

Evidence That the Production of Aversive Consequences Is Not Necessary to Create Cognitive Dissonance

Eddie Harmon-Jones
University of Arizona

Jack W. Brehm
University of Kansas

Jeff Greenberg, Linda Simon, and David E. Nelson
University of Arizona

The present authors hypothesized, in contrast to 1 influential revision of cognitive dissonance theory, that the production of aversive consequences is not necessary to create cognitive dissonance and that cognitive dissonance will occur even when aversive consequences are not produced. In Experiment 1, participants drank a pleasant- or unpleasant-tasting beverage and were given high or low choice to write a sentence that said they liked the beverage. Participants threw the paper away once they had written the sentence and then rated how much they liked the beverage. In support of the hypothesis, unpleasant-tasting beverage/high-choice participants liked the beverage more than unpleasant-tasting beverage/low-choice participants. A 2nd experiment replicated this effect, using a different counterattitudinal action and different choice manipulation. By demonstrating that the manipulation of dissonance produced increased physiological arousal, a 3rd experiment suggested that self-perception theory could not alternatively explain the results of Experiments 1 and 2.

Festinger's (1957) cognitive dissonance theory has generated interest for more than three decades. Revisions of the theory have been proposed at several junctures (e.g., Aronson, 1968, 1969; Brehm & Cohen, 1962; Tedeschi, Schlenker, & Bonoma, 1971; Wicklund & Brehm, 1976), and debate over the theory still exists (e.g., Aronson, 1992; Schlenker, 1982; Steele, 1988). One of the most influential revisions of dissonance theory posits that cognitive inconsistency is neither necessary nor sufficient to cause dissonance-related attitude change and that the production of aversive consequences is necessary and sufficient (e.g., Collins, 1969; Collins & Hoyt, 1972; Cooper & Fazio, 1984; Cooper & Worchel, 1970; Scher & Cooper, 1989). In this article, we contrast the original theory of cognitive dissonance (Festinger, 1957) with this revision, focusing mainly on the lit-

erature review by Cooper and Fazio (1984). Then we report three experiments designed to test the hypothesis that a cognitive inconsistency that does not produce aversive consequences can produce dissonance-related attitude change.

Festinger's Cognitive Dissonance Theory

The original statement of cognitive dissonance theory held that the possession of dissonance (inconsistent cognitions) creates psychological discomfort that motivates people to restore consistency. The magnitude of dissonance aroused in regard to a particular cognition is a function of the number of dissonant and consonant cognitions with the one in question, with each cognition being weighted for its importance. Dissonance can be reduced by adding consonant cognitions, subtracting dissonant cognitions, reducing the importance of dissonant cognitions, or some combination of these.

Although the theory has been tested using a variety of paradigms (for a review, see Wicklund & Brehm, 1976), the induced-compliance paradigm has been the one most commonly used. In this paradigm, participants are induced to act contrary to a previously held attitude, and if they are provided minimal external justification (few consonant cognitions) for doing so, they will experience dissonance and reduce it, usually by changing their attitudes to be more consistent with their behaviors. In one of the first induced-compliance experiments, Festinger and Carlsmith (1959) paid participants either \$1.00 (low justification) or \$20.00 (high justification) to tell a "fellow participant" (confederate) that dull and boring tasks they had performed were very interesting and

Eddie Harmon-Jones, Jeff Greenberg, Linda Simon, and David E. Nelson, Department of Psychology, University of Arizona; Jack W. Brehm, Department of Psychology, University of Kansas.

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Correspondence concerning this article should be addressed to Eddie Harmon-Jones, who is now at the University of Texas Medical Branch, Department of Psychiatry and Behavioral Sciences, 205 Communication Building, 301 University Boulevard, Galveston, Texas 77555. Electronic mail may be sent via the Internet to ejones@marlin.utmb.edu.

exciting. After participants told this to the confederate, they were asked, among other things, how interesting and enjoyable the tasks were. As predicted, participants given low justification for performing the counterattitudinal action rated the tasks as more interesting than did participants given high justification. Festinger and Carlsmith posited that participants who were provided low justification experienced dissonance and changed their attitudes because of the inconsistency between their original attitude (they believed that the task was boring) and their behavior (they had said that the task was interesting). Participants who were provided with high justification, on the other hand, experienced little dissonance, because receiving \$20.00 justified the behavior.

Cooper and Fazio's Revision of Cognitive Dissonance Theory

In contrast to Festinger (1957; Festinger & Carlsmith, 1959), Cooper and Fazio (1984) proposed, in an influential review of the dissonance literature, that "dissonance has precious little to do with the inconsistency among cognitions per se, but rather with the production of a consequence that is unwanted" (p. 234). By *unwanted* or *aversive* consequences, they denote "an event that blocks one's self-interest or an event that one would rather not have occur" (p. 232). Thus, they argued that low-justification participants in Festinger and Carlsmith's (1959) experiment changed their attitudes not because of inconsistent cognitions but because their actions brought about an aversive event: convincing another person to expect boring tasks to be interesting.

In one of the first experiments supporting this argument, Cooper and Worchel (1970) replicated and extended Festinger and Carlsmith's (1959) study. They found that when low-justification participants were led to believe they did not convince another person that a boring task was interesting, they did not subsequently rate the task as more interesting. Other experiments have found that when participants believe that their counterattitudinal statements do not persuade others, they do not change their attitudes (e.g., Cooper, Zanna, & Goethals, 1974; Goethals & Cooper, 1972; Hoyt, Henley, & Collins, 1972; Nel, Helmreich, & Aronson, 1969).

Using a slightly different procedure, other researchers have found that when counterattitudinal actions do not cause aversive consequences, dissonance-related attitude change does not occur (e.g., Collins & Hoyt, 1972; Goethals & Cooper, 1975). In these experiments, participants' counterattitudinal statements were to be shown to people who could or could not affect a disliked policy. For example, Collins and Hoyt (1972) paid participants \$0.50 (low justification) or \$2.50 (high justification) to write counterattitudinal essays about a university policy that ostensibly would be read by a committee that could affect the policy or that would "merely be used in an historical report, and in no way will it be used by any administrators or policymakers" (p. 573). Collins and Hoyt found that only low-justification/aversive-consequences participants changed their attitudes.

Have these studies unequivocally demonstrated that aversive consequences are necessary for dissonance to occur? We believe that the answer is no, because these researchers asserted the confirmation of the null hypothesis and because alternative explanations exist. These researchers based their conclusion that the

production of aversive consequences is necessary for dissonance to occur on research that found no evidence of dissonance in situations thought to produce no aversive consequences. Claiming that the lack of evidence of dissonance in these conditions indicates that the production of aversive consequences is necessary is problematic, for any number of factors could have produced the null effects. This past work suggests that the production of aversive consequences may intensify the magnitude of dissonance, but it does not indicate that the production of aversive consequences is necessary.

Alternative explanations for the past findings also exist. First, in these past experiments, when both aversive- and no-consequences-condition participants decided to make the counterattitudinal statement, they may have experienced minimal dissonance because there were ample justifications for making the counterattitudinal statement (being a good participant, helping the experimenter and science, etc.). Thus, no-consequences-condition participants did not experience dissonance sufficient to cause attitude change, whereas aversive-consequences-condition participants did because they were provided an additional important dissonant cognition—feeling personally responsible for producing aversive consequences. As Nuttin (1975) noted, in dissonance experiments, almost all participants complied with the experimenter and behaved counterattitudinally, suggesting that they may have been provided too much justification for their behavior. The work on aversive consequences and dissonance is especially noteworthy in this regard, wherein all participants engaged in the counterattitudinal action (e.g., Cooper & Worchel, 1970). As Festinger (1957) explained, for attitude change to result from dissonance, the person should be offered "*just enough reward or punishment to elicit the overt compliance*" (p. 95). If the past research assessing the role of aversive consequences in dissonance provided much justification for the counterattitudinal actions, knowledge of possible negative consequences, regardless of whether the knowledge comes before or after the counterattitudinal action (e.g., Goethals, Cooper, & Naficy, 1979), may have been necessary to produce enough dissonance to cause attitude change.

The second explanation begins with the audience, a salient feature in these past experiments, and assumes that dissonance sufficient to produce attitude change was not aroused in the past experiments. Because of the salience or prominence of the audiences in these experiments, the participants' attention may have been focused more on them and whether they were convinced or could affect a disliked policy than on the nature of their own counterattitudinal actions. As a result of this, the magnitude of dissonance may have been determined in large part by what the audience did or would do as a result of the counterattitudinal advocacy. Thus, the unconvinced audience, in contrast to the convinced audience, may have reduced the importance of the dissonant cognitions, to the point of making the counterattitudinal action seem trivial. Festinger (1957) argued that the magnitude of dissonance is in part a function of the importance of the relevant cognitions. If the perceived importance is low, dissonance may not reach a magnitude that requires reduction.

Third, dissonance may have been aroused in participants in the no-aversive-consequences conditions of the past experiments but may have been reduced through a route other than

attitude change. People whose counterattitudinal actions had no undesired effects may have reduced dissonance by reducing the importance of the counterattitudinal behavior. Simon, Greenberg, and Brehm (1995) found that when conditions make it easy to do so, people reduce dissonance in this way.

The results from studies that have purportedly demonstrated that dissonance does not occur in the absence of aversive consequences can be interpreted as being due to the possibility that either dissonance was aroused and reduced in a manner other than attitude change, possibly by reducing the importance of relevant cognitions, or that the dissonance aroused was not sufficient to cause attitude change. Therefore, the results of these studies do not unequivocally show that the production of aversive consequences is necessary for dissonance-related attitude change to occur. Recently, Scher and Cooper (1989) presented evidence that, they argued, demonstrated that inconsistency was neither necessary nor sufficient and that aversive consequences were necessary and sufficient to create dissonance. In their experiment, they gave participants high choice to write counterattitudinal or proattitudinal essays that either would produce the aversive consequence of higher fees at their university or would not produce the aversive consequence. Results indicated that participants changed their attitudes toward increasing student fees when their essays would lead a committee to increase the fees, but that participants did not change their attitudes when their essays would not lead to the fee increase. This effect occurred regardless of whether the essay written was proattitudinal or counterattitudinal. From these results, Scher and Cooper argued that inconsistency was neither necessary nor sufficient for dissonance arousal.

Apparently, when discussing inconsistency, Scher and Cooper (1989) were referring to the inconsistency between only two cognitions—the preexisting attitude and the behavior. But is dissonance determined only by the relations between these two cognitions? Is this inconsistency the only inconsistency participants experienced in Scher and Cooper's study? Might other inconsistencies be more important than the inconsistency between the attitude and the behavior in determining dissonance?

Festinger (1957) shed some light on these questions. According to Festinger, to determine the magnitude of dissonance, we should examine all relevant cognitions in a setting, determine the proportion of dissonant relations, and weigh these by their importance. When we apply Festinger's formula to Scher and Cooper's (1989) study, we find, as in all dissonance studies, several relevant cognitions: cognitions about the preexisting attitudes, the amount of choice participants had about engaging in the behavior, the behavior itself, the amount of external justification for the behavior, and the consequences of the behavior.

Applying Festinger's (1957) formula for determining the magnitude of dissonance to Scher and Cooper's (1989) study may help us understand the results obtained in the two conditions critical to what is necessary and sufficient for the arousal of dissonance. Participants who wrote proattitudinal essays that produced unwanted consequences may have experienced dissonance because their seemingly proattitudinal behavior (consonant cognition) was relatively unimportant compared with the consequences produced, which were dissonant with the participants' desires. Sim-

ilarly, participants who wrote counterattitudinal essays that produced desired consequences may not have experienced dissonance because producing desired consequences (consonant cognition) was more important than their superficially counterattitudinal behavior. In short, aversive consequences inevitably involve a dissonant cognition: that one is engaging in a behavior with foreseeable consequences that one does not want to occur. Scher and Cooper agreed that this may be the case and argued that this view would require

additional assumptions about the type of discrepancy necessary for dissonance arousal. The discrepancy would have to involve some outcome that threatens the person's identity as competently striving for desired ends, or be a discrepancy between the behavior and an attitude about some *outcome*. Our data show that dissonance processes can be aroused only when a discrepancy arises between the self's wish for some end and a *behavior* that brings about a discrepant end. (pp. 903–904)

Scher and Cooper (1989) further argued that to maintain that inconsistency was responsible for dissonance effects, "a complicated twisting and limiting of the notion of discrepancy" would be needed (p. 904). Festinger's (1957) formulation for determining dissonance, however, is not complicated and can explain the results obtained by Scher and Cooper. According to Festinger, cognitions about the behavior and the preexisting attitude must be considered, as should cognitions about the reason for behaving counterattitudinally and the consequences of the behavior. These cognitions should then be weighted by their importance to determine the magnitude of dissonance created. So, in some instances, cognitions about the attitude and the behavior may be most important, but in other cases, cognitions about the attitude and the consequences may be most important in determining the amount of dissonance aroused.

Overview of the Present Experiments

Given the possible alternative explanations, the past research on the necessity of the production of aversive consequences cannot be taken as definitive support for the revision of cognitive dissonance theory. Abandoning Festinger's (1957) original version of dissonance theory seems premature. Therefore, we designed the following experiments to test the hypothesis that dissonance-related attitude change would occur in induced-compliance situations in which counterattitudinal behaviors do not lead to aversive consequences. We designed the experiments so that conditions present in previous induced-compliance experiments that may have prevented attitude change from occurring were not present. We took special care to ensure that the inducing force was "just barely sufficient to induce the person" to behave counterattitudinally (Festinger & Carlsmith, 1959, p. 204).

In each experiment, under the guise of an experiment on recall, participants were exposed to an unpleasant stimulus, were given low or high choice to write a counterattitudinal statement about that stimulus, threw away the statement they wrote, and then completed questionnaires that assessed their attitudes toward the unpleasant stimulus. Care was taken in the experiments to assure participants that their counterattitudinal statements and their responses to the questionnaires were made in private and were anonymous. This was done to create a situa-

tion in which the counterattitudinal behavior would not lead to aversive consequences because, as Cooper and Fazio (1984) argued, "making a statement contrary to one's attitude while in solitude does not have the potential for bringing about an aversive event" (p. 232). We predicted that participants who were provided high choice for engaging in the counterattitudinal behavior would change their attitudes to align them more closely with their behavior, whereas participants who were provided low choice would not.

Experiment 1

Method

Participants. Fifty introductory psychology students (40 women and 10 men) participated to partially fulfill a course requirement. We randomly assigned the participants to conditions of the 2 (choice: low vs. high) \times 2 (taste: unpleasant vs. pleasant) between-subjects factorial design.

Introduction and cover story. Students participated in groups of 3 to 5. The experimenter greeted the participants and explained the purpose of the study. He said he was interested in factors that affect the recall of characteristics of products and that at this point in his research he was seeing how writing a sentence evaluating a product would affect recall of the characteristics of the product. He told participants that he would have them drink a beverage and that they would be asked to recall characteristics such as texture, level of carbonation, and color (this, in fact, never occurred). He also informed participants that he was using a variety of drinks, that he would not know what type of drink they would receive, and that they should not let him know what type of drink they did receive. The experimenter then ushered each participant into a separate cubicle.

The experimenter gave participants a written introduction that reiterated his explanation of the experiment and informed participants that they would write a statement about the drink, complete some questionnaires, wait 5 min and talk with the experimenter, and complete a final questionnaire that would assess recall of the characteristics of the drink. The introduction ended with the sentences

ALL QUESTIONNAIRES AND MATERIALS YOU COMPLETE WILL BE COMPLETELY ANONYMOUS AND WILL NOT BE SEEN BY THE EXPERIMENTER. ALSO, IT IS IMPORTANT THAT YOU REFRAIN FROM TELLING THE EXPERIMENTER ANYTHING ABOUT THE BEVERAGE YOU DRINK; HE IS TO REMAIN BLIND TO THE TYPE OF DRINK YOU HAVE.

The first sentence was included to ensure that participants felt completely anonymous and thus would not be influenced by any social pressures exerted by the experimenter. The second sentence was included to inform participants that the experimenter did not know how their drink tasted, so that they would believe that he did not know whether he was or was not asking them to say something untrue when writing the counterattitudinal sentence.

After each participant read the introduction and signed a consent form, the experimenter entered each participant's cubicle and reiterated the main points of the introduction. The experimenter then told the participant that he did not know the characteristics of the drink and asked the participant not to let him know anything about the drink. To reinforce participants' feelings of anonymity and privacy, as the experimenter took the consent form from the participant, he told her or him that he needed to keep the consent forms apart from the questionnaires participants would complete, so that their responses would not be associated with their names. He also stressed that he would not know any-

thing about their responses to the questionnaires and, to ensure this, his assistant would come in at the end of the experiment, get their questionnaires, and enter the data into a computer.

The beverages. Before leaving the cubicle, the experimenter gave the participant a cup covered with a lid. The cup contained 4 ounces of fruit-punch-flavored Kool-Aid. The Kool-Aid was either mixed with the amount of sugar suggested on the package (1 cup per 2 quarts), to create a pleasant-tasting drink, or mixed with 2 teaspoons of white vinegar (no sugar), to create an unpleasant-tasting drink. Because the experimenter was blind to whether participants were given a pleasant- or an unpleasant-tasting drink, he was blind to whether or not participants experienced dissonance, even though he was not blind to the participant's choice condition.

Choice manipulation. After the participant drank some of the beverage, the experimenter returned to the participant's cubicle and induced the choice manipulation. The experimenter told participants in the low-choice condition that people were being randomly assigned to write a statement saying they liked or disliked the beverage and that they had been assigned to write a statement saying they liked the beverage. The experimenter told participants in the high-choice condition that they could write a statement saying they liked or disliked the beverage and that it was their choice. The experimenter explained that he needed some more people to write that they liked the beverage, and he asked the participant if he or she would write that he or she liked the beverage. Once the experimenter gained compliance from the participant, he reminded her or him that it was her or his choice.

The experimenter then asked both low-choice and high-choice participants to write one sentence saying they liked the beverage. He also told participants that he did not "need the sheet of paper you will write your sentence on; we just need for you to go through the process of writing the sentence. So when you are done, just wad it up and throw it in the wastebasket." This was done to ensure that participants perceived that they had complete anonymity and that there would be absolutely no consequences to their behavior. The experimenter then left the participant alone to write the sentence.

Questionnaires. After the participant discarded the sentence, the experimenter gave the participant an envelope and said

Previous studies have indicated that the characteristics a person recalls about a product may be affected by whether or not they liked the product. In order to take this into account, I need you to answer this short questionnaire that assesses what you thought about the drink. When you are finished, fold it up and put it in the envelope. You can hold on to the envelope and put all the questionnaires in it. You should seal the envelope when you have put all the questionnaires in it.

At the top of the questionnaire, participants read

In order to get an assessment of what you feel about the beverage you drank, please answer the following question by circling the number on the scale that best describes your feeling.

The questionnaire assessed how much the drink was liked, on a 9-point scale (1 = *dislike extremely*; 9 = *like extremely*). The experimenter left the participant alone to answer this questionnaire.

After the participant finished with the questionnaire and placed it in the envelope, the experimenter returned to the cubicle and gave the participant a second questionnaire that asked how much choice she or he had had in writing the sentence that was written, how much she or he liked the experimenter, and how interesting she or he thought the study was. Responses to these questions were made on 9-point scales (1 = *not at all*; 9 = *very much*). Both questionnaires instructed participants to place them in the envelope, to ensure that participants felt anonymous. After all participants completed this questionnaire, the ex-

perimeter thoroughly debriefed them. After the participants left, the experimenter retrieved from the trash the papers on which they had written sentences.

Results and Discussion

Preliminary analyses. Five participants wrote statements contrary to what they were asked to write; 4 of these were in the unpleasant-tasting-drink/high-choice condition, and 1 was in the pleasant-tasting-drink/high-choice condition. Only the data from participants who complied with the experimenter's instructions and wrote what they were asked to write were included in the analyses reported in the text.¹ Sex of participant was included as a factor in all analyses, and no effects involving it were significant.

Manipulation check. A 2 (taste) \times 2 (choice) between-subjects analysis of variance (ANOVA) on the item assessing the perception of choice revealed a main effect for choice, $F(1, 41) = 15.99, p < .001$. This indicated that low-choice participants reported less choice ($M = 2.76$) than did high-choice participants ($M = 5.75$). No other effects were significant (all $ps > .15$).

Liking for the drink. A 2 (taste) \times 2 (choice) ANOVA revealed main effects for taste, $F(1, 41) = 67.72, p < .001$; and choice, $F(1, 41) = 29.21, p < .001$; which were qualified by a Taste \times Choice interaction, $F(1, 41) = 10.00, p < .004$. The taste main effect indicated that participants liked the pleasant-tasting drink more ($M = 6.83$) than the unpleasant-tasting drink ($M = 3.09$). The choice main effect indicated that high-choice participants ($M = 6.45$) liked the drink more than did low-choice participants ($M = 3.84$). Simple effects tests exploring the two-way interaction revealed, as predicted, that unpleasant-tasting-drink/high-choice participants liked the drink more than did unpleasant-tasting-drink/low-choice participants, $t(41) = 6.03, p < .001$ (see Table 1).

Ancillary analyses. No significant effects emerged on the question that assessed liking for the experimenter or on the question that asked how interesting the study was (all $ps > .15$). The expected positive correlation between perceived choice and liking for the drink, which would suggest that the more freedom participants felt they had over writing the statement, the more they liked the drink, was not significant (all $ps > .15$).

Two independent judges who were unaware of experimental condition rated the extremity of the position taken in each counterattitudinal statement by assigning the statement a score that ranged from 1 (*mildly strong*) to 3 (*extremely strong*). The ratings provided by the judges were significantly correlated,

$r(20) = .88, p < .001$, indicating high reliability. The ratings were averaged. High- and low-choice conditions did not differ in the extremity of the position taken in the statements ($p > .25$). Thus, the differences obtained between high- and low-choice conditions in liking for the drink did not result from actual differences in the types of statements written. Extremity of statement did not correlate significantly with liking for the drink within condition or across conditions ($p > .15$).

The results of Experiment 1 confirmed the hypothesis that participants given a choice to engage in counterattitudinal behavior would experience dissonance and would reduce the dissonance by changing their attitudes, even when their counterattitudinal behavior would cause no aversive consequences. Specifically, participants who drank an unpleasant-tasting beverage and were given a choice to write that they liked the beverage reported that they liked the beverage more than did participants who were simply told to write that they liked the unpleasant-tasting beverage. No aversive consequences were produced, because participants made their counterattitudinal statement in solitude.

To conceptually replicate Experiment 1, we designed a second experiment. In Experiment 2, we induced choice by means of written instructions to keep the experimenter unaware as to when dissonance was expected and thus needed only two conditions (low and high choice) to test the hypothesis. Under the guise of a cover story similar to the one used in Experiment 1, participants read a boring passage, were given high or low choice to write that they thought that the boring passage was very interesting, and then threw away the statement once they finished writing. Participants were then given a questionnaire to assess how interesting they thought the passage was. We predicted that high-choice participants would rate the passage as more interesting than would low-choice participants.

Experiment 2

Method

Participants. Twenty-four introductory psychology students (13 women and 11 men) participated to partially fulfill a course requirement. We randomly assigned the participants to either the high-choice or the low-choice condition.

Introduction and cover story. Three to 5 students participated in each session. After greeting the participants, the experimenter explained that he was interested in factors that affect the recall of characteristics of stimuli and that at this point in his research he was seeing how writing sentences evaluating stimuli would affect recall of the de-

Table 1
Means on Ratings of Liking of the Drink: Experiment 1

Choice	Taste of drink	
	Unpleasant	Pleasant
Low	1.54 (13)	6.33 (12)
High	5.33 (9)	7.36 (11)

Note. Ratings could range from 1 (*dislike extremely*) to 9 (*like extremely*). Number of participants in each condition is shown in parentheses.

¹ The data in all three experiments were also analyzed with all participants (compliers and noncompliers) included. In Experiment 1, on liking for the drink, a marginally significant Choice \times Taste interaction emerged, $F(1, 46) = 3.84, p = .056$, and high-choice participants liked the drink more than did low-choice participants, $t(46) = 3.64, p < .01$. In Experiment 2, high-choice participants rated the passage as more interesting than did low-choice participants, $t(22) = 2.80, p < .02$. In Experiment 3, high-choice participants rated the passage as more interesting than did low-choice participants, $t(25) = 2.18, p < .04$, and high-choice participants also evidenced more nonspecific skin conductance responses (NS-SCRs) than did low-choice participants in the minutes immediately following the writing of the sentence, $F(1, 24) = 4.73, p < .05$.

tails of the stimuli. He told participants that he would have them read a passage and that they would be asked to recall details such as who, what, when, and so on (this actually never occurred). He also informed participants that he was using a variety of passages, that he would not know what type of passage they would receive, and that they should not let him know what type of passage they did receive. The experimenter then ushered each participant into a separate cubicle.

The experimenter gave participants a written introduction that reiterated his oral introduction. The written introduction informed participants that they would write a statement about the passage, complete some questionnaires, wait 5 min and talk with the experimenter, and complete a final questionnaire that would assess recall of the details of the passage. The introduction ended with instructions, similar to those used in Experiment 1, that informed participants of their anonymity.

The boring passage. After the participant read the introduction and signed a consent form, the experimenter entered the participant's cubicle and gave her or him an envelope that contained a passage to read. Every participant received the same passage, which was an insipid 1,320-word description of a tachistoscope that took participants approximately 10 min to read. The experimenter left the participant alone to read the passage.

Choice manipulation. Once the participant finished reading the passage, the experimenter entered the cubicle and gave the participant an envelope that contained a set of instructions and a blank sheet of paper. The experimenter told the participant that the envelope included instructions that should be read and a piece of blank paper on which to write. The experimenter left the participant alone to read the instructions and write the sentences. The written instructions were used to induce the choice manipulation and were modeled after instructions used in a previous dissonance study (Scheier & Carver, 1980). The instructions for both low- and high-choice conditions began with a paragraph that reiterated the purpose of the study. Participants randomly assigned to the low-choice condition read

We are randomly assigning people to write either that they thought the passage they read was very interesting or that they thought the passage was uninteresting. You have been randomly assigned to write that the passage was very interesting. On the blank piece of paper, you are to write one or two sentences that argue as convincingly as possible that the passage you read was very interesting. When you are finished writing the sentences, throw the piece of paper you wrote on in the trash, because we do not need the piece of paper you write on, we only need you to go through the process of writing the sentences and thinking the thought.

Participants assigned to the high-choice condition read

On the blank piece of paper, we would like you to write one or two sentences either arguing that the passage you read was very interesting—OR—one or two sentences arguing that the passage you read was not at all interesting. The choice of which to do is up to you. When you are finished writing the sentences, throw the piece of paper you wrote on in the trash, because we do not need the piece of paper you write on, we only need you to go through the process of writing the sentences and thinking the thought.

For high-choice participants, another page, entitled "Notice to Research Participant," was stapled to the page with the above instructions. The page read

In order to finish this study, we need more people to write that they thought the passage they read was very interesting. Therefore, although it is your choice, we would really appreciate it if you would write one or two sentences that argue that the passage you read was very interesting.

Questionnaires. The experimenter returned after the participant finished writing and gave the participant an envelope that contained a questionnaire that asked how interesting the passage was. As he handed the participant the envelope, he told her or him that the envelope contained a questionnaire that assessed what she or he thought about the passage. The experimenter explained that this assessment was needed to see how it affected recall, and the experimenter told the participant to return the questionnaire to the envelope when finished. Responses to the question were made on a 9-point scale (1 = *not at all interesting*; 9 = *very interesting*).

After the participant finished the questionnaire and placed it in the envelope, the experimenter returned to the cubicle and gave the participant a questionnaire that assessed how much choice the participant felt she or he had had in writing the sentences that were written. Responses to this question were made on a 9-point scale (1 = *not at all*; 9 = *very much*). Each questionnaire instructed participants to place the questionnaire in the envelope when done, to ensure that participants felt anonymous. Once all participants had completed the second questionnaire, the experimenter thoroughly debriefed the participants. In debriefing, no participants thought that the experimenter would retrieve the statements they had written from the trash.

Results and Discussion

Preliminary analyses. Four participants in the high-choice condition did not comply and write the statement they were asked to write, leaving 8 participants in the high-choice condition and 12 in the low-choice condition. In the text, we report the results from only participants who complied (see footnote 1). Sex of participant was included as a factor in all analyses, and no effects involving it were significant.

Manipulation check. Participants in the high-choice condition reported having more choice ($M = 5.50$) than did participants in the low-choice condition ($M = 2.75$), $t(18) = 2.61, p < .02$.

Ratings of how interesting the passage was. As expected, high-choice participants rated the passage as more interesting ($M = 5.63$) than did low-choice participants ($M = 2.25$), $t(18) = 4.52, p < .001$.²

Ancillary analyses. Across conditions, ratings of the passage correlated positively with perceptions of choice, $r(18) = .63, p < .004$, and within the high-choice condition, ratings of the passage correlated positively with perceptions of choice, $r(6) = .82, p < .02$. These results suggest that the more choice participants felt they had in writing the counterattitudinal statement, the more they adjusted their attitudes to match their behavior. Within the low-choice condition, ratings of the passage did not correlate significantly with perceptions of choice, $r(10) = .07$.

² In a separate experiment in which we followed the same method as in Experiment 2, participants were randomly assigned to high-choice, low-choice, or free-choice conditions. In the free-choice condition, participants were given the option of writing that the boring passage was interesting or uninteresting, and then they completed a questionnaire assessing their interest in the passage. All of them wrote that the passage was uninteresting, and their ratings of the passage ($M = 1.92$) did not differ from low-choice participants' ratings ($M = 2.23$) but did differ from high-choice participants' ratings of the passage ($M = 4.91$), $t(54) = 4.57, p < .001$. In another separate study, 33 students read the boring passage, and then rated it, without writing statements about the passage. They, too, rated it as extremely uninteresting ($M = 1.33$). This evidence suggests that the ratings given by low-choice participants were not deflated because of reactance (Brehm, 1966) to the low-choice manipulation.

As in Experiment 1, two independent judges who were unaware of experimental condition rated the extremity of the position taken in each counterattitudinal statement by assigning the statement a score that ranged from 1 (*mildly strong*) to 3 (*extremely strong*). The ratings provided by the judges were significantly correlated, $r(17) = .83, p < .001$, indicating high reliability.³ The ratings were averaged. High- and low-choice conditions did not differ in the extremity of the position taken in the statements ($p > .25$). Thus, the differences obtained between high- and low-choice conditions in liking for the passage did not result from actual differences in the types of statements written. Extremity of statement did not correlate significantly with liking for the passage within condition or across conditions ($p > .15$).

The results of Experiment 2 replicated the results of Experiment 1 and confirmed the hypothesis that dissonance and dissonance-related attitude change can occur when a counterattitudinal action does not produce unwanted consequences. Participants who were provided high choice to privately write that a boring passage was very interesting rated the passage as more interesting than did participants who were provided low choice.

Self-perception theory has been offered as an alternative explanation for dissonance effects (Bem, 1965, 1967, 1972). If the results of the present experiments were due to self-perception processes, participants would have not experienced the motivation to reduce dissonance but would have dispassionately inferred their attitudes by observing their behavior. We believe that self-perception theory does not apply to the results for two reasons. First, self-perception theorists (e.g., Bem & McConnell, 1970; Snyder & Ebbesen, 1972) propose that for attitude change to occur, the attitudes should not be salient before the counterattitudinal statement is made. In the present experiments, the participants' attitudes were highly salient because they were exposed to the attitude object immediately before writing the counterattitudinal statement. Second, self-perception theory predicts attitude change when attitudes are "weak, ambiguous, or uninterpretable" (Bem, 1972, p. 2), and research has shown that self-perception theory explains attitude change when initial attitudes are within one's latitude of acceptance but that dissonance theory explains attitude change when initial attitudes are within one's latitude of rejection (Fazio, Zanna, & Cooper, 1977). In the present experiments, the participants' initial attitudes were not weak, ambiguous, or uninterpretable but were strongly negative and in their latitude of rejection, as evidenced by the extremely negative attitude ratings in the low-choice conditions and the high rates of noncompliance in the high-choice conditions. In the 3 years we have been conducting research using this paradigm, we have had great difficulty getting high-choice participants to write that they thought the negative stimuli were positive; they have been extremely opposed to doing so. For these reasons, we find a self-perception interpretation of the results untenable.

To further explore whether self-perception theory can account for the results of Experiments 1 and 2, we designed Experiment 3 to assess whether the high-dissonance manipulations used in the present experiments produce increases in physiological arousal. Evidence that increased arousal occurs as a result of high dissonance would support the dissonance (motivational) interpretation but not the self-perception explanation.

Previous dissonance research (Croyle & Cooper 1983; Elkin & Leippe 1986; Gerard, 1967; Losch & Cacioppo, 1990) has indicated that dissonance causes increased arousal (sympathetic activity) and that manipulations of self-perception states do not (Fazio et al., 1977). To assess increased sympathetic activity, the number of nonspecific skin conductance responses (NS-SCRs) has been assessed (e.g., see Croyle & Cooper, 1983; Losch & Cacioppo, 1990). The use of NS-SCRs as an index of autonomic arousal relatively free of artifact is accepted by psychophysicists (Edelberg & Muller, 1978; Katkin, 1975; Masling, Price, Goldband, & Katkin, 1981).

In Experiment 3, participants read a boring passage, were given high or low choice to write that they thought the passage was interesting, had their NS-SCRs assessed for 3 min following the writing of the counterattitudinal statement, completed a questionnaire assessing their attitude toward the passage, had their NS-SCRs assessed for another 3 min, and then completed a questionnaire assessing the effectiveness of the choice manipulation.

Experiment 3

Method

Participants. Twenty-seven introductory psychology students (18 women and 9 men) participated to partially fulfill a course requirement. Participants were randomly assigned to the high-choice or low-choice condition.

Procedure and materials. Except for the following changes, the procedure and materials were identical to those used in Experiment 2. Students participated individually. As in Experiment 2, the experimenter explained that he was interested in factors that affected memory. The experimenter added that he would attach "sensors" to the participant's fingers, because he was investigating how blood circulation was affected by memory processes. Extreme care was taken to ensure that participants would not become anxious as a result of the physiological recording procedures and then misattribute their dissonance arousal to the recording (e.g., Croyle & Cooper, 1983). For instance, we described the electrodes as *sensors*, did not mention electricity, told participants that we were assessing blood flow rather than sweat gland activity, and sat them in a comfortable chair in a dimly lit and pleasant room.

After the participant read the introduction and signed a consent form, she or he was asked to wash his or her hands with nonabrasive soap. On returning, the participant was seated in a comfortable recliner in a dimly lit testing room adjacent to a control room. The experimenter washed the participant's fingers with distilled water before attaching Biopac's TSD103 Ag/AgCl finger electrodes using adhesive collars to the volar surfaces of the distal phalanges of the first and second fingers of the participant's nondominant hand. The electrodes were 8 mm in diameter, housed in molded plastic cups designed for finger attachment, and filled with 0.05 M NaCl in a Unibase medium, as specified by Fowles et al. (1981). Skin conductance was measured with a constant voltage technique with 0.5 V applied voltage and was displayed continuously on a computer using Biopac Systems MP100.

After a 5-min baseline period, the participant read the boring passage. He or she then read the choice manipulation instructions. The high-choice manipulation from Experiment 2 was modified after several participants in pilot testing refused to write a sentence saying the passage was interesting. The part of the instructions modified read

³ Data from 1 low-choice participant were lost, so the extremity of the position taken in her statement could not be judged.

We have finished having persons write that they thought the passage was not interesting, and we now need persons to write that they thought the passage was very interesting. Therefore, although it is your choice, we would really appreciate it if you would write a sentence that argues that the passage you read was very interesting.

Once the participant finished writing the sentence about the boring passage, the experimenter entered the participant's room and told him or her that he needed to collect more physiological readings. After 3 min, the experimenter reentered the participant's room and presented the questionnaire assessing how interesting the participant thought the passage was. The experimenter returned after the participant finished answering the questionnaire and told the participant that he needed to collect more physiological readings. After 3 min, the experimenter returned and gave the participant the questionnaire assessing the effectiveness of the choice manipulation. Once the participant completed this questionnaire, the experimenter returned, questioned the participant thoroughly about suspicion and privacy, and fully debriefed the participant. Two of the first low-choice participants said that because there were no other pieces of trash in the trash can they thought we might retrieve their statements from the trash. We then added trash to the trash can. No high-choice participants said that they thought their statements would be retrieved.

Data reduction. Because of evidence indicating a monotonic relationship between sympathetic activity and the frequency of NS-SCRs, and because this measure has been used in prior dissonance research as an index of physiological arousal (e.g., Croyle & Cooper, 1983; Losch & Cacioppo, 1990), NS-SCRs were used as an index of sympathetic and dissonance arousal. An NS-SCR of 0.05 μ Siemens or greater was considered a response (e.g., Öhman & Soares, 1994; Prokasy & Kumpfer, 1973). The NS-SCRs were summed over 1-min epochs for the periods of interest. Minute was treated as a repeated measure in the analyses.

Results and Discussion

Four participants in the high-choice condition did not comply and write the statement they were asked to write. The physiological data from 1 other participant in the high-choice condition were lost. These participants' data were not included in the analyses reported in the text (see footnote 1). Thus, there were 12 participants in the low-choice condition and 10 in the high-choice condition. Sex of participant was included as a factor in all analyses, and it was significant in only one instance: A main effect for ratings of the passage resulted, $F(1, 18) = 4.62$, $p < .05$, indicating that men rated the passage more positively than did women. The Sex \times Choice interaction was not significant ($p > .50$).

Manipulation check. Participants in the high-choice condition reported having more choice ($M = 6.00$) than did participants in the low-choice condition ($M = 3.58$), $t(20) = 2.92$, $p < .01$.

Ratings of how interesting the boring passage was. As predicted, high-choice participants rated the boring passage as more interesting ($M = 3.30$) than did low-choice participants ($M = 1.50$), $t(20) = 2.63$, $p < .02$.

Electrodermal activity. NS-SCRs did not differ as a function of condition during the baseline period ($p > .40$). A 2 (choice) \times 3 (minute) repeated measures ANOVA performed on the NS-SCRs in the period following the writing of the statement revealed that high-choice participants had more NS-SCRs ($M = 1.57$) than did low-choice participants ($M = 0.56$), $F(1,$

$20) = 6.49$, $p < .02$, suggesting that the dissonance manipulation caused increased arousal. No other effects were significant.

A 2 (choice) \times 3 (minute) repeated measures ANOVA performed on the NS-SCRs in the period following answering the attitude questionnaire revealed that high-choice participants had more NS-SCRs ($M = 1.63$) than did low-choice participants ($M = 0.56$), $F(1, 20) = 7.43$, $p < .02$. No other effects were significant. This result is consistent with results obtained by Elkin and Leippe (1986), who suggested that the arousal-reducing properties of dissonance reduction (attitude change) may take considerable time.

Ancillary analyses. Across conditions, ratings of the passage correlated positively with NS-SCRs that occurred in the 3-min period following the writing of the statement, $r(20) = .42$, $p = .05$, suggesting that the more aroused participants were following the writing of the counterattitudinal statement, the more they adjusted their attitudes to match their behavior. Ratings of the passage correlated significantly with perception of choice, $r(20) = .62$, $p < .003$, suggesting that the more choice participants felt they had in writing the sentences, the more they aligned their attitudes with their behavior.

Within the high-choice condition, ratings of the passage correlated with the perception of choice, $r(8) = .83$, $p < .004$, suggesting that the more choice participants felt they had the more they aligned their attitudes with their behavior. Also within the high-choice condition, perception of choice correlated positively with NS-SCRs in the first minute following writing the statement, $r(8) = .65$, $p < .045$, suggesting that the more choice participants felt, the more aroused they were.

Within the low-choice condition, perception of choice correlated negatively with NS-SCRs in the first minute following writing the statement, $r(10) = -.64$, $p < .03$, and perception of choice did not correlate significantly with ratings of the passage ($r = -.15$).

Two independent judges who were unaware of experimental condition rated the extremity of the position taken in each counterattitudinal statement by assigning the statement a score that ranged from 1 (*mildly strong*) to 3 (*extremely strong*). The ratings provided by the judges were significantly correlated, $r(20) = .90$, $p < .001$, indicating high reliability. The ratings were averaged. High- and low-choice conditions did not differ in the extremity of the position taken in the statements ($p > .25$). Thus, the differences obtained between high- and low-choice conditions in liking for the passage did not result from actual differences in the types of statements written. Extremity of statement did not correlate significantly with liking for the passage within the high-choice condition or across conditions ($p > .30$). Within the low-choice condition, however, extremity tended to correlate positively with ratings of the passage, $r(10) = .51$, $p = .09$.

The results of the present experiment show that not only does the high-dissonance condition of the present experiments cause changes in attitudes, but it also causes increases in sympathetic nervous system activity, consistent with previous experiments showing that dissonance causes increased physiological arousal (e.g., Croyle & Cooper, 1983; Elkin & Leippe, 1986; Gerard, 1967; Losch & Cacioppo, 1990). These results suggest that the attitude change effects did not result from self-perception pro-

cesses, because, according to self-perception theory, choosing to write counterattitudinal statements does not cause increased arousal. Cognitive dissonance theory, on the other hand, posits that choosing to write counterattitudinal statements causes increased arousal.

General Discussion

The results of the present experiments support the hypothesis that dissonance-related attitude change will occur even when the counterattitudinal behavior does not lead to aversive consequences. The results demonstrate an important point in contemporary theorizing and research regarding cognitive dissonance: that engaging in behavior that is inconsistent with an attitude can motivate dissonance-related attitude change even when no aversive consequences result from the behavior.

In Experiment 1, participants were given high or low choice to write that they liked an unpleasant-tasting beverage, and in Experiment 2, participants were given high or low choice to write that they thought a boring passage was interesting. Results from the two experiments converged and indicated that high-choice participants, as compared to low-choice participants, changed their attitudes in the direction of what they wrote, shifting their attitudes about the unpleasant drink and the boring task from very negative to moderate.

Considering Alternative Explanations

According to self-perception theory (Bem, 1965, 1967, 1972), participants may have dispassionately inferred their attitudes by observing their counterattitudinal behavior and not changed their attitudes because of dissonance. As mentioned earlier, self-perception theory cannot explain these results, because, in the present experiments, participants' attitudes were highly salient, and their initial attitudes were strongly negative and in their latitude of rejection—conditions said to eliminate attitude change produced by self-perception processes. In Experiment 3, high-choice participants experienced higher levels of arousal, a result predicted by dissonance theory but not by self-perception theory. These conditions and results indicate that the findings of the present experiments cannot be alternatively explained by self-perception theory.

Another possible alternative explanation of the results of the present experiments is that participants in the high-choice conditions agreed with the experimenter to write that the negative stimuli were positive and that they thought they were to continue to express positive attitudes when the questionnaire assessing their attitudes was presented. We find this explanation unlikely for several reasons. In the present experiments, the experimenter gave the participants a legitimate reason for wanting to know how they felt about the stimulus: He needed to assess whether their liking for the stimuli related to their recall of the characteristics of the stimuli. If the participants were really cooperating with the experimenter, then they should have given their true attitudes, because only their true attitudes would assist in scientifically understanding the relation between liking and recall. In addition, given that low-choice participants were more compliant, they should have been at least as likely, if not more likely, to continue to respond to the questionnaires with positive responses, if participants felt that they should have ex-

pressed the same type of attitude they expressed in the written statement. In the high-choice conditions of Experiments 2 and 3, perceived choice correlated significantly and positively with attitude, indicating that the more choice participants felt they had over what they wrote, the more they changed their attitudes. These results seem to be more consistent with dissonance theory than with the alternative interpretation. In addition, in the high-choice condition of Experiment 3, arousal correlated significantly and positively with perceived choice, indicating that the more choice participants felt they had over what they wrote, the more aroused they were. Again, these results are consistent with dissonance theory, but not with the alternative interpretation. Moreover, why should high-choice participants evidence more arousal than low-choice participants? If high-choice participants were merely doing as the experimenter wanted them to do, they had sufficient justification for their counterattitudinal actions and thus should not have evidenced elevated arousal. We believe that this alternative interpretation, like the self-perception-theory alternative, does not apply to our data.

Aversive State Versus Aversive Consequences

We have argued that in the present experiments the participants' counterattitudinal actions did not produce aversive consequences. That is, the counterattitudinal action did not "block one's self-interest" or harm another person (Cooper & Fazio, 1984, p. 232). The counterattitudinal action did not produce aversive consequences, because, as Cooper and Fazio (1984) argued, aversive consequences do not result when one makes a counterattitudinal statement in solitude. Once the counterattitudinal statement was discarded in the trash, it was unable to harm anyone—the participant or another person. The counterattitudinal action did, however, produce dissonance, an aversive state, in the individuals. This aversive state is not the same as aversive consequences. Cooper and Fazio argued that cognitive inconsistency does not cause an aversive state and that the production of harm was necessary and sufficient to create the aversive state.

We hypothesize that the aversive state of dissonance resulted in the present research because people feel uneasy when writing something that is not true. Behavior, including verbal behavior, must, in general, be in accord with one's perception of reality. People must feel capable of having their behavior be in accord with perceptions about the environment, or else their welfare is threatened. Hence, people feel uneasy when they say something that is not true, even though the perception may be of little importance. The behavior is aversive because the person knows that behavior does not match perception, whether there is a specific aversive consequence produced by that behavior or not.

This explanation concurs with the views of other theorists. Kruglanski (1989, 1992) has argued that cognitive dissonance can be caused by cognitive inconsistency per se, because inconsistency among relevant cognitions undermines the need for nonspecific closure (which may be prompted by a desire for stability and predictability). When the need for definite and subjectively certain knowledge (nonspecific closure) is undermined, aversive tension and attempts to reduce this state may result (Kruglanski, 1989, 1992; Kruglanski & Klar, 1987). Similarly, Epstein (1981, 1985) and Swann (1990) have argued

that the need to maintain a consistent view of the self and world may be driven by the need to see the world as predictable and controllable, which allows organisms (humans) to respond with greater efficiency to the complexities of the world.

According to the above views, when the need for nonspecific closure is activated, people find cognitive inconsistency discomforting and try to reduce the discomfort, not because of the threat to self-image or self-integrity (cf. Aronson, 1992; Steele, 1988), but because people desire definite and subjectively certain knowledge in their perceptions of the world and of themselves. Thus, under these circumstances, the self-concept may not play a necessary role in the arousal of dissonance (e.g., Brehm, 1992; Lawrence & Festinger, 1962). Festinger (1957; Lawrence & Festinger, 1962) considered the need to reduce inconsistency as a basic drive that exists in animals at least as psychologically complex as rats and provided evidence supporting this notion.

Reconciling Our Results With Prior Findings

Our findings seem inconsistent with results of previous experiments (Collins & Hoyt, 1972; Cooper & Worchel, 1970) that found that attitude change failed to occur when counterattitudinal behavior did not cause aversive consequences. Earlier in this article, we advanced several alternative explanations for the lack of attitude change obtained in previous research. Among these, the most plausible is that too great an inducing force was used to gain compliance in both aversive- and no-consequences conditions. The addition of the extremely important dissonant cognition—feeling personally responsible for producing aversive consequences—was then necessary to create dissonance sufficient to generate attitude change. Evidence for this explanation is seen in the high compliance rates in the past research, for if barely sufficient justification existed, the rates of noncompliance would have been greater (Nuttin, 1975). The rates of noncompliance were much higher in the present research than in the past research, even though in the past research the counterattitudinal action had the potential to create aversive consequences, which should have made participants more reluctant to comply, whereas in the present research it did not.

Not only are there plausible reasons for the lack of dissonance reduction effects in the no-consequences conditions of prior research, but there also seems insufficient reason to draw the conclusion from that research that inconsistency does not cause dissonance, because to do so is to assert the confirmation of the null hypothesis. The present research disconfirms the null hypothesis and the idea that the production of aversive consequences is necessary to create dissonance. Our alternative conclusion, that inconsistency of cognitions in the absence of the production of aversive consequences can produce dissonance, is consistent with the prior research and clearly supported by the present findings.

Other Dissonance Research Inconsistent With the Aversive-Consequences Formulation

Other research is inconsistent with Cooper and Fazio's (1984) reformulation but consistent with Festinger's (1957) version of dissonance theory. For instance, in an experiment by

Brock and Balloun (1967), committed churchgoers were confronted with audiotaped information that did or did not support their religious values. These individuals were less likely to press a button to eliminate white noise from the communication and thus clarify it when the information was inconsistent with their values. Other research has replicated these findings (Schwarz, Frey, & Kumpf, 1980; Sweeney & Gruber, 1984; see review by Frey, 1986), indicating that dissonance effects occur even when inconsistencies are produced by outside information, not from actions that produce aversive consequences.

Similarly, Batson (1975) conducted a study in which young women attending a church youth program were asked to declare publicly whether or not they believed in the divinity of Jesus. After completing a measure of Christian orthodoxy, the women were presented with information intended to disconfirm their belief in the divinity of Jesus. Orthodoxy was assessed again and, consistent with predictions derived from dissonance theory (Festinger, Riecken, & Schachter, 1956), those who believed in the divinity of Jesus and accepted the truthfulness of the disconfirming information intensified their belief in Jesus's divinity, whereas those who were not believers or who believed but did not accept the veracity of the disconfirming information did not. The participants did not perform an action that produced aversive consequences. The cognitive inconsistency was not produced by the participants' actions but was produced by information introduced to disconfirm their beliefs. Although Batson (1975) used a quasi-experimental design, rendering it difficult to draw clear causal inferences from the experiment, other research has found similar effects using designs not subject to these problems (e.g., Burris, Harmon-Jones, & Tarpley, 1995; Russell & Jones, 1980).

In another effort to challenge the notion that the production of aversive consequences is not necessary for dissonance to occur, Aronson and colleagues (Aronson, 1992; Aronson, Fried, & Stone, 1991; Dickerson, Thibodeau, Aronson, & Miller, 1992; Fried & Aronson, 1995; Stone, Aronson, Crain, Winslow, & Fried, 1994; Thibodeau & Aronson, 1992) have demonstrated that dissonance can occur even when participants engage in proattitudinal behavior that has positive consequences. In one study representative of their work (Stone et al., 1994), participants either made a persuasive speech about AIDS and safe sex in front of a videocamera (for the purpose of finding the best communicator for a message to be presented about safe sex to high school students) or developed a persuasive message but did not deliver the speech to a videocamera. The researchers also manipulated the salience of participants' past failures to use condoms. Participants were either made aware of their past failures to use condoms by publicly writing about instances when they had failed to do so, or were not made aware of their past failures. Stone et al. (1994) reasoned that if participants made the proattitudinal speech and were then made aware of their past failures to practice what they preached, they would experience dissonance and would attempt to reduce their dissonance by modifying their future behavior. In support of predictions, participants who were induced to feel hypocritical purchased more condoms than did participants in the other conditions.

Although this past research is consistent with the idea that the

production of aversive consequences is not necessary to create dissonance, it was conducted using procedures not frequently used to test dissonance theory. The present research extends this past research by showing that dissonance arousal and dissonance reduction can occur in the absence of the production of aversive consequences even in the traditional induced-compliance paradigm, the frequently used paradigm on which Cooper and Fazio (1984) and others focused their research and theoretical efforts.

Bringing It All Back Home: Cognitive Inconsistency and Cognitive Dissonance Theory

Cooper and Fazio's (1984) revision of cognitive dissonance theory eliminated inconsistency as the basis for a dissonant relationship and, in doing so, "transformed . . . the quite general theory that Festinger (1957) had envisioned into a mini-theory that delineates a particular set of circumstances that produce a particular type of attitudinal adjustment within the induced compliance paradigm" (Eagly & Chaiken, 1993, p. 520). Berkowitz and Devine (1989; Berkowitz, 1992) also argued that Cooper and Fazio unnecessarily narrowed cognitive dissonance theory's "broad sweep" (p. 499). Consistent with the present analysis, they suggested that the limiting conditions provided by Cooper and Fazio may intensify dissonance but are not necessary for dissonance to occur.

Restoring inconsistency as the basis for dissonant relations in cognitive dissonance theory does not compromise the breadth of the theory. The original version of cognitive dissonance theory (Festinger, 1957) predicts that attitude change and other cognitive adjustments may occur when sufficient dissonance is aroused. These cognitive adjustments do not necessarily have to be preceded by feeling personally responsible for the production of foreseeable aversive consequences. The present research provides support for the original version of cognitive dissonance theory by demonstrating that the production of aversive consequences is not necessary to create dissonance.

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