

# Chapter 11

## The Theory of Cognitive Dissonance: State of the Science and Directions for Future Research

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The theory of cognitive dissonance is one of the most influential theories in social psychology. Since its initial publication 50 years ago, it has inspired more than 1,000 empirical papers. However, dissonance theory has not only had a profound impact on research in social psychology, it has also been used for designing interventions to address a variety of societal problems. In this short overview of the empirical literature on dissonance theory, we first introduce the definition of dissonance theory in its classic formulation by Festinger (1957). Second, we review the most important paradigms used in empirical dissonance research and summarize the most prominent empirical results. Third, we present the main features of the self-based revision of dissonance theory and introduce our own self-based modification of dissonance theory including related data on ego-depletion and selective exposure. Finally, we present directions for future dissonance research, in particular in the areas of self-regulation and information-processing, and discuss the application of dissonance theory to societal problems.

### Classic Formulation of Dissonance Theory

Cognitive dissonance is defined as the subjective perception of incompatibility between two self-relevant cognitions. A cognition can be any element of knowledge, belief, attitude, value, emotion, interest, plan, or behavior. In other words, cognitions are dissonant when one specific cognition implies the opposite of another cognition. The resulting cognitive discrepancy is associated with a psychological state of unpleasantness (cognitive dissonance) that motivates the individual to reduce this state of discomfort by reducing the discrepancy between the dissonant cognitions (Festinger, 1957; Harmon-Jones, 2000). The magnitude of the cognitive dissonance is determined by the importance of the cognitions involved and their relation to a personal standard. Dissonance can be reduced in five ways or some combination thereof: (a) adding consonant cognitions, (b) subtracting dissonant cognitions (by ignoring, suppressing, or forgetting them), (c) replacing existing cognitions with others, that is, subtracting dissonant cognitions while adding consonant ones, (d) increasing the importance of consonant cognitions, and

(e) reducing the importance of dissonant cognitions. Adding consonant cognitions can also be described as a justification process, and reducing the importance of inconsistent information is often found in trivialization processes.

Classic dissonance research has largely been based on three types of paradigms: (a) induced compliance, (b) free choice, and (c) selective exposure. The induced-compliance paradigm (e.g., Festinger & Carlsmith, 1959) involves asking participants to engage in behavior that is counter to their personal opinion or preference (e.g., performing a dull writing task). Afterwards, participants are urged to lie to a fellow participant by describing the task as very interesting. In this classical experiment the dissonance-inducing lying behavior was either performed in exchange for a low reward of 1 dollar (low justification) or a high reward of 20 dollars (high justification). The dependent variable that Festinger and Carlsmith measured was the participant's attitude toward the dull task that he or she had worked on. The classic result was that participants with low justification for lying rated the dull task as more interesting than participants with high justification did. The two researchers explained this finding with a dissonance-reduction process, contending that participants in the 1-dollar condition were less able to attribute their lying (dissonant behavior) to the financial reward they received than were the participants in the 20-dollar condition. Overall, studies based on the induced-compliance paradigm have shown that people who have exhibited a certain behavior that contrasts their actual opinion reduce the resulting dissonance by changing their attitude. This effect is less pronounced when the behavior can be justified otherwise, as by high rewards.

The free-choice paradigm typically manipulates dissonance arousal by means of different levels of decision difficulty (e.g., Brehm, 1956). For example, participants are asked to rank different consumer goods and afterwards are instructed to decide between the consumer good ranked second and the one ranked sixth (low dissonance) or between the one ranked second and that ranked third (high dissonance). Subsequently, the participants are asked to indicate the desirability of the two goods. The classic finding for the high-dissonance condition is the spreading-apart-of-alternatives effect, describing the fact that the chosen good increases in desirability whereas the nonchosen good decreases in desirability.

The third prominent paradigm employed in research on cognitive dissonance is the selective exposure to information (see Frey, 1986; Jonas et al., 2001). Typically, dissonance is induced by a difficult decision participants have to make (e.g., between two equally attractive consumer goods, investment strategies, or political plans). Afterwards, they receive additional information (normally between 8 and 16 pieces) of which half support and half contradict the participant's previous decision. Participants are then asked to select those pieces of information they want to read about in greater detail. Within this dissonance paradigm, the classic finding is a confirmation bias, that is, participants normally select significantly more decision-consistent than decision-inconsistent pieces of information. The information-search paradigm is of particular practical relevance because several studies have provided evidence that neglecting decision-inconsistent and focusing on decision-consistent information is associated with poor decision outcomes (e.g., Janis, 1982; Kray & Galinski, 2003; Schulz-Hardt, 1997).

Several empirical studies based on the classic formulation of dissonance theory have investigated which conditions affect the degree to which individuals recognizably engage in dissonance reduction. In summary, their results show that individuals with high levels of commitment to a certain behavior or standpoint exhibit more pronounced dissonance-reduction effects than do individuals with lower corresponding commitment. For instance, Brock and Balloun (1967) found that smokers were more liable than nonsmokers to neglect health information that is inconsistent with smoking (see also Feather, 1962). Other studies revealed that high dissonance is elicited only under conditions of high subjective choice. For example, Frey and Wicklund (1978) demonstrated that confirmation bias in information search is stronger when participants had made the decision under high- rather than low-choice conditions.

An early study by Nel et al. (1969) revealed another factor that has an impact on the degree to which people reduce dissonance. The authors reported that they had observed a dissonance effect (attitude change) only when participants had expected their attitude-inconsistent behavior, in this case publicly proposing to legalize marijuana, to affect other people negatively (see also Cooper & Fazio, 1984). Rhine (1967) found a curvilinear relationship between the level of dissonance arousal and dissonance reduction that follows an inverse U-function. Specifically, individuals tend to increasingly reduce dissonance until reaching a maximum point; when dissonance arousal reaches a critical level, individuals decrease their dissonance-reduction efforts in order to prepare a change in attitude, decision, or standpoint. The empirical results presented above help one understand a variety of non-common-sense phenomena that can be explained by dissonance theory. For example, the predictions of the theory can explain why dissonance reduction is stronger under conditions of low punishment than of high punishment (forbidden toy paradigm, Aronson & Carlsmith, 1963), why attitude change is stronger under conditions of low reward than of high reward (the \$1/\$20 experiment by Festinger and Carlsmith, 1959), and why the attractiveness of a decision alternative or standpoint increases with the extent to which a person has previously invested in this decision or standpoint (escalation of commitment, Aronson, 1961).

More recent findings in dissonance research address the moderating role of personality on the motivation to reduce dissonance, dissonance and the integration of knowledge, and the application of dissonance theory to societal phenomena. With regard to personality attributes, it has been shown that people with a high need for closure (Kruglanski, 1989) have a greater tendency to reduce dissonance than do people with a low need for closure (see also Fischer et al., 2007a). Furthermore, individuals with high cognitive complexity are less motivated to reduce dissonance than those with low cognitive complexity (Harvey, 1965). Finally, individuals with high attributional complexity (i.e., high ability to find external justifications of their own behavior) show less dissonance reduction (attitude change) than people low in attributional complexity (Stalder & Baron, 1998).

With regard to integration of knowledge, for instance, Festinger et al. (1956) investigated a doomsday cult whose members were convinced the earth was going to blow up. However, when the predicted date of the cataclysm had passed and the

earth had not ceased to exist, the members of the cult bolstered their belief system (active change of knowledge), attributed the planet's survival to the power of their prayers, and tried to find new cult members. In another line of research, Janis (1982) found that members of an advisory board around President Kennedy in 1961 referring to an imminent attack on Cuba neglected information that was inconsistent to the opinion of the whole group of advisors. The author found that group members experience dissonance when they realize that other group members have different opinions; subsequently, they try to reduce dissonance by persuading other group members of their opinion, urging consensus, or changing their own position (Matz & Wood, 2005). The integration of knowledge is particularly important in politics. In the context of the Watergate affair, for example, Sweeney and Gruber (1984) found that conservative voters in the United States were more inclined to neglect information that was inconsistent with their political position than liberal voters were (for a similar effect, see Jonas et al., 2003).

Finally, dissonance processes are also relevant for the understanding of interpersonal and societal processes. For example, researchers found cultural differences in the way collectivistic (Asian Canadians) and individualistic (European Canadians) individuals justified their choices. More specifically, collectivists justified their choices more when they had made a decision for a friend than when they had made a decision for themselves, whereas individualists justified their decision more strongly when they had made it for themselves than when they had made it for a friend (see Hoshino-Browne et al., 2005). In addition, studies have revealed a phenomenon called "vicarious dissonance," the subjective perception of incompatibility experienced by individuals who have witnessed members of important in-groups engage in inconsistent behavior. Vicarious dissonance also leads the perceivers to experience dissonance and thus change their attitudes. The mediating mechanism has been found to be the discomfort that observers imagined they would feel if they were in the actor's place (see Norton et al., 2003). In another interpersonal context, McGregor et al. (2001) found that personal uncertainty (caused by a threat to self-integrity) arouses dissonance and, in turn, promotes authoritarianism, a hardening of attitude, and the devaluation of out-groups.

## **Modifications, New Formulations, and Self-Based Revisions of Dissonance Theory**

As for many other theories, it has been questioned whether dissonance theory is a more motivational or cognitive theory. The motivational formulation of dissonance theory is supported by the finding that dissonance indeed is associated with physiological arousal (Elkin & Leippe, 1986). It also has properties of general arousal, meaning that high dissonance increases performance on simple tasks but reduces performance on difficult tasks (for a review, see Kiesler & Pallak, 1976). In addition, dissonance is experienced as psychological discomfort, as documented by Elliot & Devine (1994), who showed that dissonance is a distinct aversive

feeling instead of an undifferentiated general arousal state. (They also provided a self-report questionnaire for measuring dissonance arousal.) Along this line of argumentation, Cooper and Fazio (1984) formulated their “new look model” by distinguishing between dissonance motivation and dissonance arousal. They stated that dissonance arousal is characterized as an undifferentiated physiological arousal (which can be labeled positively or negatively). Dissonance motivation results and the typical dissonance effects can be observed in individuals only if this arousal state is labeled negatively.

Another very influential revision of dissonance theory addresses the relation between dissonance arousal and the involved self. According to this revision, dissonance is aroused only when people act in ways that are inconsistent with their core beliefs and thus their self (Aronson, 1968, 1999). Accordingly, the author also derived from this assumption that dissonance arises not because of mere cognitive inconsistency but because of cognitions causing self-inconsistency. This self-based revision of dissonance theory holds that dissonance is aroused in the experiment by Festinger and Carlsmith (1959) because of the discrepancy between “I am an honest person” and “I lie to fellow students” and not so much because the cognitions “I said the task was exciting” and “Indeed, the task was boring” are incompatible. In summary, authors like Aronson (1999) and Harmon-Jones (2000) argue that dissonance is aroused because of threats to a person’s positive self-conceptions. Several studies support the validity of the first self-based revision of dissonance theory. For example, Stone et al. (1994) conducted hypocrisy experiments in which participants gave a persuasive speech advocating safe sex. This speech was given either publicly (in front of a video camera) or privately (without being videotaped). The second experimental factor was whether a past failure to use condoms was made salient or not. The dependent variable the authors measured was the intention to practice safe sex in the future (participants could purchase condoms with their experimental reward). The main result of the study was that individuals in the hypocrisy condition (public speech *and* high salience of past failure to use condoms) purchased more condoms than participants of all remaining three conditions.

Finally, a second self-based revision of dissonance theory was set forth by the self-affirmation theorists. According to this theoretical perspective, dissonance effects do not occur because of cognitive inconsistency but because of the need or motivation to maintain an overall image of self-integrity (e.g., Steele & Liu, 1983; Steele et al., 1993; see also Harmon-Jones, 2000). Hence, in typical dissonance situations individuals do not change their attitude because of cognitive discrepancy or self-inconsistency but because of their need or motivation to maintain a positive self-image. Freely behaving in contradiction to one’s core attitudes or making difficult decisions threatens the positive self-image, whereas the affirmation of important aspects of the self-concept helps maintain or restore self-integrity. Empirical support for the validity of this self-affirmation perspective on dissonance processes was provided by Steele (1988), who did not find the typical dissonance-related attitude change when participants had been given the possibility to affirm their global self-integrity (by expressing an important self-relevant value in an

essay) prior to their behavior. In addition, Tesser and Cornell (1991) found that the increased salience of positive self-evaluations also decreases the motivation to reduce dissonance.

Both self-based revisions make valid predictions but contradict themselves in specific aspects. For example, the self-consistency revision predicts increased dissonance reduction for individuals with high self-esteem (i.e., high self-esteem should increase the discrepancy between attitude and attitude-inconsistent behavior). In contrast, the self-integrity revision proposes the opposite: decreased dissonance-reduction effects for individuals with high self-esteem (i.e., high self-esteem buffers against threatening dissonance arousal). Moreover, the previous two self-based revisions of dissonance theory contain a rather passive role of the self, which either (a) functions as a reference point (self-consistency revision) for comparing one's own counter-attitudinal behavior with one's core values and attitudes or (b) represents a cognitive meta-structure that motivates the individual to maintain self-integrity through self-affirmation. Neither revision makes a statement about the active agent in this process. We propose that the self has a more dynamic role in the dissonance-reduction process than has been assumed in the self-consistency and self-affirmation theory. We present a short outline of our theoretical argument and first empirical findings on ego-depletion and dissonance-reduction processes in the following paragraph.

## **Self-Regulation and Dissonance: The Impact of Ego-Depletion on Confirmatory Information-Processing**

A theoretical perspective that has been developed in recent years further supports the self-integrity (self-affirmation) revision of dissonance theory. Within this perspective, self-regulation is regarded as a process of a person's conscious will. For example, self-regulation is required when a person tries to abstain from eating while dieting. In general, self-regulation is required when a person tries to override spontaneous cognitive, affective, or behavioral responses (see Muraven & Baumeister, 2000; Schmeichel et al., 2003). This process of self-control is defined as the exertion of control over the self by the self (Baumeister, 1998). Hence, the self has only limited self-regulatory strength, which can be regarded as some form of power or energy. If a person uses her or his self-regulatory resources (e.g., by controlling thoughts, emotions, or behaviors), the amount of this energy is reduced (until the energy is replenished). Several lines of recent research have revealed that self-regulatory resources are involved in a variety of processes and behaviors, including higher intellectual performance, interpersonal processes (impression management), inhibition of aggression, or decision-making and information-processing (e.g., Baumeister, 1998; Fischer et al., 2007b; Muraven & Baumeister, 2000; Schmeichel et al., 2003). Typically, participants perform a self-regulation task (e.g., controlling attention) and are subsequently asked to perform another self-regulation task. The typical result on the second regulatory task is that ego-depleted

participants (those who had performed a self-regulation task) are outperformed by nondepleted participants.

Applying this theoretical perspective to dissonance processes, we propose that self-regulatory resources are also required when individuals have to abstain from dissonance-reduction processes. In other words, we predict that ego-depleted participants should have less self-affirming resources for abstaining from dissonance-reduction processes than nondepleted participants do. We tested this proposition by using a classic information-search paradigm (selective exposure). Four studies in two of our manuscripts (Fischer et al., 2007a, b) employing political and economic decision-making scenarios consistently demonstrated that individuals with depleted regulatory resources exhibit a stronger tendency for confirmatory information-processing than nondepleted individuals do. Mediation analyses suggested that individuals with depleted regulatory resources cling to their standpoint more strongly and find inconsistent information to be more unpleasant and aversive than is the case with their nondepleted counterparts and that this dissonance leads to increased confirmatory information-processing. Ego threat, cognitive load, and other explanations for the effect of ego-depletion on confirmatory information-processing were thus ruled out. In summary, this set of studies constitutes initial evidence for the assumption that self-regulatory resources are required in order to resist dissonance-reduction tendencies, such as selective exposure and confirmatory information-processing. Therefore, the self might be a more active agent in dissonance processes than has been assumed in previous self-based revisions of dissonance theory.

## Conclusion and Future Perspectives

Cognitive discrepancies are associated with dissonance—an aversive motivational state that occurs mainly when individuals behave counter-attitudinally or make difficult decisions. The main routes of dissonance reduction are (a) attitude change, (b) trivialization, and (c) search for supporting information. These processes are used to justify prior behavior, so it can be concluded that humans are not rational but rationalizing. The self plays an extraordinarily important role in understanding dissonance effects. Significant revisions of dissonance theory are set forth by self-based theories, that is, by self-consistency theory and self-affirmation theory. We have also learned that dissonance theory is a universal theory but that the specific culture determines what is dissonant and what is consonant. Dissonance theory pertains to the individual level, but it also makes valid predictions at a group level. In short, dissonance theory is a powerful social psychological theory that can be employed to explain many social phenomena, such as extremism or barriers to societal change.

However, even after 50 years of dissonance research and more than 1,000 publications, there are still many open questions about the impact of cognitive discrepancy on human cognition, emotion, and behavior. A fruitful endeavor for future

research might be to resolve the conflicting predictions between self-consistency and self-affirmation theory. In addition, researchers should also try to better clarify the dynamic role of the self in dissonance-reduction processes. Our own studies (Fischer et al., 2007a, b) are a starting point in this direction.

From a practical perspective, dissonance theory is a powerful theoretical tool with which to understand and predict striking social issues. It can explain why people who are committed to a certain value, ideology, or theory are relatively closed-minded and why they selectively seek information that supports their views. As a consequence, existing stereotypes are sustained. Dissonance theory thus provides an explanation for the fact that people often find it difficult to tolerate the norms and values of other people, which frequently results in conflict. The question is how this closed-mindedness can be overcome. One way may be to demonstrate that closed-mindedness and selective search for information is dissonant to even higher-order values, such as openness to new information or cosmopolitan values, and to global goals. Dissonance theory can also add to an understanding of why people are so reluctant to tackle many of the severe problems the world will face in the coming years, such as global warming, the shortage of water, and overpopulation. These problems are very threatening and arouse high levels of dissonance, which leads to the selective search for information that euphemizes the problems. As Festinger (1957) emphasized, however, there is a short run and a long run to dissonance reduction. Strategies that reduce dissonance in the short run may not do so in the long run. He stressed that, in order to develop future perspectives, people have to enlarge their narrow views and explicitly search for dissonant information. This mindset derived from empirical findings on dissonance theory is the cornerstone of a tolerant society that actively addresses the problems it is faced with.

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