2.7$) was significantly different from both the high-choice/speech only condition ($M = 1.2$), $t(30) = 2.97$, $p < 0.01$, and the affirmation condition ($M = 1.6$), $t(30) = 2.16$, $p < 0.04$. The low-choice/negative feedback condition ($M = 2.2$) was significantly different from the high-choice/speech only condition, $t(30) = 2.00$, $p = 0.05$ and non-significantly different from the affirmation condition (see Figure 3). The data show that, negative feedback, regardless of choice, produced negative reactions towards the self.

Consistent with Elliot and Devine's results, the one-way ANOVA analysis conducted on the positive affect index was not significant, $F < 1$. Thus, the results support our hypotheses that affirmations reduce dissonance through their attenuation of psychological discomfort and that when attempts to self-affirm fail, psychological discomfort is reinstated.

Attitude measure

A one-way ANOVA conducted on the attitude measure across the experimental conditions found no significant attitude change, $F < 1$ (GM = 2.0). Possible reasons for finding significant affective differences across the conditions without concomitant attitude change will be examined in the discussion.

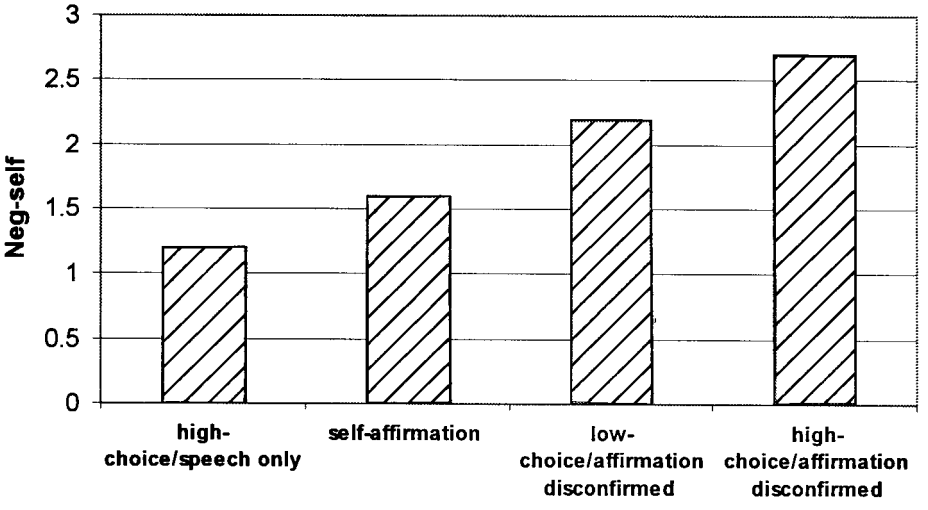

Figure 3. Level of negative emotion directed towards the self expressed by experimental condition

One-way ANOVAs across the four experimental conditions were conducted on the ratings of speech cogency and speech persuasiveness and they did not reveal any significant effects, both Fs < 1. Participants as a whole rated their speeches as moderately cogent (Grand $M = 4.3$) and moderately persuasive (Grand $M = 4.2$).

Finally, one-way ANOVAs on the overall SSES scores and subscales also revealed no effects for the experimental conditions, $F < 1$. All participants reported a moderately high level of self-esteem (Grand $M = 12.01$). Thus, although the procedures did increase negative affect directed towards the self, they did not lower state self-esteem among those whose two highest value orientations were discredited by the computer feedback. Also, the affirmation manipulation did not increase state self-esteem.

Discussion

The results indicate that dissonance arouses psychological discomfort, self-affirmation strategies reduce this discomfort, and a failed attempt at affirmation rearouses psychological discomfort. This lends empirical support to our first hypothesis, based on Festinger's original proposal, that a failed attempt to reduce dissonance would reinstate psychological discomfort. This suggests that the induction and reduction of psychological discomfort are an integral part of the dissonance process (Elliott & Devine, 1994). Furthermore, the data suggest that affirmation processes may not be independent of the reduction of psychological discomfort. That is, although participants in the affirmation-only condition reported the lowest level of psychological discomfort, when participants' attempts to affirm failed, significant psychological discomfort reemerged.

The data showed less evidence for the second hypothesis—that a failed attempt to reduce dissonance would systematically lead a person to seek another avenue for

dissonance reduction, in this case, self-justifying attitude change. While the failure to find attitude change across the experimental conditions was unexpected, it is consistent with some previous research in which the expression of negative affect appeared to reduce the need to change one's attitude as a means of dissonance reduction (e.g. Elliott and Devine, 1994, Study 1; Pyszczynski, Greenberg, Solomon, Sideris & Stubing, 1993). According to Pyszczynski *et al*., the function of attitude change is to protect the individual from the negative emotional state of dissonance. Once the psychological discomfort is acknowledged and expressed, the need to alter one's attitude is diminished. In the Pyszczynski *et al*. study, one group of high-choice participants was encouraged, prior to the construction of a dissonant essay, to express any negative tension they were experiencing. Pyszczynski *et al*. found that this group manifested less attitude change than a high-choice group that wrote counter-attitudinal essays without the opportunity to express their discomfort.

Similarly, Stice (1992) found that participants encouraged to 'confess' their feelings about a counterattitudinal behavior to the experimenter reported higher levels of guilt, but subsequently showed less attitude change compared to participants who wrote their essay but did not express their thoughts and feelings. Together, these studies suggest that acknowledging one's negative affect following the arousal of dissonance may have the capacity to reduce the motivation to justify behavior through attitude change (Pyszczynski *et al*., 1993).[3] This raises the possibility that by drawing participants' attention to their psychological discomfort, participants in the first experiment may have reduced their discomfort during their opportunity to express it. The expression of dissonance-produced negative affect may have reduced participants' dissonance motivation and their need to engage in attitude change.

If drawing one's attention to dissonance-induced negative affect can reduce dissonance motivation, then in the absence of acknowledgement and expression of one's psychological discomfort, a failed attempt to reduce dissonance might reinstate psychological discomfort *and* the motivation to seek another route for dissonance reduction. Accordingly, we designed a second experiment in which we removed the affect measure that had preceded the attitude measure in order to eliminate the potential for participants to reduce their dissonance motivation by expressing their discomfort.

Although no increase in psychological discomfort was found in Experiment 1 following affirmational failure, there remains the possibility that affirmational failure could increase dissonance-produced attitude change. Previous research has found that when separate sources of arousal are combined in a dissonance situation, dissonance-produced attitude change increases additively. Cooper *et al*. (1978) found that dissonance participants who had ingested an amphetamine, which they thought

[3]Although, Pyszczynski *et al*. allowed for the expression of discomfort in written, narrative form, Elliott and Devine's study used the precise measure that we used in the current research. They, too, found that the expression of discomfort eliminated attitude change. Elliott and Devine (1994, Study 2), however, did find both evidence of psychological discomfort and attitude change in the same study. One major difference between their Study 2 and our current study is that their participants were run in groups with written instructions, whereas our participants were run individually with verbal instructions given by the experimenter. Given the cover story in our current study, emphasized teasing apart affect from personality in the persuasion process, participants' current mood state was placed in the context of their speech; this contextualization of affect within the dissonant situation may have been absent in Elliott and Devine's Study 2. Also, because the experimenter requested the ratings of their current mood, this manipulation may have worked similarly to the confession manipulation in the experiment by Stice (1992).

was a placebo, expressed more attitude change than dissonance participants who did not have additional amphetamine-induced arousal. Blanton *et al.* (1997) found dissonance increased after exposure to affirmational information relevant to the dissonant act. Both studies suggest that increases in arousal in the context of the dissonant situation lead to concomitant increases in dissonance-produced attitude change. In Experiment 1, high-choice/affirmation disconfirmed participants expressed high levels of both psychological discomfort and negative affect directed towards the self. These separate types of anxious affect, culled from separate sources (the dissonant act producing psychological discomfort and the negative feedback producing negative affect towards the self), might combine to produce greater amounts of dissonance-produced attitude change than experiencing dissonance without affirmation failure. The next experiment, using the same induced compliance procedures but with a more conventional dissonance reduction measure (i.e. attitude measure), tested whether affirmational failure would lead to increased dissonance-produced attitude change.

EXPERIMENT 2

Overview

The design of Experiment 2 replicated Experiment 1 with the addition of a low-choice/speech only condition. Also, no affect measure appeared before the attitude measure. The design of the study was a one-way comparison of the attitudes across the five experimental conditions: (a) low-choice/speech only, (b) high-choice/speech only, (c) high-choice speech/self-affirmation, (d) low-choice speech/negative feedback, and (e) high-choice speech/negative feedback.

Method

Participants

Participants were 62 undergraduates at Princeton University who were run in individual sessions and paid $5.00 for their participation. Participants were recruited for a pretest from a sign-up sheet. The pretest was advertised as a packet of materials researching personality. Participants, who were paid $5.00 for filling out the pretest measures, indicated their willingness to participate in future studies. As in Experiment 1, the first half of the AVLS was included in the pretest packet.

Seven participants were dropped from the study. Specifically, data from three participants were deleted because they expressed suspicion during the debriefing and four were deleted because they either refused to give a speech or the speech they gave was not counter-attitudinal. The participants removed from the analyses were distributed equally across conditions. A total of 55 participants were included in the final analysis.

Procedures

The procedures for inducing choice to make a speech against the Nude Olympics and for providing negative idiographic feedback were identical to those described in Experiment 1. At the completion of the experiment, participants were debriefed using the process debriefing procedures described in Experiment 1.

Dependent measures

The dependent measures were same as those in Experiment 1, excluding the affect measure.

Results

A one-way ANOVA conducted on the attitudes of the five groups produced a significant effect of experimental condition, $F(4,50) = 2.51$, $p = 0.05$. In order to test our focused hypothesis (Rosenthal & Rosnow, 1991) the attitudes of the five groups were compared using a planned contrast. The contrast weights were as follows: (a) low-choice/speech only (−2), (b) high-choice speech/value scale (self-affirmation) (−2), (c) low-choice speech/value scale/negative feedback (−2), (d) high-choice/speech only (+2) and (e) high-choice/value scale/negative feedback (+4). These contrast weights represent the hypotheses that high-choice would produce dissonance relative to the low-choice and self-affirmation conditions and that affirmational disconfirmation following high-choice counterattitudinal advocacy would lead to increased dissonance. Results produced a significant planned contrast, $F(1,50) = 8.40$, $p < 0.005$.[4] In addition, the residual sum of squares was non-significant, $F < 1$. This indicates that the *a priori* hypothesis received strong support and is sufficient to account for the non-chance variation in the data (Abelson & Prentice, 1998). The attitudes of high-choice/affirmation disconfirmed participants ($M = 4.9$) were higher than those of the high-choice only condition ($M = 4.0$), which, in turn, were higher than those of affirmation participants ($M = 2.2$), low-choice/speech only participants ($M = 2.8$), and low-choice/affirmation disconfirmed participants ($M = 3.0$) (see Figure 4). Planned comparisons showed that the attitudes of high-choice/affirmation disconfirmed participants were significantly more positive towards banning the Nude Olympics compared to those of affirmation participants, $t(50) = 2.7$, $p = 0.01$, low-choice/speech only participants, $t(50) = 2.1$, $p = 0.04$,

[4]Another theoretically meaningful contrast, in which the high-choice/speech only and the high-choice/affirmation disconfirmed conditions were weighted equally, and compared against the other three conditions was significant, $F(1,50) = 2.86$, $p < 0.01$. This contrast demonstrates that the two conditions predicted to experience the most dissonance did indeed show more attitude change than the other three conditions. The results of this contrast did not differ significantly from the contrast in which the high-choice/affirmation disconfirmed was weighted more heavily than the high-choice/speech only condition. We feel that the contrast in which the high-choice/affirmation disconfirmed condition is weighted more heavily than the high-choice speech not only better represents the pattern of means, but is also more consistent with our theoretical arguments. Because Experiment 1 demonstrated that disconfirming an affirmation produced two independent sources of affect, one relevant and one irrelevant to dissonance, we believe that, consistent with previous research (Cooper *et al.*, 1978), the two sources of arousal would combine to increase dissonance-produced attitude change.

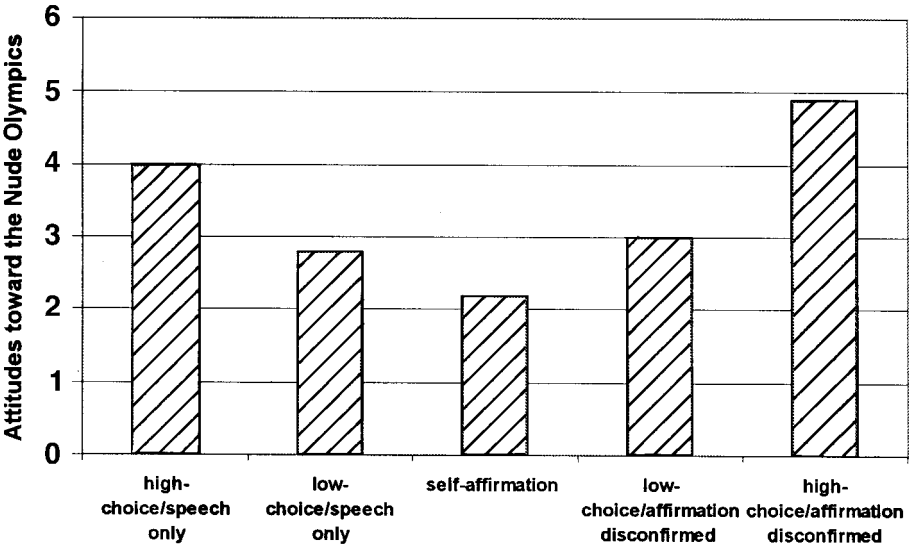

Figure 4. Attitudes towards the Nude Olympics expressed by experimental condition

and from low-choice/affirmation disconfirmed participants, $t(50) = 1.9$, $p = 0.058$. The high-choice/speech only condition was non-significantly different from the high choice/affirmation disconfirmed condition and the low-choice/speech only condition. In addition, as in Experiment 1, there were no differences between the experimental groups on the persuasiveness item, the cogency item, or the State Self-Esteem Scale, all Fs < 1. This suggests that the attitudinal differences were not mediated by self-perceived cogency or persuasiveness of the participants' speeches.

Discussion

Participants in Experiment 2 who experienced the disconfirmation of their affirmations demonstrated evidence of dissonance-produced attitude change. The results from Experiment 2 provided support for the hypothesis that failed attempts to reduce dissonance will rearouse dissonance motivation and lead a person back to the original source of his or her discomfort. Participants who used a self-affirmation strategy to reduce dissonance, only to have that strategy negated by negative feedback, returned to the source of their arousal and employed a justification strategy to reduce the resonant psychological discomfort. The pattern of means suggests that affirmational failure can backfire, leading to enhanced dissonance arousal and increased levels of dissonance reduction. Festinger (1957, p. 23), as noted in the introduction, recognized this possibility in his original manuscript. Going back to our example of Donna, affirmational failure, her burned meal or lost tennis match, should lead her to proclaim the merits of drinking more loudly and resoundingly.

The difference between the high-choice/affirmation disconfirmed and affirmation-only groups parallels the findings from Experiment 1 and suggests that dissonance was reduced successfully by completing the AVLS on computer. This implies that, although dissonance reduced through affirmation may not be rearoused following

reminders of the dissonant act (Steele & Liu, 1983), a failed affirmation following a dissonant act can rearouse dissonance. Furthermore, the absence of attitude change in the low-choice/affirmation disconfirmed condition indicates that discrediting of participants' attempts to reduce dissonance, and not negative feedback per se, reinstated dissonance motivation and the need to justify behavior. However, there was some evidence to suggest that, as in Experiment 1, the negative feedback had different implications depending on the level of dissonance experienced. Specifically, low-choice/affirmation disconfirmed participants showed slightly elevated social state self-esteem compared to all other conditions ($M = 4.1$ and $M = 3.6$, respectively, $F(1,50) = 2.94$, $p = 0.09$). Although this difference did not reach conventional levels of significance, it suggests that low-choice/affirmation disconfirmed participants were responding to the direct threat the negative feedback posed for the self by bolstering their social self-esteem; this result is similar to low-choice/affirmation disconfirmed participants in Experiment 1 expressing greater levels of negative-self affect without concomitant psychological discomfort. Having not experienced dissonance in the previous portion of the experimental session, they responded solely to the threat posed by the negative feedback. High-choice/affirmation disconfirmed participants, on the other hand, having used the value scale to reduce dissonance, were attentive to the original source of their arousal, i.e. the dissonant act.

The results from Experiment 2 add support to our contention that no attitude change occurred in Experiment 1 because the affect measure allowed participants to express, and thereby reduce, their level of psychological discomfort (Pyszczynski *et al.*, 1993; Stice, 1992). When no affect measure preceded the attitude measure in Experiment 2, participants manifested dissonance-produced attitude change. To provide a formal test of the hypothesis that emotional expression eliminates the motivation to change one's attitudes, we compared the attitude change measure across the experimental conditions of Experiment 1 and Experiment 2. A 2 (Experiment 1/Experiment 2) $\times$ 4 (experimental condition) ANOVA was conducted on the attitude measure.[5] A main effect for Experiment, $F(1,70) = 12.9$, $p < 0.001$, was qualified by an Experiment by Condition interaction, $F(3,70) = 2.97$, $p = 0.05$. Attitudes in the emotional expression experiment, in which an affect measure preceded the attitude measure, were significantly less influenced by the experimental conditions than the experiment in which attitudes were measured alone. These results support the growing body of research that suggests that emotional expression can be an effective means of dissonance reduction (Pyszczynski *et al.*, 1993; Stice, 1992; Elliot & Devine, 1994).

GENERAL DISCUSSION

The present research provides some evidence for Festinger's (1957) discussion of the consequences of a failed attempt at dissonance reduction. We showed that if a person attempts to reduce dissonance through a self-affirmation strategy it might have the effect of successfully reducing dissonance. However, if something challenges or negates the validity of that strategy, two outcomes will follow. First, as demonstrated in Experiment 1, he or she will re-experience psychological discomfort when attempts to self-affirm are not successful. Second, as shown in Experiment 2, the rearousal of

[5]The low-choice speech only condition was excluded in order to have a completely crossed design.

psychological discomfort will motivate that person to seek another route for dissonance reduction, in this case, attitude change.

Following a failed attempt to reduce dissonance, why did participants go back to the original source of arousal, re-experiencing psychological discomfort (Experiment 1) and expressing increased attitude change (Experiment 2)? One possibility is that because dissonance arises from the meanings implicit in the dissonant situation (Cooper & Fazio, 1984; Stone *et al*., 1997), those meanings carry through a failed attempt at dissonance reduction. Emerging from a disconfirmed affirmation, participants returned to the original source of their discomfort and, when provided the opportunity, they directly confronted the discrepancy that caused their initial discomfort.

Our results also support and extend the findings from Aronson *et al*. (1995) and Blanton *et al*. (1997) that showed that affirmations related to the dissonant act can enhance rather than attenuate dissonance. Our experiments have shown that increased dissonance can follow from unrelated affirmations, and not just related affirmations, when those affirmations are disconfirmed.

INDIRECT AND DIRECT DISSONANCE REDUCTION STRATEGIES

A distinction has been made in the literature between dissonance reduction strategies that confront or address the discrepant cognitions and those strategies that ignore or are irrelevant to the provoking cognitions (Stone *et al*., 1997). Self-affirmation theory's reformulation of dissonance is notable in its assertion that direct confrontation of the source of dissonance arousal (e.g. attitude change) is sufficient but not necessary for the reduction of dissonance (see also Tesser & Cornell, 1991). Festinger's (1957) original conceptualization and subsequent reformulations (e.g. Cooper & Fazio, 1984; Thibodeau & Aronson, 1992) share the assumption that the resolution of cognitive dissonance requires work on the discrepant cognitions themselves. Recently, Stone *et al*. (1997) have demonstrated that participants prefer to confront directly the source of their discomfort even when a self-affirmation is equally available and more important to the self-concept.

One implication of these current findings is that self-affirmations, and possibly other indirect strategies for dissonance reduction, such as self-evaluation maintenance (e.g. Tesser & Cornell, 1991), may operate by masking the meaning implicit in the dissonant act.[6] That is, by diverting attention to other positive aspects of the self, or comparing positively to others along another self-dimension, a person can reduce psychological discomfort by masking the discrepancy from awareness. If these strategies go unchallenged, they may eventually prevent reinstatement of dissonance

[6]One interesting note about studies that find evidence for indirect routes to dissonance reduction is that dissonance does not increase or make more extreme responses on the indirect measures. In self-affirmation studies (Steele & Liu, 1983), affirmational responses do not become more extreme; participants experiencing dissonance do not try to bolster the self, rather they simply access or attend to positive aspects of the self. Similarly, dissonance arousal had no impact on the amount of alcohol consumed following a production of a counterattitudinal essay even when the consumption of alcohol attenuated attitude change (Steele *et al*., 1981). These findings suggest that affirmations and alcohol might distract participants, drawing their attention away from the dissonance and its related discomfort.

should the discrepancy become salient at some later time (e.g. Steele & Liu, 1983).[7] However, dissonance may still percolate behind the protective mask afforded by the self-affirmations. Discrediting the attempt at self-affirmation lowers the mask, the discrepancy becomes salient again and motivates a person to reduce dissonance directly.

We have argued that once an indirect strategy for reduction fails, participants may return to the source of their arousal and deal directly with the discrepancy by changing their attitudes. We believe that this process occurs through four steps: (1) affirmational failures re-expose the original discrepancy; (2) psychological discomfort is reinstated; (3) the individual is placed in a state of dissonance motivation; (4) direct resolution of the discrepancy is then sought. It is plausible, however, that participants changed their attitudes in Experiment 2 because that was the only reduction route made available to them after the failed affirmation (e.g. Gotz-Marchand, Gotz & Irle, 1974; Steele, 1988). It may be the case that once the primary reduction strategy has failed, people prefer to use other indirect strategies or, alternatively, they may attempt to use the same strategy again, hoping that it succeeds the second time around. In Experiment 2, participants were offered only the justification strategy following a failed affirmation—they may have preferred to use the affirmation option again, or alternatively, they may have sought to affirm on another positive aspect of the self. Future research can examine how people prefer to reduce dissonance following a failed attempt by providing more than one option after dissonance has been aroused (see Stone *et al*., 1997).

Another issue raised by the present research is whether direct routes to dissonance reduction are more likely to reduce dissonance successfully. Although we have no direct evidence, we speculate that direct routes to dissonance reduction may be more resistance to attack. Lepper, Zanna and Abelson (1970), for example, found that cognitive distortions in the forbidden toy paradigm (e.g. derogation of a forbidden toy under conditions of mild threat) were impervious to consonant information that was presented after the temptation period. They concluded that 'successful dissonance reduction [involving cognitive distortions] tended to be "irreversible" '. Goethals and Cooper (1975) and Goethals, Cooper and Naficy (1979) found that when high-choice dissonance participants later found out information that their essay would not produce an unwanted aversive outcome, they still expressed significant attitude change when that new information was unforeseen. That is, the unforeseen information that negated the consequence of their counterattitudinal behavior did not eliminate the direct route to dissonance reduction. The combination of the results in these papers suggests that direct routes to dissonance reduction are resistant to disconfirming information.

[7]Steele & Liu (1983, Study 2) reported a study in which participants wrote counterattitudinal essays and then were allowed to self-affirm by completing a value scale. Following the value scale and before the attitude measure, participants were asked to write down three key words from their previous essays. The results showed that when asked their attitudes about the topic of the essay, participants who had previously affirmed showed no attitude change during the follow-up period.

SOME THOUGHTS ABOUT REDUCTION FAILURE

One alternative explanation for our results is that only negative feedback, and not disconfirmation of affirmations, is required to reinstate dissonance. That is, the negative feedback is a new and separate threat to self-integrity and it produces a new affirmational response, attitude change. This explanation does not account for why the low-choice/affirmation disconfirmed participants do not also change their attitudes. Nonetheless, in order to provide some preliminary evidence that it is not negative feedback, but affirmational disconfirmation, that reinstates dissonance, we collected some preliminary data. Half of the participants were given an opportunity to affirm (by filling out the same value scale given in the first two experiments) following a counterattitudinal speech that was delivered under high-choice conditions. The other half of the participants were given negative feedback after filling out the value score. This feedback, unlike the two previous studies, was unrelated to the affirmation. Participants were told that the feedback was a summary of information collected during a pretest questionnaire all participants had completed. Specifically, participants were told that pretesting had found them to be untrustworthy and uncreative (two traits that were pretested to be as important to the participant's self concept as the value dimensions). No differences emerged between these two conditions. Negative feedback unrelated to the affirmation did not produce more attitude change than being given the opportunity to affirm. These results, although based on a null result, lend suggestive support to our notions that affirmations contingently reduce dissonance and the disconfirmation of the specific affirmation utilized in the service of dissonance reduction, and not negative feedback in general, reinstates dissonance.

Finally, the current research extends our understanding of the conditions under which dissonance can be reinstated. In research conducted by Higgins, Rhodewalt and Zanna (1979), reinstatement was accomplished when participants, during a second session, reproduced their original essays as part of an ostensible memory test. This reproduction reinstated dissonance in those conditions (low-choice, misattribution) that demonstrated no dissonance in session 1, because it made the dissonant element (counterattitudinal behavior) salient without reintroducing its original situational explanation (misattribution cue) or justification (low-choice) that served as consonant cognitions (cf. Zanna, Lepper & Abelson, 1973). Our experiments expand on Higgins *et al.*'s experiment by reinstating dissonance in the same experimental session as the dissonant act, and without reintroducing the dissonant essay. Thus, not only can dissonance be reinstated if the dissonant act is 'relived' without attention to the consonant cognitions (Higgins *et al.*, 1979), but as Festinger proposed, dissonance can be reinstated if a person attempts to reduce dissonance but the strategy is challenged or discredited.

CONCLUSION

The outcomes of the two experiments provide support for Festinger's (1957) original proposition regarding the consequences of failures to reduce dissonance. As he suggested, attempts to reduce dissonance do not guarantee its reduction and that after

such failures, symptoms of psychological discomfort should be observable. The two experiments have shown that when affirmations fail, people return to the original source of their arousal, re-experiencing psychological discomfort and changing their attitudes. We believe, as did Festinger, that the most direct resolution of dissonance involves attention to the provoking discrepancy or unwanted behavioral outcome. But often dissonance is contingently reduced, sometimes through alternative ways of reducing physiological arousal (i.e. drinking alcohol or taking sedatives, see Steele, Southwick & Critchlow, 1981), sometimes through distraction (i.e. watching television or having dinner with friends, see Zanna & Aziza, 1976), and sometimes through affirmations or commitments to future actions consistent with the attitude and not the behavior (Steele & Liu, 1981). The important point about contingent reduction is that it may mask the dissonance arousal without making amends for, or somehow confronting, the source of the original problem. As a result, the blow to one's self-interest is only momentarily deflected or subdued, leaving one vulnerable to future sabotage by a previous unwanted behavior.

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