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A Review of Cognitive Dissonance Theory in Management Research: Opportunities for Further Development

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Since its introduction to the social psychology literature 60 years ago, Festinger's cognitive dissonance theory (CDT) has been frequently applied to the management literature to explain and predict the motivational nature of dissonance in producing attitude and behavior change in managerial decision making and the broader organizational context. Yet many of the popular constructs that stem from CDT have since lost touch with more recent developments in the field of origin. In this paper, we provide a review of the key constructs and predictions associated with CDT from Festinger's early work to the latest developments. We then review key management research that has incorporated CDT. Drawing from the latest refinements to CDT, we describe how future management studies could benefit by integrating these refinements into their theoretical frameworks, rather than simply relying on Festinger's seminal work on the 60th anniversary of its publication (1957).

Keywords: *cognitive dissonance; management; cognition; managerial decision making; attitude change; motivation*

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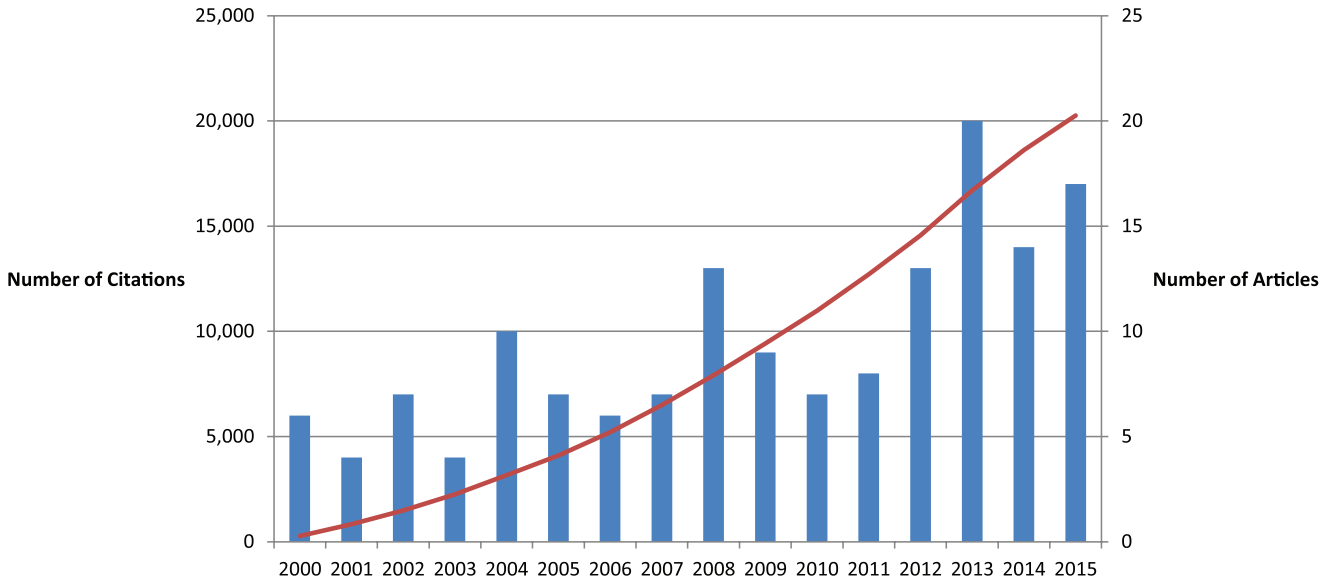
Cognitive dissonance theory (CDT) suggests that when individuals hold two or more cognitions that are contradictory, they will feel an unpleasant state—dissonance—until they are able to resolve this state by altering their cognitions (Festinger, 1957). Though it was introduced within the field of social psychology, it has also become an oft-cited theory in management research. An early and classic test of the theory published by Festinger and Carlsmith (1959) found that after performing an unpleasant behavior, individuals who received smaller (compared to larger) incentives changed their attitudes to favor the behavior. This early research not only had a drastic impact on the field of social psychology but also paved the way for management research to explore new pathways in understanding important workplace behaviors. For example, Festinger and Carlsmith's first test of CDT has direct implications for research on compensation and the use of incentives to affect employee attitudes. Other early studies testing CDT also have direct management implications. Aronson and Mills's (1959) classic study provided evidence that intense socialization (e.g., hazing) leads to increased organizational commitment for members who continue to stay with the organization, as this increased commitment justifies the unpleasant behaviors they engaged in to become a member.

The applicability of CDT to management issues has not been lost on managerial scholars who have applied CDT to understand important workplace issues related to organizational behavior (e.g., Bhave & Glomb, 2016), human resource management (e.g., Shipp, Furst-Holloway, Harris, & Rosen, 2014), strategy (e.g., Westphal & Bednar, 2008), and entrepreneurship (e.g., Ambos & Birkinshaw, 2010). Indeed, the profound impact and sustained popularity of CDT is apparent from Figure 1, which indicates that, since 2000, there has been a steady increase in articles published in top tier management journals that explicitly cite Festinger (1957), as well as a dramatic rise in the total number of citations across disciplines. Clearly, the relevance and utility of CDT, both within the field of management and beyond, remains strong.

In order to provide a snapshot of the current state of CDT application within the management literature, we review articles published since 2000 in eight journals that are widely recognized as top tier management publications (Chartered Association of Business Schools, 2015): *Academy of Management Journal, Administrative Science Quarterly, Journal of Applied Psychology, Journal of Management, Organization Science, Organizational Behavior and Human Decision Processes, Personnel Psychology*, and *Strategic Management Journal*. In these journals alone, from 2000 to the present, a total of 184 articles referenced CDT as part of the theoretical framing, empirical investigation, or discussion of the findings.

A review of the management literature employing CDT is warranted for many reasons. First, despite the popularity of CDT in management research over the past 6 decades, we are not aware of a review of this literature. There have been many reviews of the general theory (cf. Cooper, 2012; Harmon-Jones & Harmon-Jones, 2007), yet no review of CDT in the management literature exists. Second, though some management work has incorporated and extended the refinements to CDT made since its inception, most draw solely on Festinger's (1957) work, and little else. Not only can this muddle key CDT concepts but management researchers may also assume that this theory is complete, with little room for contribution through testing or extension. Third, we explore the boundary conditions of CDT's application in management research. We find that the field of management has made important contributions to testing and extending CDT *and* that opportunities exist to further expand the theory through future research.

Figure 1
Number of Citations and Articles Using Cognitive Dissonance Theory Published in Leading Management Journals: 2000–2015



Note: The citation counts represented on the left *y*-axis reflect all citations of Festinger (1957) since 2000; these counts were found via Google Scholar. The article count represented on the right *y*-axis reflects the number of articles published in the eight focal management journals that reference cognitive dissonance theory; we verified these counts through author coding of each manuscript to ensure a reference to any iteration of cognitive dissonance theory was not overlooked.

In what follows, we provide an overview of the core tenets of CDT and explain the process of dissonance arousal and reduction. We also clarify the key CDT constructs, the common predictions derived from the original theory, and theoretical extensions that have been introduced over the past 6 decades. We then review empirical work that has drawn from CDT in leading management journals. By doing so, we document the gap between refinements to CDT and its application to management phenomena to highlight missed opportunities within the field. Moreover, we concur with Whetten, Felin, and King's (2009) contention that the field of management is sufficiently mature to go beyond simply borrowing from other fields (e.g., psychology) by instead contributing to basic theory that may be of utility to other fields. Then, we discuss the boundary conditions of CDT and outline ways in which the applied organizational context of management research presents opportunities to advance CDT. We hope that this review will stimulate future management research to apply CDT in a way that incorporates the rich updates to CDT made over the past 6 decades (Harmon-Jones & Harmon-Jones, 2007).

Overview of CDT

To fully articulate the contributions of this manuscript to the field of management, it is first necessary to clearly define the relevant constructs. According to CDT (Festinger, 1957), *dissonance* is a negative affective state that results from an individual experiencing two discrepant cognitions. Festinger (1957) defined cognitions broadly as any mental representation, and as such, cognitions include attitudes, beliefs, or knowledge of one's own behavior. Festinger described dissonance using the mathematical equation: $M = D/(D + C)$. In this equation, M represents the magnitude of dissonance experienced (e.g., the amount of discomfort), D represents the sum of cognitions that are dissonant from a referent cognition, and C represents the number of cognitions that are consonant with the same referent cognition. Festinger suggested that this uncomfortable state motivates individuals to seek a way to reduce the magnitude of dissonance experienced as a result of these discrepant cognitions. Hence, individuals can reduce dissonance by engaging in *discrepancy reduction*, which entails altering cognitions to reduce the cognitive discrepancy. Furthermore, individuals who are motivated by the negative affective state of dissonance to engage in discrepancy reduction can reduce dissonance by changing the original cognitions, adding/subtracting cognitions (e.g., new attitudes, behaviors, or beliefs), or adjusting the importance of the cognitions.

The core framework of CDT implies a four-step process of dissonance arousal and reduction (see Figure 2). First, a cognitive discrepancy occurs; second, individuals respond with psychological discomfort—dissonance; third, they become motivated to reduce the dissonance; and fourth, they engage in discrepancy reduction to reduce dissonance. It is important to note that to effectively resolve dissonance, individuals must engage in some form of discrepancy reduction; however, some people may not successfully resolve dissonance and as such, may remain in a negative affective state. We discuss each step in this process in the following section.

The Process of Dissonance Arousal and Reduction

Cognitive discrepancy. CDT suggests that the dissonance arousal process starts when an individual experiences a discrepancy between two or more cognitions. Cognitions are considered to be discrepant if a person believes that one cognition follows from the obverse of

Figure 2
The Four-Step Process of Dissonance Arousal and Reduction

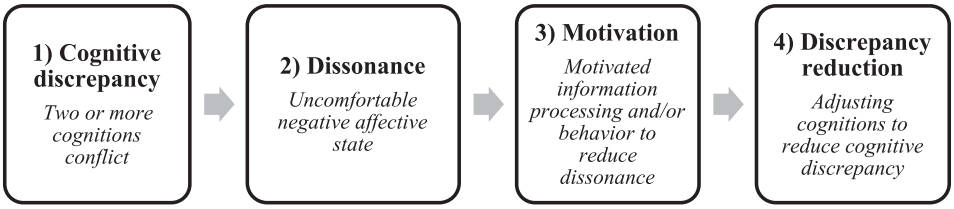


Table 1
Key Concepts in Cognitive Dissonance Theory

Causes of Cognitive Discrepancy
Counterattitudinal behaviors—Individuals who act in a way that is counter to an attitude or belief they hold will experience dissonance.
Free choice—Choice can cause cognitive discrepancy between the desire to choose the best alternative and the need to make a choice from the available imperfect alternatives.
Effort/behavioral commitment—Greater effort or behavioral commitment can lead people to seek ways to support this commitment as they strive to achieve *behavioral consistency*.
Key Moderators of the Dissonance Arousal and Reduction Process
Responsibility for choice—Individuals who perceive they have more responsibility for choice will engage in greater discrepancy reduction than those who perceive less responsibility for choice.
Similar alternatives—When potential alternatives are similar prechoice, individuals experience dissonance due to the difficult choice and will exhibit the *spreading of alternatives* (increasing favorability of chosen alternative and decreasing favorability of rejected alternative) postchoice.
Leading alternatives—When there is a leading alternative prechoice, individuals will engage in *selective information processing* to favor the leading alternative.
Outcomes Predicted
Discrepancy Reduction
Attitude change toward the behavior (e.g., attitude changes to become more in line with the behavior engaged in).
Behavior adjusted to align with attitude, values, or past behavior.
Escalation of commitment to justify the effort/commitment that has already been invested.
Trivialization of the importance of the original behavior may occur when attitudes are resistant to change.
Selective information processing will occur to support prior decisions, choices, or other cognitions that are resistant to change.
No Discrepancy Reduction
Individuals who do not have some form of discrepancy reduction will experience a prolonged negative affective state of dissonance.

another (Cooper, 2012). There are many possible scenarios that can induce cognitive discrepancy, and each scenario is often coupled with a specific prediction of the form of discrepancy reduction. We review these in more detail in Table 1 and the following sections.

Dissonance. Dissonance refers to the negative affective state felt in response to cognitive discrepancy. CDT assumes individuals prefer cognitive consistency and feel unpleasant when they experience a break in consistency (Cooper, 2012). Though the term *dissonance* is often used interchangeably for cognitive discrepancy and the resultant feelings of discomfort, we distinguish between these two (Harmon-Jones, Amodio, & Harmon-Jones, 2009).

We use the term *dissonance* to refer to the negative affective state experienced after cognitive discrepancy occurs. Early CDT research assumed that this state arose when evidence supported the predicted discrepancy reduction. Much of the work that challenged Festinger's tests of CDT questioned whether it was truly a cognitive discrepancy and dissonance that motivated individuals to respond with attitude change or whether other motivating factors were at play (Cooper, 2012).

Motivation to reduce dissonance. Festinger's (1957) CDT further asserted that the negative affective state of dissonance serves as motivation to alter the cognitions experienced, as individuals seek to restore cognitive consistency and a more pleasant state. The action-based model of CDT further explains *why* individuals are motivated to reduce dissonance; this approach suggests dissonance motivates discrepancy reduction because unresolved dissonance interferes with effective action (Harmon-Jones et al., 2009).

Discrepancy reduction. The final and most well-known component of CDT involves the prediction that individuals can reduce dissonance by altering their cognitions. Festinger (1957) suggested that people reduce cognitive discrepancy by altering cognitions that are the least resistant to change. Discrepancy reduction flows from events that lead to cognitive discrepancy. For example, in response to counterattitudinal behaviors, CDT predicts that individuals will adjust their attitude to favor a past behavior because the memory of the behavior is less malleable than one's attitudes (e.g., Festinger & Carlsmith, 1959). One area where management research differs considerably from CDT research in social psychology pertains to the predicted result of dissonance. While social psychology has primarily focused on the nature and type of discrepancy reduction that occurs in response to dissonance, some management studies do not predict discrepancy reduction but instead predict negative consequences of unresolved dissonance (e.g., Grandey, Chi, & Diamond, 2013; Kammeyer-Mueller, Simon, & Rich, 2012).

Key CDT Concepts and Approaches Emerging From Classic CDT

Of particular interest to CDT scholars and a source of variation in CDT approaches is the link between counterattitudinal behaviors and attitude change. A *counterattitudinal behavior* is a behavior that conflicts with an individual's attitude regarding that behavior. This approach is also known as *forced compliance* because CDT scholars often test dissonance by requiring subjects to engage in a counterattitudinal behavior. Counterattitudinal behaviors cause individuals to experience dissonance and reduce this dissonance by changing their attitude toward the behavior (e.g., Festinger & Carlsmith, 1959). Furthermore, CDT suggests that people strive for *behavioral consistency* when possible. As such, *effort and behavioral commitment* can lead to dissonance as individuals invest more energy into a decision or action. In these scenarios, the amount of effort invested magnifies the amount of discrepancy reduction. This effect, known as *effort justification*, was first documented by Aronson and Mills's (1959) classic study that showed that the severity of initiation processes positively predicted organizational commitment.

Another source of dissonance examined in CDT research is that of *free choice*. When individuals must make a choice between alternatives, they experience dissonance due to

recognition that they may not choose the ideal option and their desire to choose the best alternative conflicts with the realization that they may not do so (Brehm & Cohen, 1962). Situational elements can influence how choice affects the process of dissonance arousal and reduction. *Responsibility for choice*, the belief that one has personal responsibility for the choice selected, leads to greater discrepancy reduction in response to dissonance. In general, responsibility for choice increases dissonance when individuals are faced with information that suggests they have made a poor choice (Bobocel & Meyer, 1994). This, in turn, strengthens discrepancy reduction via *escalation of commitment* to the original choice (Staw & Ross, 1978). Though CDT is not the only theory that predicts escalation of commitment, it is a key theory that has been used (often labeled as *self-justification theory*) to explain how it develops when decision makers are confronted with negative information about prior choices (Brockner, 1992; Sleesman, Conlon, McNamara, & Miles, 2012).

When people must make a difficult choice between similar alternatives, they reduce choice-induced dissonance by *spreading the alternatives* (i.e., increasing the favorability of the chosen alternative and reducing the favorability of the rejected alternative). Finally, when individuals have a preferred alternative, but a choice has not been made, CDT predicts they will engage in *selective information processing* in an attempt to support the favored option (Russo, Medvec, & Meloy, 1996); selective information processing also occurs in conjunction with escalation of commitment (Schultze, Pfeiffer, & Schulz-Hardt, 2012).

Extensions, Refinements, and Clarifications of CDT

Since CDT's introduction, a number of theoretical refinements have been made to Festinger's (1957) initial conceptualization. These modifications have helped to clarify different stages of the process of dissonance arousal and reduction. In Table 2, we provide a summary of core theoretical refinements to CDT that scholars introduced to more fully explain dissonance processes. These CDT approaches include the self-consistency (Aronson, 1969), self-affirmation (Steele, 1988), aversive consequences (Cooper & Fazio, 1984), self-standards (Stone & Cooper, 2001), and action-based (Harmon-Jones et al., 2009) models.

Until recently, the role of the self-concept in predicting the nature of dissonance that people experience served as a point of contention among cognitive dissonance theorists. The first three refinements of CDT (self-consistency, self-affirmation, aversive consequences) advanced competing theories about the role of the self-concept in predicting dissonance arousal and reduction. The *self-consistency* model suggested that individuals experience dissonance only if their sense of self is part of the cognitive discrepancy experienced (Aronson, 1969). Following this approach, management researchers adopted CDT and Aronson's (1969) extension to explain escalation of commitment under the label *self-justification theory* to suggest that decision makers experience dissonance in response to negative information about their decision(s) because this conflicts with their belief that they are rational (Sleesman et al., 2012; Staw & Ross, 1978).

The *self-affirmation* approach suggested that people experience dissonance when their self-concept is threatened, but they can eliminate dissonance if they positively affirm their global self-concept (Steele, 1988). The *aversive consequences* approach suggested that the self-concept was irrelevant to dissonance arousal; instead, individuals are prone to experience dissonance when they feel personally responsible for aversive consequences (Cooper &

Table 2
Updated Models of Cognitive Dissonance Theory (CDT)

Core Assertions of Expanded Models of CDT	Outcome(s) Predicted
Self-consistency model of CDT (Aronson, 1969)	
• Dissonance is caused when an individual acts in a way that conflicts with his or her sense of self because people wish to see themselves as consistent and competent.	• Self-esteem moderates the relationship between dissonance and discrepancy reduction such that higher self-esteem leads to greater discrepancy reduction than lower self-esteem. • Research extending this approach (under the name self-justification theory) suggests that individuals escalate their commitment toward initial decisions and actions, even in the face of negative information regarding the decision (Staw & Ross, 1978).
Self-affirmation model of CDT (Steele, 1988)	
• Dissonance occurs when one's positive self-concept is threatened and is reduced when one's positive self-concept is affirmed.	• Individuals can rely on a positive self-image as a resource for reducing dissonance rather than engaging in attitude change. • To reduce dissonance, self-affirmation trivializes the importance of the initial cognitive discrepancy (Simon, Greenberg, & Brehm, 1995).
Aversive consequences (new look) model of CDT (Cooper & Fazio, 1984)	
• Individuals experience dissonance because they feel personally responsible for aversive consequences.	• This approach predicts that individuals experience dissonance and engage in discrepancy reduction only if their actions (e.g., counterattitudinal behaviors) result in aversive consequences.
Self-standards model of CDT (Stone & Cooper, 2001)	
• Suggests self-consistency, self-affirmation, and aversive consequences models of CDT are each correct in certain contexts depending on whether personal or normative standards are contextually salient.	• When normative standards are salient, the aversive consequences approach will predict dissonance outcomes. When personal standards are salient, self-consistency predictions will hold if the personal standard is relevant to the situation, and self-affirmation predictions will hold if the personal standard is not relevant.
Action-based model of CDT (Harmon-Jones, Amodio, & Harmon-Jones, 2009)	
• Cognitions represent action tendencies. • Individuals are motivated to reduce dissonance because conflicting action tendencies can interfere with effective action.	• Greater discrepancy reduction leads to more effective action, while lower discrepancy reduction (e.g., unresolved dissonance) will lead to less effective action. • Dissonance leads to increased effort on tasks because postchoice increases action orientation as a means to reduce dissonance.

Fazio, 1984). The *self-standards model* (Stone & Cooper, 2001) integrated these three competing theories into an overarching model, predicting that the impact of self-concept and aversive consequences depends on which standards are salient. When normative standards are salient, the dissonance arousal and reduction process will follow the aversive consequences model; when personal standards relevant to the situation are salient, the self-consistency model applies. Finally, the self-affirmation model holds when personal standards irrelevant to the situation are salient.

The *action-based* model provided greater clarification regarding the motivational nature of dissonance (Harmon-Jones et al., 2009). This model suggests that cognitions serve as action tendencies, and as such, conflicting action tendencies result in dissonance, which people are motivated to reduce so they can effectively act.

Management Research Incorporating CDT

CDT has been applied across management subdisciplines. In Table 3, we summarize key articles published from 2000 onward that employ CDT. It is important to note that this review highlights studies that capture the various applications of CDT to management research; it is not presented as an all-inclusive list of every management study's use of the theory. For each study listed in the table, we highlight the relevant CDT concepts and/or theoretical approaches, the dissonance scenarios presented, the study's findings, and review applications of these within the management literature. While some studies test the entire four-step process of dissonance arousal and reduction, most focus on specific steps. As such, we discuss each component separately and highlight studies that focus on that step of the dissonance process.

Cognitive Discrepancy

Counterattitudinal behaviors. The counterattitudinal behaviors approach has been used to examine emotional labor and dissonance processes. CDT can explain why jobs that require employees to demonstrate emotions counter to their own felt emotions cause occupants to experience dissonance. Drawing from the self-consistency and self-affirmation models, Pugh, Groth, and Hennig-Thurau (2011) found that authentic emotional expression moderated the negative relationship between surface acting and job satisfaction such that it was stronger for employees that highly valued the authentic expression of emotions. Bhave and Glomb (2016) demonstrated that individual differences in self-concept and occupational differences in emotional labor requirements moderated the relationship between emotional labor and job satisfaction. Though they did not mention the self-standards model of dissonance (Stone & Cooper, 2001), their discussion of occupational norms and self-concept is consistent with this approach. Similarly, Grandey et al. (2013) found that surface acting elicits dissonance and results in lower job satisfaction. Cognitive discrepancies also arise when employee and organizational values conflict. Erdogan, Kraimer, and Liden (2004) posited that value incongruence can cause dissonance. They confirmed that incongruence between teachers' personal values and the organization's values predicted lower job and career satisfaction.

Applications of CDT to the study of ethical decision making have focused on behaviors that run counter to attitudes toward moral and ethical issues (Gunia, Wang, Huang, Wang, & Murnighan, 2012). Kammeyer-Mueller and colleagues (2012) showed that ethical conflict is a source of cognitive discrepancy and dissonance and that such dissonance contributes to emotional exhaustion among early career lawyers. The effects of counterattitudinal behaviors on discrepancy reduction via attitude change have been demonstrated in a study of management scholars' cognitions. Avital (2000) examined differences in scholars' espoused attitudes about incorporating temporal factors into management research and their actual inclusion of such factors in their own publications. In this qualitative study, Avital captured how researchers justified the discrepancies between their attitudes and behavior and suggested that these justifications highlight pragmatic, methodological, and normative reasons. To reduce dissonance in response to such counterattitudinal behaviors, researchers altered current attitudes and added new attitudes to justify the differences between their espoused and enacted research practices.

Table 3
Management Research Incorporating Cognitive Dissonance Theory (CDT)

Year	Author(s) and Journal	Relevant CDT Concepts and Approaches	Who Experiences Dissonance	Dissonance Scenario	Outcome(s) Found
Organizational Behavior Studies					
2001	Elsbach & Bhattacharya *Organization Science*	Preference for cognitive consistency, self-standards model	People whose self-concepts conflict with organization's image	Conflict between an organization's image and one's self-concept can cause dissonance.	People actively *dis*identify with organizations that strongly conflict with their self-concept.
2001	Greer & Stephens *Journal of Management*	Self-justification theory, escalation of commitment	Managerial decision makers	Negative information about project viability after initial investment causes dissonance.	When subordinates (as opposed to peers) delivered negative information, subjects were more likely to escalate their commitment. Decision makers escalated commitment when they were personally responsible for the initial investment decisions.
2003	Greenhaus & Powell *Organizational Behavior and Human Decision Processes*	Preference for cognitive consistency	People faced with trade-offs between work and family roles	Dissonance occurs if people invest time into roles (work or family) that are less salient.	Individuals avoid dissonance by investing time into the most salient role (work or family).
2003	Jonas & Frey *Organizational Behavior and Human Decision Processes*	Selective information processing	Mock travel agents	Information search to inform a decision regarding travel recommendations leads to dissonance for personal decision makers but not advisors.	Advisors conduct more balanced information search for clients than personal decision makers (who exhibited more confirmation bias in their search) because advisors have stronger accuracy motivations.
2004	Erdogan, Kraimer, & Liden *Personnel Psychology*	Self-standards model	Teachers	When personal values conflict with the organization's values, employees experience dissonance.	In response to conflict between personal and organizational values, employees experience lower job and career satisfaction.
2007	Ashforth, Kreiner, Clark, & Fugate *Academy of Management Journal*	Self-affirmation, self-standards, attitude change, effort justification	Employees who work in "dirty jobs"	Working in a stigmatized job (e.g., a "dirty job") can lead individuals to experience dissonance.	Employees reframe their discussions of their jobs to highlight the favorability and importance of the job they hold.

(continued)

Table 3 (continued)

Year	Author(s) and Journal	Relevant CDT Concepts and Approaches	Who Experiences Dissonance	Dissonance Scenario	Outcome(s) Found
2007	Millward, Haslam, & Postmes *Organization Science*	Discrepancy reduction via attitude change	Employees with assigned or unassigned desks	Assignment of desks creates a behavioral commitment, to which employees then adjust their attitudes to support.	Perceptions of importance and favorability of assigned (or unassigned) desks, as well as importance of face-to-face (or electronic) communication will favor the assigned choice.
2008	Dulac, Coyle-Shapiro, Henderson, & Wayne *Academy of Management Journal*	Discrepancy reduction, selective information processing, trivialization	Employees	Psychological breach causes dissonance, particularly in higher quality social exchange relationships.	Individuals in high-quality social exchange relationships with an organization and its members use selective information processing and trivialization processes to justify that despite breach, the organization has been fair and/or the breach is outside of organizational control.
2008	Gino *Organizational Behavior and Human Decision Processes*	Dissonance as negative affect	People receiving advice	Paying for advice can lead people to potentially feel more need to justify conflict between their own cognitions and the advice received.	Individuals who pay for advice are more likely to consider advice valuable and place more weight on the advice than those who received free advice. However, this study *did not find evidence* that dissonance (as directly measured using an eight-item scale) predicted these outcomes.
2008	Sivanathan, Molden, Galinsky, & Ku *Organizational Behavior and Human Decision Processes*	Self-affirmation theory, self-justification theory, escalation of commitment, moderating role of self-esteem	Decision makers	Participants chose between two organizations (Study 1 and 2) or two candidates for a job (Study 3) and received negative information about their choice's performance over the next 5 years. They then made resource allocations (Study 1 and 2) or administered a 5-year performance review of their chosen candidate (Study 3).	High self-esteem leads to greater de-escalation compared to low self-esteem. Self-affirmations that were not relevant to the decision reduced escalation, but self-affirmations related to the decision (positive feedback on decision-making ability) increased escalation of commitment.

(continued)

Table 3 (continued)

Year	Author(s) and Journal	Relevant CDT Concepts and Approaches	Who Experiences Dissonance	Dissonance Scenario	Outcome(s) Found
2008	Takeuchi, Shay, & Jiatao *Academy of Management Journal*	Festinger's (1957) original theory, free choice, responsibility for choice	Expatriate subsidiary managers	Internal organizational tension between global integration and local responsiveness causes dissonance for subsidiary managers.	Decision-making autonomy positively predicts expatriate adjustment, *but* this relationship weakens when global integration pressure is high. The dissonance scenario causes strain that suppresses the positive benefits of autonomy.
2011	Bashshur, Hernandez, & Gonzalez-Roma *Journal of Applied Psychology*	Cognitive discrepancy, dissonance as negative affect	Team members	Team member and supervisor disagreement about level of organizational support produces dissonance among team members.	Incongruence between team and supervisor perceptions led to negative affect; team performance is better in scenarios that do not induce dissonance.
2011	Pugh, Groth, & Hennig-Thurau *Journal of Applied Psychology*	Self-consistency, self-affirmation	Employees with high levels of customer contact	Surface acting can lead to dissonance, particularly for those who value the authentic expression of emotions.	Self-concept moderates the negative relationship between surface acting and job satisfaction such that the relationship is stronger for those who value the expression of authentic emotions.
2012	Gunia, Wang, Huang, Wang, & Murnighan *Academy of Management Journal*	Festinger's (1957) original theory, self-consistency, behavioral consistency	People given the opportunity to act ethically or unethically	Conversation about ethical values prior to making an unrelated decision that also activates ethical values.	Individuals avoid dissonance by attempting to keep their behavior consistent with their expressed attitudes.
2012	Kammeyer-Mueller, Simon, & Rich *Journal of Management*	Cognitive discrepancy, counterattitudinal behaviors, self-standards model	Early career lawyers	Divestiture socialization practices and strong personal ethical codes lead employees to experience dissonance.	In response to these practices, individuals with strong ethical codes experience dissonance and this leads to emotional exhaustion.
2012	Schulte, Cohen, & Klein *Organization Science*	Preference for cognitive consistency	Team members	Team members who disagree on the team's psychological safety environment will be more likely to experience dissonance.	Team members send more friendship ties over time to others who hold similar perceptions of team psychological safety.

(continued)

Table 3 (continued)

Year	Author(s) and Journal	Relevant CDT Concepts and Approaches	Who Experiences Dissonance	Dissonance Scenario	Outcome(s) Found
2014	Stoverink, Umphress, Gardner, & Miner *Journal of Applied Psychology*	Self-standards model, dissonance as psychological discomfort, dissonance as mediator between cognitive discrepancy and discrepancy reduction	Teams	Low supervisor-focused interpersonal justice climate leads to team dissonance because it violates normative standards for respectful treatment.	Low supervisor-focused interpersonal justice climate positively predicts team dissonance and this in turn positively predicts team cohesiveness.
2016	Bhave & Glomb *Journal of Management*	Self-standards model	Employees	Occupational emotional labor requirements can lead to dissonance if an individual's self-concept conflicts with these requirements.	The negative relationship between surface acting and job satisfaction is stronger as occupational emotional labor requirements increase.
Human Resource Management Studies					
2001	Brett & Atwater *Journal of Applied Psychology*	Discrepancy reduction via trivialization	Employees	When employees receive performance feedback that differs from their own self-ratings, they experience dissonance.	Employees whose self-ratings conflicted with the performance feedback were more likely to trivialize the value of the feedback.
2002	Dineen, Ash, & Noe *Journal of Applied Psychology*	Discrepancy reduction via trivialization	Mock job seekers	Job seekers who disagree with the feedback they receive regarding their person-organization (P-O) fit with an organization will experience dissonance.	Job seekers discount P-O fit feedback if they disagree with it; fit feedback predicted organizational attraction when agreement was high, but objective P-O fit was more predictive when low.
2005	Boswell, Boudreau, & Tichy *Journal of Applied Psychology*	Spreading of alternatives in response to choice, attitude change	Employees who leave their jobs	Employees who voluntarily leave their job will experience dissonance.	Voluntarily leaving one job for another will result in an initial increase in job satisfaction, which later decreases.
2013	Grandey, Chi, & Diamond *Personnel Psychology*	Self-consistency, self-standards	Insurance employees	Surface acting leads employees to experience dissonance.	In response to this dissonance, employees have lower job satisfaction.

(continued)

Table 3 (continued)

Year	Author(s) and Journal	Relevant CDT Concepts and Approaches	Who Experiences Dissonance	Dissonance Scenario	Outcome(s) Found
2014	Shipp, Furst-Holloway, Harris, & Rosen *Personnel Psychology*	Self-justification, behavioral consistency	Boomerang employees	Employees who left an organization in response to a negative event (as opposed to a positive event such as a job offer) would experience dissonance if they returned to the organization.	Employees who left in response to a negative event are more likely to engage in self-justification to uphold their initial reason for leaving.
Strategy Studies					
2008	Westphal & Bednar *Administrative Science Quarterly*	Discrepancy reduction via behavior, behavioral consistency	Fund managers	CEO ingratiation to fund managers leads the fund managers to experience cognitive dissonance if their actions conflict with the CEO's preferences.	Fund managers avoid dissonance by supporting the CEO's preferences regarding board composition, structure, and diversification, and they are more likely to protect CEO compensation.
2010	Fong, Misangyi, & Tosi *Strategic Management Journal*	Discrepancy reduction via behavior	CEOs	Underpayment and overpayment compared to the "going rate" for CEO pay leads to dissonance in CEOs.	CEOs reduce dissonance by increasing firm size and/or withdrawing from the firm in the case of underpayment and increasing firm profitability in the case of overpayment.
2011	Westphal & Deephouse *Organization Science*	Behavioral consistency, discrepancy reduction	Journalists	CEO ingratiation to journalists	Journalists who were ingratiated by a CEO were less likely to write negative articles about that CEO.
2014	Zhu *Organization Science*	Behavioral commitment, behavioral consistency	Board members	Board of directors' expressed preference for above or below market CEO compensation activates desire to avoid dissonance via behavioral consistency.	Boards support CEO pay levels that are consistent with their previously expressed preferences for above or below market pay.
2014	Zhu, Shen, & Hillman *Administrative Science Quarterly*	Discrepancy reduction, trivialization	Board members	Demographic differences among board members can cause dissonance because of dissimilarities.	Board members are more likely to trivialize demographic differences among new board members if they have other similarities (such as shared prior board appointments) with the new board member.

(continued)

Table 3 (continued)

Year	Author(s) and Journal	Relevant CDT Concepts and Approaches	Who Experiences Dissonance	Dissonance Scenario	Outcome(s) Found
Organization Theory					
2015	Casciaro & Lobo *Organization Science*	Discrepancy reduction, attitude change, selective information processing	Employees in intraorganizational task networks	Preference for cognitive consistency (e.g., avoidance of cognitive discrepancy) affects how employees evaluate the instrumental value of intraorganizational relationships.	Employees evaluate the instrumental value of relationships in a way that is affect-congruent. Selective perception reinforces the effects of affective value on instrumental value, and greater task interaction magnifies these effects.
2015	Le Mens, Hannan, & Pólos *Organization Science*	Self-consistency theory, behavioral commitment	Employees of biotechnology firms	Employees resist organizational change to avoid the introduction of new dissonance.	Age-related structural inertia is due (in part) to dissonance that employees expect to experience after organizational change.
Entrepreneurship					
2010	Ambos & Birkinshaw *Organization Science*	Counterattitudinal behavior, attitude change	Leaders of new ventures	Collective cognitive dissonance occurs between the venture leaders' understanding of the old interpretive scheme and the emerging reality.	Transition between archetypes in science-based ventures is triggered by collective cognitive dissonance; increasing magnitude of conflicting cognitions triggered behavioral and cognitive change.
2015	Huang & Pearce *Administrative Science Quarterly*	Selective information processing, trivialization, behavioral commitment	Angel investors	Conflicting assessment of business viability data and entrepreneur's "gut perceptions" creates dissonance.	Angel investors discounted business viability data that conflicted with their gut feel, using past experience to justify trivialization of business plans for the type of business in question.
Research Methods					
2000	Avital *Organization Science*	Counterattitudinal behavior, effort/ behavioral justification	Management researchers at well-known management schools	Discrepancy between what researchers think about the incorporation of temporal factors into research and what they actually do.	Researchers expressed attitudes that defended their enacted research practices (which conflicted with previously espoused beliefs) about temporal factors.

Free choice. In a multistudy application of the free choice approach within managerial contexts, Arad (2013) found that selection of a job candidate elevated raters' evaluations of that candidate on unrelated individual characteristics, showing their attitudes changed to favor the chosen candidate. Furthermore, they found that random choice between equal alternatives predicted subsequent resource allocation decisions such that participants allocated more resources to their chosen alternative, despite the fact that the choice was completely random.

The role of decision-making autonomy in predicting dissonance and subsequent outcomes has also been examined. Takeuchi, Shay, and Jiatao (2008) found that expatriate subsidiary managers experience dissonance in response to conflicting organizational pressures for global integration and decision-making autonomy because such autonomy in the absence of global integration pressure would encourage them to be more locally responsive. They found that decision-making autonomy positively predicted expatriate adjustment, but in the dissonance condition of high global integration pressure, the benefits of autonomy were suppressed.

Effort/behavioral commitment. Self-justification theory shows how behavioral commitment enacts dissonance (Brockner, 1992; Staw & Ross, 1978). As a result of their desires to justify their decision-making capability, decision makers escalate their commitment to decisions, even though the chosen course of action may no longer be viable (Brockner, 1992). Research examining managers' decisions and resultant escalation of commitment to those decisions often investigates alignment between past decisions and resource allocations, despite feedback that suggests the decision is no longer viable (e.g., Greer & Stephens, 2001; Huang & Pearce, 2015; Sivanathan, Molden, Galinsky, & Ku, 2008).

Other studies focus on individual efforts to maintain behavioral consistency between current and past actions. For example, Zhu (2014) found that members of boards of directors aligned their decisions about CEO pay with their previous experiences on boards; board members' combined experience supporting above (or below) market CEO pay on past boards led to a continued and strengthened commitment to this preference in current CEO pay decisions.

Dissonance

Many studies build on the traditional approach to testing CDT by including dissonance in the theoretical framework but measuring/manipulating only cognitive discrepancy and the expected outcome. Though the process model suggests the negative affective state of dissonance mediates the relationship between cognitive discrepancy and discrepancy reduction, most studies (including CDT studies in social psychology) do not directly measure the psychological discomfort associated with dissonance (Cooper, 2012). Yet some studies have directly measured dissonance as a negative affective state and/or form of psychological discomfort. Wong, Yik, and Kwong (2006) tested three competing theoretical explanations for escalation of commitment, including CDT. Although their study did not find support for the CDT hypotheses, it is one of the few studies that attempted to measure dissonance as a state of negative affect. Additionally, Gino (2008) measured cognitive dissonance with an eight-item scale, finding that individuals who pay for advice are more likely to consider that advice valuable and weight it more heavily than those who receive free advice. However, she did not find a significant relationship between the cognitive dissonance measure and the predicted outcomes. This null result may be due to demand characteristics, as the inclusion of a

dissonance measurement could prime participants to respond in a socially desirable way. There are also timing issues, as dissonance may be resolved by the time the measure is administered (Spencer, Zanna, & Fong, 2005).

Stoverink, Umphress, Gardner, and Miner (2014) elevated CDT predictions to the team level and found that low supervisor-focused interpersonal justice climates elicit team dissonance because normative standards for respectful treatment are violated. Team dissonance mediated the relationship between supervisor-focused interpersonal justice climate and team cohesiveness such that when supervisors violate team expectations for respectful treatment, teams experience dissonance, but such dissonance strengthens team cohesiveness. This conclusion is consistent with dialogue that suggests dissonance processes are not always negative and instead can produce beneficial outcomes for those motivated to reduce dissonance (Harmon-Jones et al., 2009). Bashshur, Hernandez, and Gonzalez-Roma (2011) found support for their CDT-based predictions that incongruence between supervisor and team members' perceptions of organizational support are positively related to team negative affect that, in turn, impedes team performance.

Motivation to Reduce Cognitive Discrepancy

In one of the few studies that focused on entrepreneurship and organizational theory, Ambos and Birkinshaw (2010) elevated CDT to predict changes in venture "archetypes" for different fields of commercial application. Their qualitative study provided evidence that new venture leaders were motivated to reduce *collective cognitive dissonance* at the field level. They concluded that conflicting interpretive schemes regarding new science ventures became harder to ignore as the magnitude of these conflicts increased, and this growing pressure led to motivation to reduce the collective cognitive dissonance by changing the interpretive scheme. Though the collective cognitive dissonance already existed in the organizational field of science-based ventures, it was not until it reached a heightened point that the venture leaders were motivated to resolve this dissonance by initiating a field-level change.

Discrepancy Reduction

Several studies used CDT to predict some form of discrepancy reduction. Festinger (1957) emphasized that discrepancy reduction involves altering the dissonance equation to reduce the magnitude of dissonance experienced. In the following section, we describe each form of discrepancy reduction and highlight its application in management literature.

Attitude. In a qualitative study of employees with dirty (i.e., stigmatized) jobs, Ashforth, Kreiner, Clark, and Fugate (2007) showed that employees adjusted their job attitudes by reframing their view to make it more favorable. Ashforth and colleagues provided examples of how employees reframed the attitudes espoused by public opinion to highlight the positive aspects of their job (e.g., personal injury attorneys cope with the taint associated with their work by asserting that they help to hold manufacturers accountable). Similarly, in a field experiment, Millward, Haslam, and Postmes (2007) found that employees' evaluations of the importance and favorability of assigned (or unassigned) desks, as well as face-to-face (or electronic) communication, favored their assigned conditions, suggesting that employees' attitudes regarding aspects of their job were shaped by attitude-based discrepancy reduction.

In one of the few studies to examine the permanency of attitude change following dissonance, Boswell, Boudreau, and Tichy (2005) found spreading of alternatives in response to voluntary turnover. After leaving one job for another, employees adjusted job satisfaction to favor the new job. However, while satisfaction rose in the short term, it eventually declined, suggesting such discrepancy reduction wears off over time. Casciaro and Lobo (2015) found that the affective value employees place on an intraorganizational relationship predicts employees' perceptions of instrumental value, and this association increased with greater task interaction. They also found that task interaction increased the magnitude of the positive relationship between prior and subsequent affective value perceptions. Using CDT, they suggest that these effects are due to members' desire to seek out consistent information to reinforce existing perceptions.

Behavior. While some studies focus on discrepancy reduction via attitude change, others explore cognitive discrepancy and behavior. Westphal and Bednar (2008) reasoned that CEO ingratiation of fund managers would produce cognitive dissonance for fund managers when their actions conflicted with the CEO's preferences. Ingratiation was positively related to fund managers' support for CEO preferences regarding board composition, diversification, and structure, as well as support for protecting the current level of CEO compensation. CDT suggests that the fund managers aligned their actions with CEO preferences to avoid the dissonance that defying the CEO would create. Similarly, Westphal and Deephouse (2011) found that journalists were less likely to write a negative article about a CEO if that CEO had ingratiated them. CEO compensation also induces dissonance among CEOs when their pay deviates from the market rate. Fong, Misangyi, and Tosi (2010) found that CEOs adjust their behaviors to align with the pay they receive: CEO overpayment led to increases in firm profitability, while underpayment led to greater CEO withdrawal and increases in firm size.

Escalation of commitment. In a multistudy examination, Sivanathan and colleagues (2008) conducted a series of decision-making experiments. Drawing from the self-consistency and self-affirmation models of CDT, they found that self-affirmation of values relevant to the decision (positive feedback regarding decision-making ability) escalated commitment, while self-affirmation of irrelevant values decreased escalation. Furthermore, they found that high self-esteem contributed to de-escalation of commitment. Drawing from and extending self-justification theory (Staw & Ross, 1978), Greer and Stephens (2001) examined escalation of commitment across two cultures. Mexican decision makers were shown to engage in greater escalation of commitment and reported more confidence in their decisions than their U.S. counterparts. However, both sets of decision makers were more likely to escalate commitment when information came from a subordinate, suggesting that tendencies to self-justify via escalation are stronger when negative information is delivered by those with less power.

Trivialization. Trivialization of cognitions as the method of discrepancy reduction (Simon, Greenberg, & Brehm, 1995) is also explored. In a study of performance feedback, Brett and Atwater (2001) found that employees experienced dissonance when they received performance feedback that differed from their self-ratings; they were also more likely to discount discrepant feedback. Dineen, Ash, and Noe (2002) found similar evidence that individuals discounted feedback with which they disagreed. Specifically, feedback on person-organization

fit predicted organizational attraction when agreement was high, but objective person-organization fit was more predictive when agreement was low. Zhu, Shen, and Hillman (2014) demonstrated that boards are more likely to trivialize demographic differences among new board members if they possess other similarities (such as shared prior board appointments) to justify the inclusion of the seemingly dissimilar board member. Finally, Dulac, Coyle-Shapiro, Henderson, and Wayne (2008) showed that employees who enjoy high-quality social exchange relationships in their organizations trivialize a psychological contract breach that occurs in this context.

Selective information processing. Huang and Pearce (2015) found that angel investors paid selective attention to business viability data that confirmed their "gut feel" about an investment. In contrast, they discounted (trivialized) viability data that disconfirmed their decision. In such instances, they were more likely to discount the usefulness of such data on business viability in effectively predicting new venture success. However, evidence suggests that decision makers' tendencies toward confirmation bias and selective information processing can be countered by relying on advisors to inform their decision, as advisors are less prone to these cognitive biases and have stronger accuracy motivations (Jonas & Frey, 2003).

Preference for Cognitive Consistency: Predicting Avoidance of Dissonance Arousal

Some studies rely on the thesis that individuals prefer cognitive consistency to predict that employees will alter their attitudes, behaviors, and other cognitions preemptively to avoid the process of dissonance arousal and reduction. Greenhaus and Powell (2003) suggested that members avoid dissonance by investing time into roles (work or family) they find most salient. Applying CDT to explain structural inertia, Le Mens, Hannan, and Pólos (2015) found that employees resist organizational change to avoid dissonance arising from new organizational structures. Elsbach and Bhattacharya (2001) showed that individuals avoid cognitive discrepancies from incongruence between an organization's image and their self-concept by actively *dis*identifying with the organization. To understand network ties, Schulte, Cohen, and Klein (2012) found that team members send more friendship ties over time to teammates who hold similar perceptions of psychological safety to reduce the likelihood of experiencing dissonance. Shipp and colleagues (2014) demonstrated that, when given a chance to return to their former organization, employees were more likely to return if their reason for leaving was a positive rather than a negative work-related event because returning under the latter condition would create dissonance, whereas the former would not. Finally, Gunia and colleagues (2012) showed that because individuals strive for consistency between their actions and expressed opinions, those who discussed morals prior to making a choice primed themselves to behave more ethically to avoid dissonance between their expressed opinion and subsequent actions.

Boundary Conditions

Outlining a theory's boundary conditions can help scholars assess the practicality, usefulness, and generalizability of the theory because the boundary conditions set "the limitations in applying the theory" (Bacharach, 1989: 498). Such an examination also prompts

introspection regarding the potential for a theory to provide unique predictions beyond the other extant theories in a body of literature. We organize our discussion of CDT's boundary conditions following Bacharach's (1989) distinctions between three types of assumptions that make up a theory's boundary conditions: values, temporal, and spatial assumptions.

Values Assumptions

According to Bacharach (1989), values assumptions provide the implicit foundation for theories and are best understood through historical analyses of the theory and key theorists. The values assumptions that bound CDT are similar to those of other cognitive consistency theories that originated around the same time (e.g., Heider's 1946 balance theory). Though these theories differ in their predictions as to what causes cognitive consistency and how to regain equilibrium if it is interrupted, they share the same underlying assumption that individuals are driven to maintain cognitive consistency.

CDT was introduced in the 1950s as a counterperspective to learning theories, the dominant approach in psychology at that time. The early test of CDT by Festinger and Carlsmith (1959) was considered a challenge to reinforcement theory's assumptions about the influence of extrinsic rewards on individual behaviors (Cooper, 2012). This challenge centered on the assertion that one's behavior is not solely shaped by contextual stimuli (e.g., rewards) but instead is influenced by an interaction between one's cognitions and the contextual elements present. Hence, CDT has enabled scholars to consider the impact of context on important workplace outcomes (Johns, 2006). Festinger's (1957) theory was limited in its ability to make nuanced predictions regarding different variations in interactions between context and cognition; the many theoretical refinements to CDT (reviewed in Table 2) updated the theory to better specify the elements of the discrete context that affect the dissonance arousal and reduction process. Even with these refinements, the predictions made regarding elements that invoke dissonance and/or discrepancy reduction are limited. The dissonance arousal and reduction process (see Figure 2) highlights core assumptions about human cognition and behavior made by the theory. Management scholars often invoke dissonance to describe prolonged negative feelings (e.g., job dissatisfaction), yet CDT alone cannot explain instances where individuals experience prolonged, unresolved dissonance. Without the use of other perspectives, CDT assumes that individuals will engage in some form of discrepancy reduction to return to cognitive consistency. Hence, though the process assumed by CDT provides a grand framework for understanding how cognitions evolve, this generalizability makes it difficult to identify a priori *which* contextual elements will evoke cognitions strong enough to activate the dissonance arousal and reduction process.

To overcome these limitations, management scholars have combined CDT with other more contextually specific theories to pinpoint which cognitions should be relevant in organizational contexts. Indeed, by combining theories, scholars can expand the boundaries and reduce the limitations of each singular theory. Such combinations have enabled scholars to understand how important workplace outcomes are influenced by the *discrete context*——"the particular contextual variables or levers that shape behavior or attitudes" (Johns, 2006: 391).

Recent research has provided some examples of the potential of CDT to make unique contributions to management research because of its ability to account for contextual elements. For example, though high-quality leader-member exchange (LMX) relationships are generally associated with positive outcomes, certain conditions (e.g., organizational change,

unethical leader requests, or a dangerous work environment) may lead employees to experience dissonance and respond in ways that would not be predicted by the norm of reciprocity that is central to LMX theory (Bernerth, Walker, & Harris, 2016). Additionally, recruitment research has applied CDT to studies of fit (e.g., Dineen et al., 2002; Hinojosa, Walker, & Payne, 2015) to address the boundary conditions and complexities of person-environment (P-E) fit theory (Chuang, Shen, & Judge, 2016). For example, Dineen and colleagues (2002) demonstrated that differences between objective fit and subjective fit perceptions led individuals to discount feedback, and as such, fit feedback predicted applicant attraction only in cases that did not produce dissonance. Hinojosa and colleagues (2015) found that when subjective fit perceptions and intentions to apply to an organization did not align, individuals were able to more accurately recall information from Web sites and reported more time viewing those Web sites. Their study supports the action-based model's predictions that dissonance can stimulate increased effort on tasks, as individuals attempt to reduce cognitive discrepancy. These studies promote optimism that CDT combined with P-E fit theory may be a fruitful approach for explaining outcomes counter to those made from P-E fit theory alone.

These examples suggest that the application of CDT alone would limit the predictions and usefulness of these studies. Without combining CDT with other management theories, there would be little to suggest exactly *what* contextual elements would be expected to lead to dissonance. Bacharach highlights this paradoxical trade-off between generalizability and detail: "Generalizability requires a higher level of abstraction, which means that the theory sacrifices the level of detail needed to fit a specific situation" (1989: 500). As such, perhaps the largest limitation associated with CDT's values assumptions is that without additional theoretical supplements for processes that do not clearly fit with the self-standards model of dissonance, there is little information to predict *which* cognitions will be relevant in the dissonance process.

Temporal Assumptions

Temporal assumptions reflect the historical (and future) applicability of the theory (Bacharach, 1989). To our knowledge, there are few temporal assumptions regarding CDT. There is little reason to suggest that individuals will have fundamentally different responses to cognitive discrepancy now than they did in the early studies of dissonance or than they will in the future. Nevertheless, while CDT does not appear to have temporal boundaries, the temporal elements of the theory require explication (which we discuss more in the following section). Furthermore, though our analysis and review of the literature did not lead us to any apparent temporal boundary conditions, this does not rule out the possibility that such conditions will become evident in future scholarly activity invoking CDT.

Spatial Assumptions

Spatial assumptions define the units and levels of analysis to which the theory applies (Bacharach, 1989). CDT's spatial boundaries are tested and expanded in current research, and we expect this trend to continue. Early development focused on individual cognitions as reactions to a stimulus, limiting boundary conditions to the individual level of analysis. Though the original theory focuses on the within-person level of analysis, it was heavily tested with between-person research designs until recently (Harmon-Jones et al., 2009).

While there is more to be done to refine the theory's predictions at other levels, recent management research has begun to test and extend CDT to other levels of analysis, including groups/teams (Bashshur et al., 2011; Stoverink et al., 2014), network ties (Schulte et al., 2012), and even organizational fields (Ambos & Birkinshaw, 2010). Recent work in social psychology has explored vicarious dissonance (cf. Cooper, 2012) with potential to explore vicarious dissonance in an organizational context. Exploration of organizational identification could expand the spatial boundaries of CDT by investigating vicarious dissonance experienced by employees in response to organizational actions (e.g., lobbying, policy guidelines, responses to litigation, or ethical breaches). This application could also extend to dyadic relationships at work (e.g., supervisor-subordinate, or employee-customer). Furthermore, though the original theory focuses on the within-person level of analysis, it was heavily tested with between-person research designs until very recently (Harmon-Jones et al., 2009). Hence, though recent research in management has begun to expand the boundary conditions of CDT beyond the individual level of analysis, how the theory operates at these levels is much less clear, and as such, the current boundaries of the theory beyond the individual level of analysis are still unclear. In the following section, we discuss the need for management scholars to use research designs that align with the theory's spatial assumptions to appropriately explore and test the boundary conditions of CDT.

Discussion and Implications for Future Research

As is evident from Figure 1, the application of CDT across top management research outlets is extensive and expanding. With its broad applicability, CDT can be integrated with many other theories, even if the study was not framed with CDT in mind. We reviewed management studies with CDT as a foundational theory, yet our article collection and analysis identified studies citing CDT to support hypotheses while not fully integrating it into theory development. Such tangential applications often reflect an incomplete, dated, or inaccurate understanding of the theory and may obfuscate potential insights to be gained from a more informed application of CDT. This potential is apparent from the articles in our review that draw from the extant CDT literature to strengthen their theoretical foundations and design and thereby make original and important contributions to their respective fields of management.

On the basis of the themes identified through our review, we suggest a number of ways future research can further build on management applications of CDT (see Table 4). Additionally, we highlight a number of areas where management research could contribute to the extension of CDT in its own right (not just a contextual test of CDT in a management setting). We divide these recommendations into three general categories: general, methodological, and theoretical.

General Recommendations

As part of our consideration of boundary conditions, we suggest that exploring temporal assumptions that underlie CDT in an organizational context constitutes a fruitful avenue for future research. Here, we consider temporal issues related to CDT not simply as a contextual issue but as a fundamental element of dissonance processes within organizations that merits greater consideration. Research in a variety of management disciplines could benefit from examining the temporal nature of the dissonance process. This focus would complement the

Table 4
Implications for Future Research

Recommendations	Research Questions	Possible Management Subject Area
General		
Examine the temporal nature of the dissonance process	How do the ebbs and flows of dissonance experiences influence individuals' response to various stimuli?	Emotional labor, ethical decision making, new venture decision making
Consider the possibility that dissonance can be positive because it motivates action	When can discrepancy reduction processes be beneficial to individuals and organizations?	Performance management, training
Identify possible boundary conditions (e.g., individual characteristics of situation) of CDT	What key situational and individual characteristics predict whether motivated discrepancy reduction is beneficial or harmful?	Managerial decision making (new ventures and established organizations), organizational behavior, escalation of commitment
Examine how dissonance processes unfold at multiple levels	What are the differences in dissonance arousal and reduction processes at group and organizational levels? How does vicarious dissonance affect interdependent members in teams and organizations?	Teams in organizations, leader-follower dyads, organizational identification, dissonance in change management
Consider the possibility that one can manage others' dissonance	Can managerial decision makers (e.g., leaders, CEOs, supervisors) influence how others experience dissonance?	Leadership research, TMT research, organizational image and identity management, stakeholder management
Methodological		
Incorporate advanced research designs and methodology to more precisely measure attitude change	When does attitude change as a form of discrepancy reduction occur, and how long does this effect last? Do the forms of discrepancy reduction have differing levels of permanency?	Emotional labor, escalation of commitment in managerial decision making, job satisfaction, recruitment and job choice
Utilize polynomial regression to better capture congruence between cognitions and examine the varying levels of congruence among cognitions	How does the magnitude of discrepancy between two or more cognitions influence the chosen form of discrepancy reduction?	Emotional labor, escalation of commitment in managerial decision making, job satisfaction, recruitment and job choice
Theoretical		
Self-consistency model of CDT	Is the relationship between core self-evaluations and job performance explained by the link between high self-esteem and effective discrepancy reduction?	Job performance, core self-evaluations

(continued)

Table 4 (continued)

Recommendations	Research Questions	Possible Management Subject Area
	Are entrepreneurs with higher self-esteem more effective in reframing venture failure as a learning experience?	Entrepreneurship and new venture failure
Self-affirmation model of CDT	When negative performance feedback is offered with a self-affirming statement, do employees trivialize the feedback to reduce dissonance or respond by increasing their openness toward the negative feedback?	Performance appraisal and performance management
	How do charismatic leaders utilize self-affirmation to induce discrepancy reduction in their followers?	Leadership and followership
Self-standards model of CDT	What group and organizational processes are most effective at signaling normative standards to change employees' attitudes (e.g., organizational commitment, reactions to training, support for organizational ethics policies)?	Change management, signaling theory, training, organizational commitment, organizational policies
	What role does employee self-concept play when both normative and personal standards are salient (e.g., during employee interviews, performance feedback)?	Recruitment and selection interviews, performance appraisal
Action-based model of CDT	Does job-related dissonance increase effort on job tasks? Can job performance be enhanced by inducing dissonance and facilitating discrepancy reduction?	Job performance, job motivation
	Are highly action-oriented entrepreneurs more resilient as a result of discrepancy reduction after venture failure?	Entrepreneurship, new venture failure
	Can training and development programs induce dissonance to increase effort and improve effectiveness in discrepancy reduction?	Training, development

Note: CDT = cognitive dissonance theory; TMT = top management team.

growing stream of research centered on creating, testing, and extending temporal theories in management (Ancona, Okhuysen, & Perlow, 2001). At its core, CDT suggests a specific order of events for dissonance arousal and reduction (see Figure 2). Management research, which is often conducted outside of a laboratory setting, has a unique opportunity to explain the CDT process in a noncontrived setting. Spector and Meier (2014) suggest that process research should focus on a mixture of methods to better understand how processes develop. Some researchers have already begun to incorporate a temporal perspective of CDT into studies of process, as illustrated by Shipp and colleagues' (2014) extension of the unfolding model of turnover to boomerang employees (employees who leave but are later rehired). Ambos and Birkinshaw (2010) used a qualitative design to reveal the cognitions that transpire among new venture leaders in response to a variety of changing forces within the field of science-based ventures. Other work could follow these examples and uncover the temporal dynamics of the dissonance process within other areas of management research. For example, studies on emotional labor could examine the ebb and flow of dissonance experiences in everyday interactions. Research on ethical decision making could further extend Gunia and colleagues' (2012) work to uncover variations in ethical decision making that might occur at each step of the dissonance arousal and reduction process.

An examination of how temporal antecedents and responses to dissonance vary across individuals and contexts could also help explain why dissonance sometimes yields positive outcomes (e.g., motivating one to act; Harmon-Jones et al., 2009) while at other times producing counterproductive results (e.g., escalating one's commitment; Sleesman et al., 2012). Although Festinger's (1957) theory suggests an end result of discrepancy reduction, management research often invokes the concept of dissonance to explain negative employee outcomes (e.g., lower job satisfaction). Because dissonance creates an uncomfortable state of tension for those who experience it, it can be particularly damaging to their well-being. Studies could explore the contexts and individual attributes that explain why and when some people engage in discrepancy reduction while others continue to experience dissonance. Such studies may reveal that the negative outcomes of dissonance (e.g., lower job satisfaction) are offset by positive rationalizations over time (e.g., "I'm okay with a job that doesn't match my career aspirations because I am able to go home to my family every day at five without having to take work home"). Alternatively, scholars may find that trivializing the importance of job satisfaction (e.g., "I don't have to like my job, as long as it pays the bills; that's what's important") is a more common and/or impactful tactic. To answer such questions, it may be fruitful to examine CDT in combination with other motivation theories. For example, the preceding questions suggest that individuals may reduce dissonance by focusing on the needs they are best able to meet; hence, it may be fruitful to integrate CDT with Alderfer's (1972) theory of existence-relatedness-growth needs and his frustration regression hypothesis. Future applications of CDT within management research should seek to further explore and clarify these temporal processes.

Management scholars should also consider the implications of CDT beyond the individual level by examining dyadic-, group-, organizational-, and field-level processes. For example, though it is still very new, some management scholars have extended CDT to explain team processes (Bashshur et al., 2011; Stoverink et al., 2014), network ties (Schulte et al., 2012), and field-level changes (Ambos & Birkinshaw, 2010). Future management research can further extend this work to better understand how dissonance processes unfold at each level.

Finally, as a general recommendation, we encourage future research to consider the possibility that one can manage others' dissonance. A great deal of management research incorporates the understanding that actors are concerned with managing impressions and the image others have of them (Bolino, Kacmar, Turnley, & Gilstrap, 2008). CDT research, in combination with impression management theory, may identify effective strategies that individuals and organizations can use to manage others' dissonance. For example, how do different strategies used by charismatic leaders and transformational leaders help followers reduce dissonance? How do firms manage the dissonance experienced by various stakeholders, and which strategies are best able to reduce dissonance for each set of stakeholders?

Methodological Recommendations

Future research incorporating more advanced designs and methodologies would allow for more precise tests of CDT. Management scholars have published a number of guidelines on creating, testing, and extending research involving change. Methodological opportunities are available to examine *change* as a focal construct (Ployhart & Vandenberg, 2010), as Festinger (1957) suggested that individuals will alter the cognition that is least resistant to change in response to dissonance. As is the case for counterattitudinal behaviors, the least resistant cognition is often an attitude; thus, many CDT predictions suggest attitude change. Yet much research built on this assertion does not actually model or examine the within-person change. Instead, between-group tests that reveal greater attitudinal change for treatment groups exposed to dissonance stimuli than for control groups have been used. Although these findings are indeed important, the sophisticated research methods developed by management scholars to model and examine change processes could be applied in conjunction with CDT to further investigate the *within-person* process of dissonance arousal and reduction via attitude change.

Management research could also promote a richer understanding of CDT through the application of research designs that examine the effects of varying levels of congruence among cognitions using polynomial regression (Edwards & Parry, 1993); the design used by Bashshur and colleagues (2011) could serve as a prototype. Another core assertion of Festinger's (1957) theory was that when cognitions do not align, the amount of incongruence will predict the magnitude of dissonance experienced. Management research could explore the impact of incongruence on dissonance and discrepancy reduction across contexts. For example, research on escalation of commitment and selective information processing among managerial decision makers (e.g., top managers, recruiters, angel investors) could manipulate the level of inconsistent information received to prime varying levels of incongruence in cognitions and then use polynomial regression to examine the impact of this incongruence on the dissonance process. Such research might ask: What might the tipping point be that leads decision makers to choose a different course of action rather than escalating their commitment to a chosen course of action?

Theoretical Recommendations

Future research would also benefit from applying theoretical extensions of CDT discussed earlier versus relying only on Festinger's (1957) original propositions. Doing so will allow scholars to develop more refined conceptual frameworks to examine important workplace

phenomena. The action-based model suggests that dissonance processes are generally functional for people, countering popular views that discrepancy reduction in response to dissonance is maladaptive. Research in management might extend these predictions to understand the potential positive benefits of dissonance in a variety of contexts, such as training, entrepreneurial success, and employee motivation. Additionally, the self-standards model could be applied to understand the dissonance process in organizational contexts that prime both normative and personal standards (e.g., employee interviews, performance feedback).

Conclusion

Management research is often cited as a field full of theory borrowing (Whetten et al., 2009). Done well, this can add richness to the theory's field of origin by testing and extending theoretical boundaries in an organizational context. Theory borrowing also has potential limitations. In particular, if a key contribution of theory borrowing to the field of management is to provide explanatory and predictive power in organizational settings, and test the boundaries of the original theory in this context, it is essential that the borrowed theory is correctly specified. If it is not, the theory's application to the organizational context may be discounted or overstated.

In our review, we suggest that one such theory that has been applied in many microlevel organizational studies is CDT, yet many of the management constructs that stem from dissonance theory have lost touch with developments in the field of origin. In our review, we aimed to accomplish three objectives: We sought to synthesize key management research that has incorporated CDT, we attempted to provide a clear review of theoretical insights that have extended the theory since its early introduction, and we sought to provide a road map for future research that could build on the considerable progress that has been made to CDT in both the social psychology and management literature. We hope that this review serves to stimulate further theory development and empirical investigations into the manifestations and effects of cognitive dissonance within organizational contexts.

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