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Decision-Making Biases and Affective States: Their Potential Impact on Best Practice Innovations

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Abstract

Contributions from the decision-making literature concerning biases and heuristics (i.e., anchoring, framing, confirmatory and availability biases, overconfidence, and representativeness) and from the Affect Infusion Model (Forgas, 1995) are integrated into Rogers's (2003) conceptualization of the stages of innovation adoption and diffusion. Specific propositions based on the decision-making and affect literatures are made in relation to each stage of the innovation process (knowledge of innovation, persuasion, decision, implementation, and confirmation) to better understand the likelihood of a manager making an informed and appropriate decision concerning the adoption and implementation of best practices. Copyright © 2010 ASAC. Published by John Wiley & Sons, Ltd.

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Keywords: affect, best practices, decision making, heuristics, innovation

Résumé

Dans cet article, des contributions issues des publications sur la prise de décision et relatives aux partis pris et à l'heuristique (c'est-à-dire l'ancrage, le cadrage, les biais de confirmation et de disponibilité, la suffisance et la représentativité) et sur le Modèle d'infusion d'affect (Forgas, 1995) sont intégrées dans la conceptualisation que Rogers (2003) a proposée des étapes de l'adoption et de la diffusion de l'innovation. Les propositions spécifiques basées sur les publications sur la prise de décision et l'affect sont faites par rapport à chaque étape du processus d'innovation (la connaissance de l'innovation, la persuasion, la décision, l'exécution et la confirmation) pour mieux comprendre la probabilité qu'un directeur prenne une décision bien informée et appropriée par rapport à l'adoption et à la mise en œuvre des meilleures pratiques. Copyright © 2010 ASAC. Published by John Wiley & Sons, Ltd.

Mots-clés : affecter, meilleures pratiques, prise de décision, heuristique, innovation

The adoption and implementation of a best practice is an organizational innovation filled with ambiguity as it involves selecting from an array of choices and convincing stakeholders to support its adoption and implementation,

which is followed by efforts to assess its effectiveness in the new organizational context (Schendel & Hitt, 2007). An *innovation* is "an idea, practice, or object that is perceived as new by an individual, or other unit of adoption" (Rogers, 2003, p. 12), and a *best practice* as adapted from Szulanski (1996, p. 28) is "a practice that is performed in a superior way . . . and is deemed superior to internal alternative practices."

When decision makers in one organization adopt a best practice, an innovation is being diffused from one organization to another. As described by [Rogers \(2003\)](#), the

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diffusion process follows a pattern common to many different types of innovation. His model has five stages: (a) knowledge of the innovation, (b) persuading oneself of its value, (c) making the decision to adopt or reject it, (d) implementing the innovation, and (e) confirming the effectiveness of the innovation.

In their review of behavioural decision theory, [Hodgkinson and Healey \(2008\)](#) identified various decision biases and heuristics ([Tversky & Kahneman, 1974](#)) that can impede decision making. From a re-examination of published studies, [Watson and Tellegen \(1985\)](#) concluded that positive and negative affect are orthogonal dimensions of the general structure of moods rather than opposite ends of a bipolar construct. They defined positive affect as “the extent to which a person avows a zest for life” and negative affect as “the extent to which a person reports feeling upset or unpleasantly aroused” ([Watson & Tellegen, 1985, p. 221](#)). A decision maker’s affect, whether positive or negative, however, may influence the decision process so as to moderate the effects of biases on decision making ([Forgas, 1995](#); [Forgas & George, 2001](#); [Isen, 2000](#); [Weiss & Cropanzano, 1996](#)). We applied Forgas’s (1995) affect infusion model (AIM) to clarify the joint effects of affective states and biases on best practice decisions made by individuals. Affect infusion is defined as “. . . the process whereby affectively loaded information exerts an influence on, and becomes incorporated into, the judgmental process, entering into the judge’s deliberations and eventually coloring the judgmental outcome” ([Forgas, 1995, p. 39](#)).

There is mixed evidence about whether adopting and implementing a best practice leads to or thwarts a particular goal such as improved performance ([Arthur, 1994](#); [Becker & Gerhart, 1996](#); [Harrington, 2004](#); [Huselid, 1995](#); [Pfeffer & Sutton, 2006](#)). Although prescriptive suggestions for improving best practice outcomes have been proposed ([Bazerman, 2006](#); [Kanter, 1984](#)) and literature has accumulated concerning the diffusion of innovations, there is no systematic analysis of the failures potentially due to the biases and affective state of a decision maker. Instead, cases are described in which innovations or best practices have failed or succeeded ([Arthur, 1994](#); [Becker & Gerhart, 1996](#); [Harrington, 2004](#); [Huselid, 1995](#); [Pfeffer & Sutton, 2006](#)), models of the diffusion of innovation processes are proposed (e.g., [Agarwal & Prasad, 1997](#); [Mahajan, Muller, & Wind, 2000](#)), and advice is offered on how to manage the best practices process ([Bazerman, 2006](#); [Kanter, 1984](#)). Diffusion of innovation investigations are largely field and case studies from a variety of disciplines (e.g., communication, marketing, management, sociology, geography). We incorporated decision making and affect variables into this diverse domain by developing a model and making propositions to clarify how diffusion decisions may be made by individuals. Merging the best practices processes with the stages of innovation diffusion can reveal insights into why best practices may fail in a new organizational context.

We applied the concepts of decision-making biases ([Tversky & Kahneman, 1974](#)) and incorporated the role of affect in decision-making processes ([Forgas, 1995](#)). We treated individual decision makers as inherently rational, and then addressed how biases and affect may cause them to deviate from rationality when considering the adoption of a best practice. Though many best practice decisions are made in a social context, the biases and affective states we examined are embedded in individuals and thus we deliberately focused on individual decision makers.

We first present a brief discussion of some of the characteristics of best practices and best practices as a managerial decision and an innovation, thus providing an overview of the complexity inherent in evaluating and choosing best practices. This complexity makes difficult the disentangling of decision biases and affective states that impact the diffusion process. Next, we present the constructs upon which our theoretical propositions are derived. Finally, we develop propositions that detail how specific decision biases, heuristics, and affective states likely impact each stage of the innovation diffusion process as a best practice is identified, adopted, and evaluated.

Complexity of Best Practice Decisions

Research is mixed on whether adopting a best practice is beneficial for the performance of the adopting organization. Adoption and implementation of various human resource best practices is associated with higher levels of profitability and performance ([Arthur, 1994](#); [Becker & Gerhart, 1996](#); [Huselid, 1995](#)), but findings ([Harrington, 2004](#); [Pfeffer & Sutton, 2006](#)) also indicate that adoption of best practices can adversely affect a firm’s performance on measures such as the value added per employee, return on investment, and customer satisfaction. A significant number of best practice efforts fail ([Harrington, 2004](#); [Pfeffer & Sutton, 2006](#)). For example, 15% to 50% of all Total Quality Management (TQM) efforts in the early 1990s within the US were unsuccessful ([Harrington, 2004](#)).

Failures may be due to poor adjustments or adaptations of the best practice to the idiosyncratic needs of a firm. [Fitzenz \(1997\)](#), [Harrington \(2004\)](#), and [Pfeffer and Sutton \(2006\)](#) asserted that best practices must be tailored to each organization. [Harrington \(2004\)](#) showed that success requires adapting best practices to the performance level of the company. Even though failure of a best practice is likely to be most salient during or after implementation, examination of the earlier stages of the diffusion process may also reveal multiple causes for such failures ([Agarwal & Prasad, 1997](#)). Failure of TQM implementations may be due to lack of proper initial framing by top management ([Reger, Gustafson, DeMarie, & Mullane, 1994](#)). Benefits of a best practice will more likely emerge when there is a supportive culture and an adaptive foundation prior to adoption

(Burke, 2002; Grant, Shani, & Krishnan, 1994). It also may be that social networking among managers results in the sharing of industry-specific recipes (Spender, 1989) that are inappropriately adopted without careful evaluation of the risks.

Adopting a best practice is undeniably both uncertain and risky. Managers' motivation to maintain certainty and security is often associated with relatively conservative, conforming decisions (Mowen, 1993). Conservative decisions tend to be preferred over higher payoff, riskier decisions when the manager's current situation is favourable (Bazerman, 2006; Gray & Tallman, 1984; Tallman & Gray, 1990; Tversky & Kahneman, 1974). Furthermore, many decisions about best practices, such as adopting a new manufacturing process, information technology, or medical procedures, are strategic in nature. Therefore, they often require substantial resources for implementation with the expectation that adoption will lead to improved organizational performance (Schendel & Hitt, 2007).

Factors Affecting Innovation and Decision Processes

We present a brief overview of concepts from three disparate literatures: Rogers (2003) model of diffusion of innovation, Forgas' (1995) affect infusion model, as well as Tversky and Kahneman's (1974) framework of decision-making biases and heuristics. We then integrate these concepts and develop propositions in an effort to enhance understanding of the factors contributing to the success or failure of the diffusion of innovations in organizations.

Model of Diffusion of Innovations

There are five stages in Rogers's (2003) model of the diffusion of innovations. During the first stage, *knowledge*, a manager may become aware of an innovation either through a passive information-seeking process such as conversations with sales people or colleagues who have observed a practice at another organization, or through active means such as seeking a solution to an existing organizational problem. The second stage, *persuasion*, refers to formation of a favourable or unfavourable attitude toward the innovation. In this stage, a manager seeks additional information about the innovation, including potential gains and costs, and becomes more psychologically involved with it. While the knowledge stage is primarily cognitively-based, the persuasion stage is affect-based (Rogers, 2003). During the third stage, *decision*, the practice is either adopted or rejected. The fourth stage is *implementation*, wherein the key concern is how to use the innovation to achieve organizational objectives. During the final stage, *confirmation*, the manager seeks evidence to support or to refute the efficacy of the adoption.

Affect Infusion Model (AIM)

The AIM (Forgas, 1995) assumes that decision makers prefer to minimize their information processing efforts and to focus on a limited range of information about the target decision (its familiarity, typicality, and complexity). Further, the model incorporates variables concerning the decision maker (personal involvement, motivation, affective state, cognitive capacity), and pragmatic situational factors (e.g., need for accuracy, availability of objective criteria, need for social desirability). The AIM assumes that the type of information processing strategy used will impact the effect of mood on judgements differently. For example, open information search strategies require constructive thinking (Fiedler, 1990), while closed strategies involve more predetermined and directed search (Forgas, 1995).

Four judgement processes (direct access, motivated processing, heuristics, and substantive) comprise the AIM. Two of these, heuristic and substantive processing, require more open-ended search processes and constructive thinking, and are particularly relevant to innovation decisions; conversely, direct access and motivated processing involve directed searches and limited constructive processing thereby reducing the scope of affect infusion effects (Forgas, 1995). Although both heuristic and substantive strategies entail open search processes, the heuristic process is more likely when the decision context is relatively simple and typical, and the decision maker is not particularly motivated or personally attentive to it (Forgas, 1995). Substantive processing is more likely when the decision is complex or atypical, and the decision maker is motivated.

According to Forgas (1995), affect infusion is most likely when substantive information processing occurs, meaning that existing cognitive representations of information or issues will be transformed rather than merely reproduced. Furthermore, such substantive processing requires a relatively open search for information consistent with "... active generation of new information ..." (Fiedler, 1990, p. 2). Affective states impact cognition and judgements by "influencing the availability of cognitive constructs used in the constructive processing of information" (Forgas, 1995, p. 41). Affect is likely to influence complex or atypical decisions through an affect-priming mechanism as "... affect can prime the encoding, retrieval, and selective use of information" (Forgas, 1995, p. 44). Priming can also influence the kind of associations and interpretations made about complex and indeterminate information. As Forgas has suggested, "... being in a good mood should lead to judges paying closer attention to positive information, better learning such details, making more positive interpretations of ambiguous information, and having a better memory for such details later" (p. 44).

Decision-Making Biases and Heuristics

Among other things, [Tversky and Kahneman \(1974\)](#) described six biases/heuristics—framing, anchoring, availability, confirmation, overconfidence, and representativeness—that we connected to the various components of the decision-making process concerning best practice adoption. Below we briefly describe each of the biases and heuristics before addressing their application to the diffusion process.

Decision issues, such as whether to adopt a best practice, may be *framed* in terms of a gain or a loss (Tversky & Kahneman, 1974) whereas decision makers *anchor* their search for information based on the initial problem definition, especially when the context of the problem is ambiguous (Hammond, Kenney, & Raiffa, 1998). Information selection biases include *availability*, the tendency to assume that easily recalled events are more likely than hard-to-recall ones, and *confirmation*, the preference for evidence that supports rather than refutes a decision (Tversky & Kahneman, 1974). Decision makers tend to be *overconfident* about the accuracy of their forecasts (Hammond et al., 1998; Miller & Ross, 1975), such as predicting the success of a best practice. The *representativeness* decision-making heuristic occurs when decision makers ignore base rates of events when predicting likely outcomes (Tversky & Kahneman, 1974).

Decision Biases and Affective States within Stages of Diffusion

Within each stage of the innovation diffusion process, there is potential for error as a result of decision biases, heuristics, and the affective state of decision makers. We now examine the impact of each decision bias/heuristic as well as the effect of a positive or negative affective state on each stage of the diffusion process. Each stage is treated as separate and distinct and follows the sequence presented by [Rogers \(2003\)](#). Figures 1 through 6 summarize the propositions we develop below.

Framing

When managers decide to adopt a best practice, they are departing from the status-quo. Status-quo is a decision trap ([Hammond et al., 1998](#)) characterized by a preference for doing things as they have been done because it is familiar and perceived to be safe. In competitive environments, however, managers often cannot afford to simply maintain the status-quo.

How the need for change is defined or framed affects managers' decisions. Specifically, a decision to adopt or reject change can be framed in terms of possible gains or losses (Hammond et al., 1998; Tversky & Kahneman, 1974). Research concerning prospect theory suggests that

Figure 1.
Relationship between affect, framing, and best practices adoption

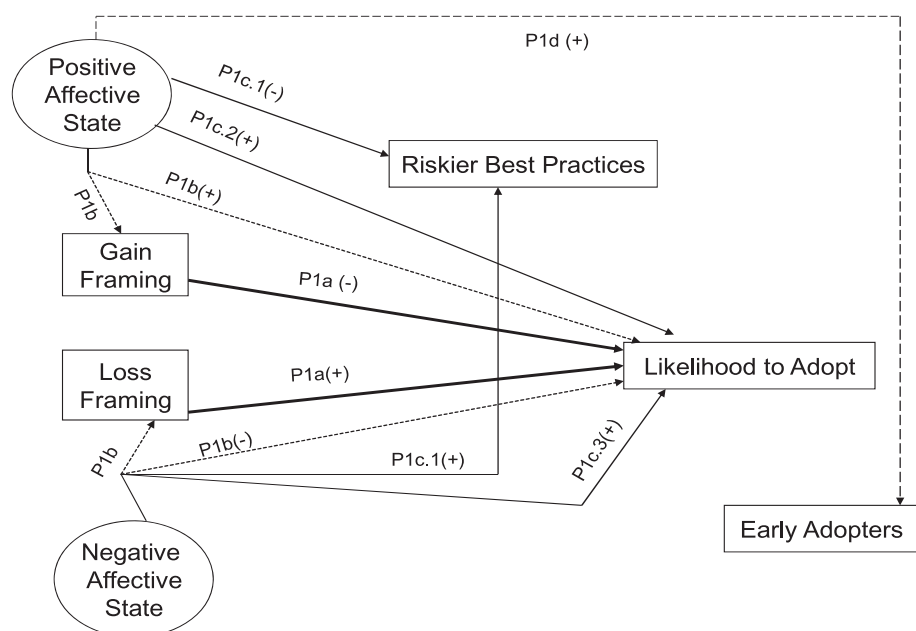


Figure 2.
Relationship between affect, anchoring, stages, and best practices failure

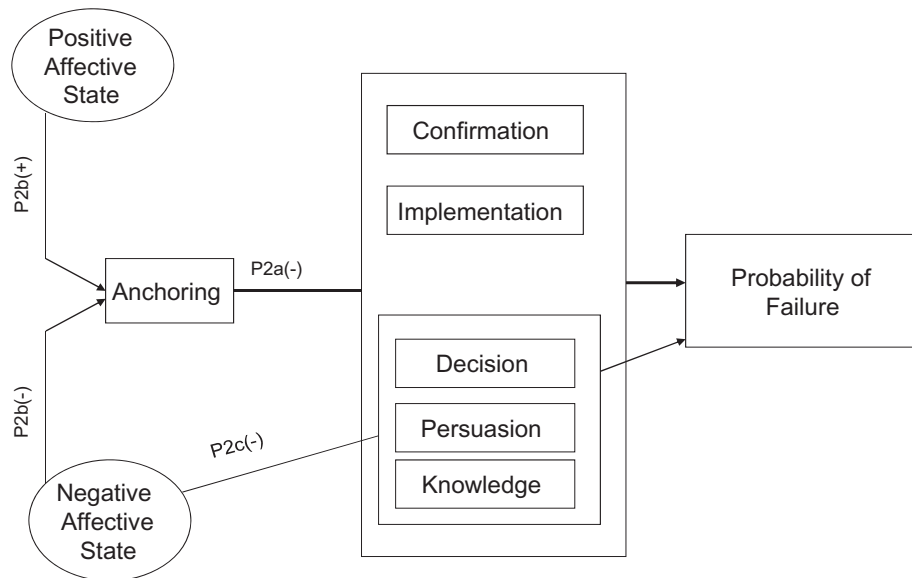


Figure 3.
Relationship between affect, availability bias, stages, and best practices failure

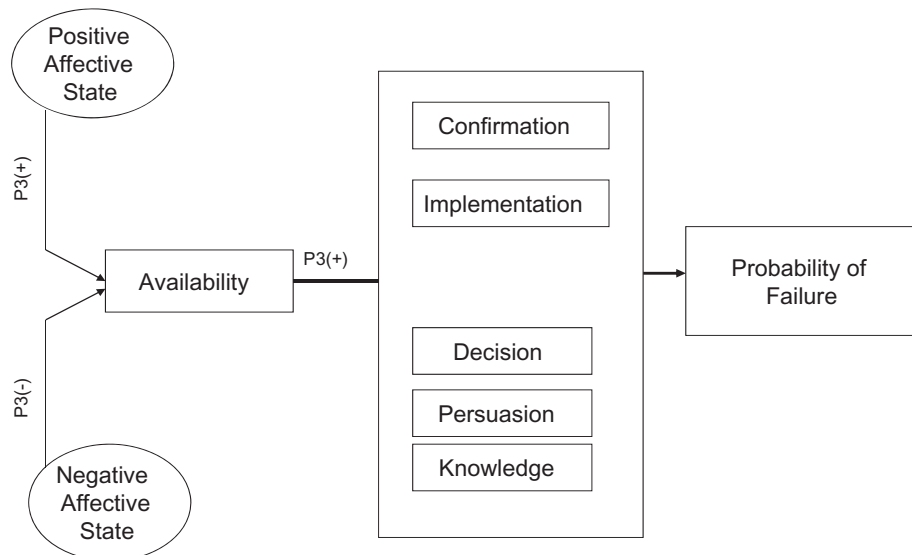
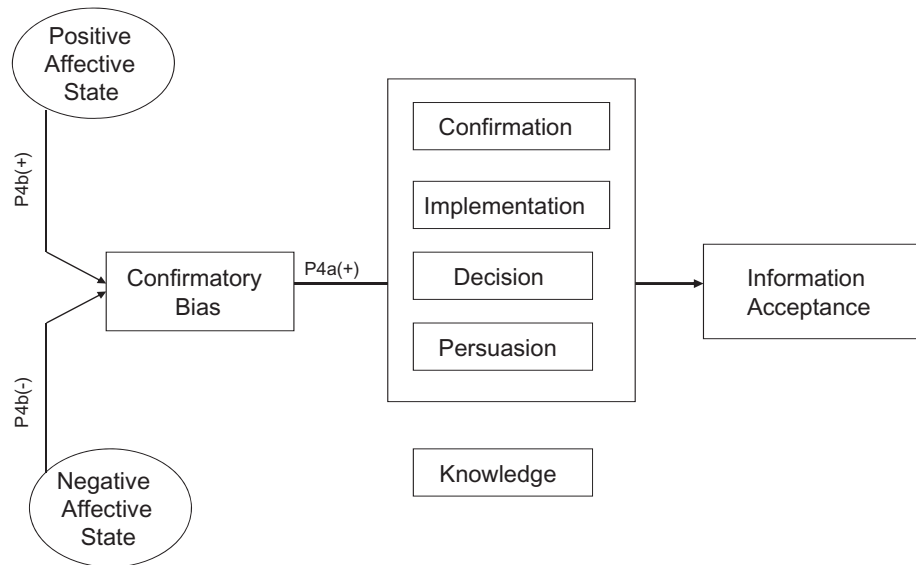


Figure 4.

Relationship between affect, confirmatory bias, stages, and information acceptance

*Figure 5.*

Relationship between affect, overconfidence, stages, and accurate predictions

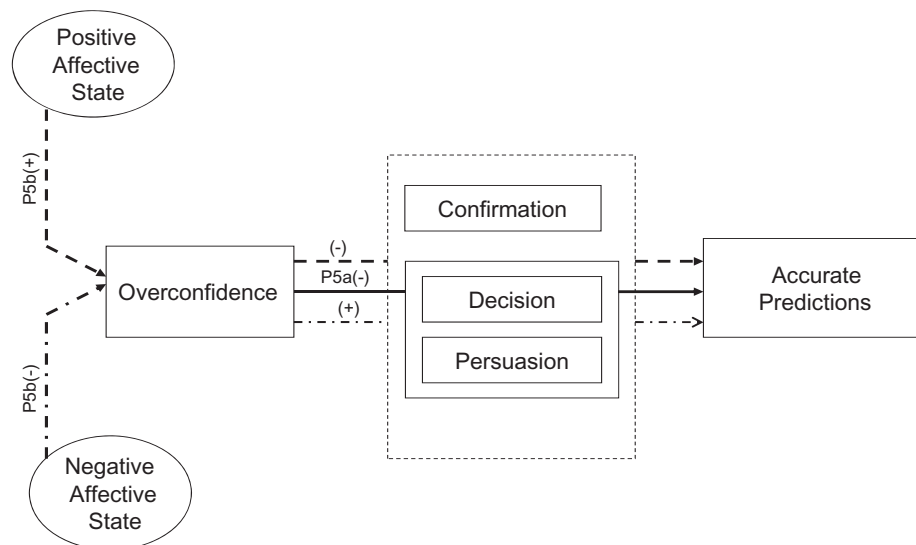
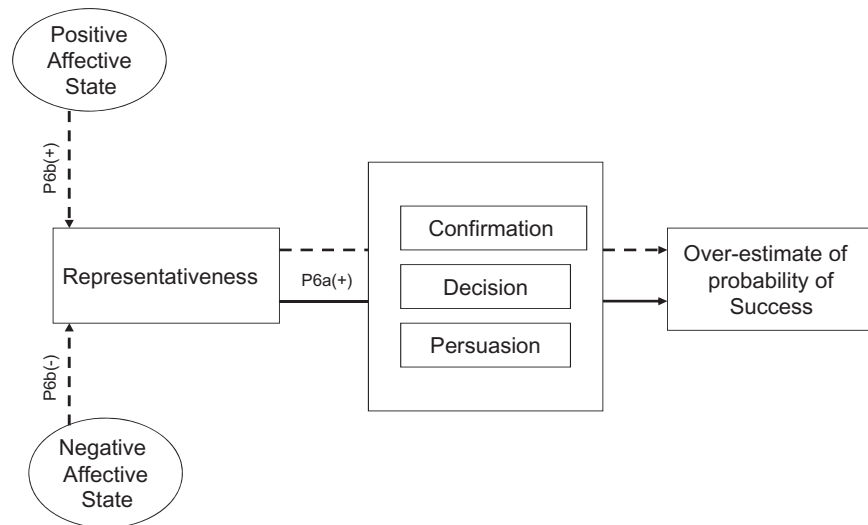


Figure 6.

Relationship between affect, representativeness, stages, and best practices success



when individuals contemplate pursuing change from a gain perspective, they tend to be risk-averse, making more conservative decisions (Hammond et al., 1998; Kahneman & Tversky, 1979). However, when the motivation underlying a decision to pursue change is to avoid loss (i.e., a loss frame is adopted), individuals assume more risk by making bolder decisions. Research suggests that people generally “have greater fears of a loss than excitement about the benefits of a gain” (Roxburgh, 2003, p. 30). For example, if competitors are perceived as implementing a best practice, managers may view the decision to adopt that same practice from a loss frame (e.g., reduce loss of market share) versus a gain frame (e.g., increase market share). When managers perceive a probable loss of valued resources by not adopting a best practice, they are likely to feel threatened with the prospect of falling behind their competition. Research involving both undergraduate students and experienced managers supports these framing biases (Bateman & Zeithaml, 1989; Hodgkinson, Bown, Maule, Glaister, & Pearman, 1999). Accordingly (as per Figure 1):

Proposition 1a: Framing a best practice in a gain (1a.1) or loss (1a.2) frame will decrease or increase the likelihood that decision makers will adopt the best practice, respectively.

Contrary to the predictions of prospect theory that framing an issue as a gain will lead to risk-averse choices, affective state research suggests that an individual with positive affect will focus on the positive information about the best practice and develop a favourable attitude toward

it (Ashton-James & Ashkanasy, 2008; Forgas, 1998; Mano, 1992; 1994). As such, they are likely to approach the best practice from a gain frame, view the best practice as a certain gain, and ultimately choose the riskier option of adopting the best practice (Johnson & Tversky, 1983; Mittal & Ross, 1998). Conversely, an individual with negative affect will be somewhat skeptical about the best practice, focus on or search for negative information available about it, and develop an unfavourable attitude toward it (Brief, Burke, George, Robinson, & Webster, 1988). The negative affective state is likely to lead to framing the best practice as a “loss” and choosing the risk-averse option (i.e., staying with the status quo).

Proposition 1b: Decision makers with positive (negative) affect will frame a best practice as a gain (loss) and be more likely to adopt (reject) the best practice (Figure 1).

As described, research shows that negative affective states are associated with choice of risk-averse alternatives while positive affect is associated with riskier choices (Johnson & Tversky, 1983; Lerner & Keltner, 2000; Mano, 1992; 1994; Mittal & Ross, 1998). On the other hand, Isen and Patrick (1983) argued for a “mood maintenance” hypothesis in which individuals experiencing positive affect avoid risk to maintain their good mood while others experiencing negative affect take risks to reverse or end the state. While considerable research supports prospect theory, these studies have not addressed in much detail why decision makers make their choices. Mood maintenance and reduced

attention and information processing capacity offer potential explanations for these choices.

Similarly, regarding best practices, we expected positive affect to lead to a positive awareness and information processing during the knowledge stage, and to a positive attitude during the persuasion stage. To maintain mood congruence, adopting a best practice was framed from a gain perspective by decision makers high in positive affect, which suggests (consistent with prospect theory) that they will remain risk averse and reject the best practice (i.e., maintain the status quo). However, as noted above, this is inconsistent with an affect-based prediction (wherein positive affect is expected to *reduce* the likelihood of staying with the status quo).

On the other hand, in accordance with prospect theory and the mood maintenance hypothesis, negative affect may cause the decision maker to frame the best practice from a loss perspective (i.e., a loss associated *with not* adopting a best practice), in which case he/she will be willing to assume the greater risk associated with adopting a best practice. The above discussions lead to mixed results for the knowledge, persuasion, and decision stages of the innovation process and lead to the following propositions (Figure 1):

Proposition 1c.1: From prospect theory and the mood maintenance hypothesis, positive (negative) affect increases the likelihood that best practices are approached from a gain (loss) frame during the knowledge and persuasion stages, resulting in rejection (adoption) of a riskier best practice in the decision stage.

Proposition 1c.2: Premised in affect theory, positive affect during the knowledge and persuasion stages leads to adoption of the best practice in the decision stage.

Proposition 1c.3: When framing the best practice as a loss due to not having adopted it in previous time periods, negative affect leads to the choice to adopt the best practice.

In addition to the stages of the diffusion of innovation, Rogers (2003) has suggested that adoption conforms to a sequential pattern in which a few *innovators* adopt the practice, which is then embraced by *early adopters*, then *followers*, and finally *laggards*. We contend that innovators and some early adopters adopt from a gain frame (e.g., capturing initial profit potential), while followers and laggards adopt from a loss frame (e.g., avoiding competitive inertia). Followers and laggards adopting a best practice are likely to experience less return on investments than early adopters because the later the adoption, the smaller the competitive advantage gained from the decision (Smith & Wilson, 1995). Furthermore, if followers and laggards fail to adapt the best practice to their idiosyncratic needs, a best practice may in fact prove less valuable (Fitz-enz, 1997; Harrington, 2004; Pfeffer & Sutton, 2006).

Proposition 1d: Decision makers framing a best practice as a gain are more likely to be early adopters, while those framing it in terms of avoidance of loss are more likely to be late adopters (Figure 1).

Anchoring

When people are in an ambiguous situation, they often rely on anchors to make decisions (Asch, 1956; Bond & Smith, 1996). An anchor is a piece of information, such as past sales, a forecast, or simply someone's opinion, that influences the decision maker (Hammond et al., 1998). Though anchors help managers resolve uncertainty and justify their decisions, the anchors may be inappropriate for a particular decision and/or the decision maker may fail to make sufficient adjustments in relation to the initial anchors (Bazerman, 2006; Tversky & Kahneman, 1974). Salient anchors include the practices of other firms. Even if these are identified as the "best" and are derived from organizations such as the Saratoga Institute (Fitz-enz, 1997) or the American Productivity and Quality Center, they must nonetheless be adapted to each new situation.

Pfeffer and Sutton (2006, p. 6) contended that a major source of poor decisions is the management practice of "casual benchmarking," which is copying the most visible practices of the best companies without seeking to understand the philosophy underlying them. Abrahamson (1991) noted that smaller firms tend to imitate administrative innovations of larger firms. Johns (1993, p. 583) argued that such imitation is often based on prestige within industries and is "politically safe and has an appearance of rationality." This view is consistent with Rogers (2003).

Fitz-enz (1997, p. 97) illustrated how anchors can lead to poorer rather than improved decisions. He relayed an anecdote in which a manager was seeking an anchor in the form of metrics to compare her firm to others to justify decisions. Fitz-enz told her he could provide norms for the demographics of her company, but she should not use them for staffing and budget decisions as her situation was complex and unique. The manager replied, "I know but I want to use them anyway." She sought the normative data because they provided an empirical basis for her decisions even though it was not sufficiently relevant to her situation.

Tversky and Kahneman (1974) argued that anchoring leads people to underestimate the probabilities of failure in complex systems. Such systems fail if any one of several essential components breaks down. Implementation of many best practices is likely to be a conjunctive event such that a series of specific events must occur for the best practice to be successful. The use of quality circles provides a good example. When explaining how quality circles can affect productivity, Ledford, Lawler, and Mohrman (1988) indicated that there are many places in the quality circle causal chain in which a breakdown or blockage can occur. Nevertheless, they described quality circles as the "most

popular form of participative management in America” despite their high failure rate (Ledford et al., 1988, p. 255). Clearly managers underestimate the probability of failure when implementing such practices, likely because they inappropriately anchor their estimates of overall success on the probability of success associated with a single event rather than the entire sequence.

Proposition 2a: Throughout all of the diffusion stages, anchoring causes the decision maker to overestimate the probability of success of adoption of a best practice (Figure 2).

Positive affect is associated with a casual cognitive style that is heuristic and appropriate for relatively simple issues, while negative affect is associated with more substantive processing and appropriate for more complex issues (Forgas, 1995; Isen, 2000; Schwarz, 1990). We contend that within the heuristic and substantive judgement strategies (Forgas, 1995), a decision maker’s affective state may place greater or lesser emphasis on the use of anchoring information, and as a result, greater or lesser underestimates of failure. In the case of heuristic processing, positive affect is likely to reduce the search for appropriate anchors (Forgas, 2002). Moreover, the effects of anchoring for all stages of the innovation diffusion process *underestimate failure*, which is similar to the normal anchoring effect. Positive affect should increase receptivity to knowledge of a best practice (Forgas, 1995), enhance development of a favourable attitude in the persuasion stage, increase likelihood of adoption due to the *underestimate of failure*, smooth implementation, and focus attention on reaffirming results during the confirmation stage.

Negative affect, on the other hand, should result in more substantive information processing that increases the search for additional information (Ashton-James & Ashkanasy, 2008; Conway & Giannopoulos, 1993). Substantive processing may focus the decision maker on the anchors, and direct the search process to anchor-consistent information (Bodenhausen, Gabriel, & Lineberger, 2000) through the process of selective-accessibility (Strack & Mussweiler, 1997). As a result, *negative* affect would result in an over-reliance on anchors. Individuals with negative affect may be more influenced by early anchors in the knowledge and persuasion stages, yet may be able to make appropriate adjustments from the initial anchors in later stages of the innovation process due to their more effortful processing. Negative affect should lead to greater anchoring effects in the knowledge, persuasion, and decision stages than in the later stages, and motivate underestimates of the probability of failure during those earlier stages.

In summary, the anchoring effects will be enhanced over the course of the stages of diffusion when there is positive affect, and will be diminished over the course of the stages of diffusion when there is negative affect. As shown in Figure 2, we propose:

Proposition 2b: Relative to decision makers with negative affect, those with positive affect will evidence greater reliance on anchoring effects (thereby leading to an underestimate of potential failure associated with adopting a best practice) for all stages of the innovation diffusion process.

Proposition 2c: Negative affect will lead to a greater underestimate of the probability of failure during the knowledge, persuasion, and decision stages than in the later stages of the innovation diffusion process.

Information Selection Biases

Unless managers thoroughly research the best practice, they are likely to fall victim to another judgement bias, that of *availability* (Tversky & Kahneman, 1973). Availability is the tendency to regard events or outcomes that easily come to mind as occurring more frequently than they actually do. Three biases (ease of recall, retrievability, and presumed associations) are related to the availability heuristic (Bazerman, 2006). Ease of recall refers to the tendency to judge more recent or vivid events as occurring more frequently than equally frequent, but less readily recalled events. Retrievability refers to recall biases emanating from the particular way individual memories are structured. With the presumed-associations bias, people tend to overestimate the frequency with which two events are related due to the number of co-occurring events they can recall or have experienced.

In a two-by-two matrix displaying best practice decisions (adopt/reject) and their outcomes (favourable/unfavourable), managers experiencing the presumed-associations bias forget or ignore “missing cells.” For example, one is far more likely to see, hear, or read about organizations that experience positive outcomes resulting from adoption and implementation of a best practice, while little or no information is easily available about nonadopters or adopters for whom the practice failed. There may be little or no data in the early stages of an innovation because examples of failure take time to develop and become publicized. The presumed-associations bias explains how managers may be affected by the abundance of positive information about adoption of a best practice.

Rynes, Colbert, and Brown (2002) suggested that managers may be susceptible to the availability heuristic because less than 1% of a large sample of human resource (HR) managers and executives read the academic journals that present evidence related to the challenges associated with successful innovation. Instead, most read practitioner-oriented HR journals and popular business magazines, which enact a “filtering” process resulting in a tendency to report successful applications as opposed to failed ones (cf. Wood & Paes de Paula, 2008). This line of reasoning affirms the missing cell issue because failures are less likely to be reported. Additionally, Rynes et al. (2002) found that colleagues in their own organization were the primary source

of help, while external sources such as websites, HR research literature, and consultants were used by relatively few of the respondents.

We expected positive affect to increase the impact of the availability heuristic in the knowledge, persuasion, and decision stages of diffusion due to less critical search processes (Forgas, 1998). Decision makers in a positive affective state are less likely to notice the absence of information or carefully evaluate whether information is constructive or unconstructive. As argued earlier, positive affect will cause decision makers to focus on the benefits associated with the best practice whereas a negative affective state will focus attention on its risks. Negative affect, however, may motivate decision makers to search more diligently for nonconfirming data, increasing the likelihood that missing cell information will be recognized and that the riskiness of the decision will be moderated (Forgas, 1995; Mittal & Ross, 1998; Staw & Barasade, 1993). Accordingly, as per Figure 3:

Proposition 3: The effect of the availability bias will be greater for managers high in positive affect than for managers high in negative affect.

Confirmation Bias

As managers progress to Rogers' second stage, *persuasion*, in which attitudes concerning the best practice are further developed, the search for and acceptance of information may be biased already due to initial anchoring. Hammond et al. (1998, p. 52) labelled this "the confirmatory evidence trap" in which information consistent with one's view is accepted while inconsistent information is ignored, noting "we tend to subconsciously decide what we want to do before figuring out why we want to do it." In theory, the confirmatory bias occurs after a preliminary decision is made (after the decision stage). In the adoption of a best practice process, however, the biases of framing, anchoring, and availability may have affected the decision such that the confirmatory bias is also functioning earlier in the process. Hence, confirmation bias affects all but the knowledge stage because decisions following the knowledge stage are more or less path dependent, lending themselves to a confirmatory evidence trap.

As argued earlier, positive affective states are more likely to elicit optimistic interpretations of information, and negative affect states are more likely to elicit pessimistic interpretations (Bower, 1991; Forgas, 1998; Schwarz & Clore, 2003). Positive affect will lead to consistent optimism and increase confirmatory bias in the persuasion, decision, implementation, and confirmation stages such that events will continue to be interpreted as opportunities (Forgas, 1998). Similar to availability, positive affect increases the selective pursuit and use of information consistent with the initial optimism. Decision makers experiencing negative affect, however, may be less likely to

experience confirmatory bias as their skeptical attitude leads them to seek disconfirming as well as confirming information (Isen, 1987; Schwarz, 1990).

Proposition 4a: Information confirming the preconceived expectations about a best practice (confirmatory bias) is more likely to be sought and accepted during the persuasion, decision, implementation, and confirmation stages (Figure 4).

Proposition 4b: Positive (negative) affect increases (decreases) the likelihood of seeking and accepting information that confirms the preconceived expectations about a best practice during the persuasion, decision, implementation, and confirmation stages (Figure 4).

Overconfidence

The adoption of a best practice often requires a substantial financial investment by the organization. We expect that managers rarely make a major investment unless they are reasonably confident of a positive return (Schendel & Hitt, 2007). With a best practice, however, a manager must estimate the probability of success or failure of the innovation. Unfortunately, research suggests that people tend to overestimate the degree to which their actions will assure a desired outcome (Miller & Ross, 1975). Pfeffer and Sutton (2006, p. 10) described a variation of overconfidence in which managers were overly influenced by "deeply held yet unexamined ideologies or beliefs." An example is that stock options and related equity incentives (a form of best practice adoption) increase organization performance. Though many managers are supremely confident in the use of stock options, a meta-analysis of over 220 studies found positive outcomes were not consistently observed (Dalton, Daily, Certo, & Roengpitya, 2003).

Overconfidence can be problematic for best practice deliberations because such practices are not routine decisions for many managers and because people exhibit the greatest degree of overconfidence when faced with questions of moderate to high difficulty (Bazerman, 2006; Fischhoff, Slovic, & Lichtenstein, 1977; Korait, Lichtenstein, & Fischhoff, 1980; Lichtenstein & Fischhoff, 1977). During the knowledge stage we would not expect the overconfidence bias to have an impact because decision makers are engaged in initial information gathering rather than forecasting, per se. Overconfidence in predicted success of an innovation facilitates additional acceptance in both the persuasion and decision stages when predictions are most likely to occur, whereas during implementation and confirmation, the best practice is evolving into a real-time alternative rather than a forecasted event.

Positive and negative affect were also expected to contribute to decision confidence. Both states were expected to magnify overconfidence in the persuasion and decision stages, but in opposite directions. Positive affect was expected to motivate an overestimate of the likelihood of

success (Forgas, 1998), while the reverse was expected for the negative affect. At the confirmation stage, we expected positive affect to continue to provide a context in which success-oriented information is given more weight than failure-oriented data (Ashton-James & Ashkanasy, 2008). Again, the opposite was expected when the decision maker experiences negative affect. Accordingly, and as shown in Figure 5:

Proposition 5a: Overconfidence will decrease the likelihood of accurate predictions of success of a best practice in the persuasion and decision stages of the innovation process.

Proposition 5b: Positive (negative) affect will make accurate predictions of success of a best practice less (more) likely during the persuasion, decision, and confirmation stages.

Representativeness

This heuristic relies on stereotypes while ignoring base rates to predict outcomes (Tversky & Kahneman, 1974). With best practices, managers may see their situation as more similar to that of referent organizations than is accurate (Harrington, 2004), and, as a result, erroneously decide a best practice is appropriate. Not surprisingly, the benchmarking literature (Barr & Driscoll, 1995; Fitz-enz, 1997; Gunasekaran, 2001; Henczel, 2002; Pfeffer & Sutton, 2006) urges one to carefully examine the degree to which the best practices of others are appropriate to new contexts. Similarly, though managers may be aware of the low base rate of success for a best practice, they may see their organization as representative of the uncommon positive adoptors.

The representativeness bias may be facilitated by the bias to publicize the successes, but not the failures, of best practices. Managers are susceptible to this because, like the availability bias, they are less aware of the population of organizations that did not use the best practice. The representativeness bias may be reduced by giving decision makers more base-rate information such as that found in the two-by-two matrix discussed earlier, thus making the missing cells salient. Kahneman and Tversky (1972) found that people can use base rate information correctly if it is provided, but without it, managers may unduly rely on representative information during the persuasion, decision, and confirmation stages.

From Forgas's (1995) AIM, positive affect should lead to a higher likelihood of overestimates of success because decision makers focus on information that is representative of their expectations, rather than on the base rate reflective of the true likelihood of success. In contrast, negative affect encourages decision makers to find, examine, and use base-rate information more diligently (Ashton-James & Ashkanasy, 2008). Affective states are predicted to impact the representativeness found in the persuasion, decision, and

confirmation stages. In the case of positive affect, the absence of disconfirming information leads to overly subjective and inadequate information in the persuasion and decision stages. In the confirmation stage, positive affect will lead to a biased perception that the best practice is typically successful (representative) in other organizations. Negative affect, however, leads to greater search effort to acquire base rate information, reducing the representativeness bias in the persuasion, decision, and confirmation stages. Accordingly, (see Figure 6):

Proposition 6a: The representativeness bias will lead to an overestimate of the likelihood of success of a best practice in the persuasion, decision, and confirmation stages.

Proposition 6b: Positive (negative) affect will increase (decrease) the likelihood that representative information will lead to an overestimate of the success of a best practice during the persuasion, decision, and confirmation stages.

Discussion

Summary

By integrating the decision-making biases and affect literatures, the resulting more refined representation of innovation diffusion will help researchers explore and uncover barriers to successful adoption of best practices. As innovation and best practice are key parts of the management vernacular, we hope our framework will result in improved decision making during these complex deliberations.

Contributions to Scholarship

This article conveys how decision-making biases and affective states may influence stages of the diffusion of organizational best practices from one organization to another. We argued that these factors together provide an explanation for how decision-making errors may occur when managers adopt best practices. We discussed the effects of a positive or negative affective state and decision biases/heuristics. Specifically, we offered propositions articulating the effects of these factors within the stages of an innovation diffusion process. We refined the best practices process from a coarse-grained success/failure perspective to a more fine-grained assessment across multiple stages of the diffusion process. Additionally, our application of behavioural decision theory and affective states revealed that their joint effects modified or reversed the effects expected from single-theory predictions. As our propositions for the framing bias in particular reveal, there is disagreement regarding how framing and affective states impact decisions, and how by analyzing their effects together, these contradictory predictions became salient. Overall, the

propositions provide scholars with the framework to study decisions about best practices and innovations that we hope will reveal how decision biases/heuristics and affective states impact best practices and innovations in such a manner that they contribute to their success or failure. More specifically, our fine-grained assessment across multiple stages of the decision processes revealed contradictory predictions such that future scholars can begin to understand more of the underlying factors contributing to those predictions.

Applied Implications

People can learn to recognize and properly apply general principles from experiences when they extract concepts from previous experiences (Bazerman, 2006; Loewenstein, Thompson, & Gentner, 2003; Thompson, Gentner, & Loewenstein, 2000). Our model offers managers a framework for extracting concepts from their experiences that facilitate corrections at each stage when considering adoption of best practices. For example, Hodgkinson et al. (1999) found that the framing bias can be mitigated when subjects construct a cause map depicting variables considered prior to their decision making. This suggests that bringing attention to the robust risk preferences generated by framing biases may reduce decision makers' tendency to adopt best practices that eventually fail. A growing body of research also suggests that affect works in conjunction with cognitive processes when decisions are made during management tasks (Baron, 2008; Cropanzano & Wright, 1999; Forgas, 2002; Isen & Labroo, 2003), suggesting that paying attention to affect states during decision processes will result in fewer adoption failures.

Managers should pay particular attention at the confirmation stage to ensure that experience is captured in a feedback loop to help avoid similar mistakes in future decisions. Bazerman (2006), Tversky and Kahneman (1986), Einhorn and Hogarth (1978) have all agreed that experience is valuable only when managers: (a) understand how to make a rational decision (expertise), (b) ensure feedback is accurate and immediate, and (c) make certain the decision-making process is characterized by constant monitoring. The challenge of "debiasing" decisions is illustrated by research showing that of Fischhoff's (1982) four methods for reducing bias, only intensive, personalized feedback has achieved moderate success in improving decision making (Bazerman & Moore, 2008). We contend that feedback must also recognize the role of affect. By incorporating both cognitive and affect feedback during the confirmation stage, managers can engage in experiential learning whereby they learn from past decisions (Chandler & Lyon, 2009; Huber, 1991).

Managers' affective states may also change the impact of biases throughout the diffusion process. For example, positive affect is more likely to help managers seek factors

that will help the best practice succeed, whereas negative affect facilitates pursuit of additional information. Thus positive and negative affect can potentially contribute to better decisions and increase the odds of success. In any case, Larrick (2004) and Lerner and Tetlock (1999) found that regardless of affect, a reduction in biases and in the use of heuristics was observed when (a) decisions were made in groups, (b) decision makers were trained in statistical reasoning, and (c) decision makers were held accountable for decision outcomes.

Kahneman and Lovallo (1993) found that outsiders are more likely than insiders to overcome the overconfidence bias and make better decisions. Insiders tend to view new situations as unique, while outsiders are able to use perspective gained from other situations. For example, an industry consultant can provide valuable perspective concerning relatively new information technology that may be viewed as unduly extraordinary to insiders. Thus, when adopting a best practice, managers should solicit the views of others familiar with similar situations. Our model provides a common language for such perspective sharing during each stage of the diffusion of innovation.

Limitations and Future Research Directions

Future research should examine whether the decision-making traps are differentially associated with innovation failure rate. For example, although anchoring generally leads to an underestimate of probability of failure (e.g., Pfeffer & Sutton, 2006), we anticipate that the affective state experienced during the diffusion process will accentuate errors in estimation through the deliberations, though at this point we cannot suggest exactly how much accentuation will occur. Further, our propositions do not address possible interaction effects or the relative strength of the effects we identified.

We have treated moods as positive or negative. Another line of analysis would be to examine how specific emotions impact best practice decisions. Emotions such as anger, sadness, disgust, fear/anxiety, and joy/happiness (Brief & Weiss, 2002) appear to affect risk-taking or risk-avoidance behaviours (Ashton-James & Ashkanasy, 2008). Substantive processing may also focus the decision maker on anchors and direct his/her search process to anchor-consistent information (Bodenhausen, et al., 2000) through the selective-accessibility process (Strack & Mussweiler, 1997). Thus, negative affect would result in an overreliance on anchors. Finally, we incorporated state-based affect into our model, which can be influenced by contextual factors such as social relations, political issues, and organizational climate, leaving others to consider the potential impact of trait-based variables.

Our incorporation of decision making and affect variables into the diffusion of innovation process likely has implications for the design and implementation of studies

in the area, which have typically been either field- or case-oriented. For example, when using self-report data concerning an innovation, questions targeting biases and/or the positive or negative attitudes of potential adopters may uncover additional causes for successes or failures. We focused on the cognitive biases and affective state of individuals to parse out their role in the stages of diffusion regardless of whether the decision maker is operating in relative isolation or in concert with others. Even when multiple members of the organization are involved in the decision, each person will be subject to the biases and affective states we presented, though of course, the addition of group dynamics would yield another layer of research questions associated with our model. In any case, we introduced the individual decision maker into the diffusion of innovation process.

Although we do not believe that changes in the sequence of the stages in the diffusion process would change the nature of our propositions, this is another area of future study. The issue could be of importance because although we oriented our thinking to organizations based in individualist North America, collectivist cultures may approach the innovation and diffusion process differently (Rogers, 2003).

We presumed that decision makers act in a cognitively rational manner. It may be, however, that best practice decisions are made intuitively (Dane & Pratt, 2007), especially if they are “outside the box” of the current thinking within the company. Further, various stakeholders may be more or less resistant to change, which affects best practice implementation efforts (Reger et al., 1994). Few companies have designated decision makers to pursue and incorporate best practices (Daniels, Johnson, & de Chernatony, 1994), though there are exceptions, especially among companies with established track records of innovation (McGregor, 2006). The lack of a designated decision maker and/or idea champion might explain superficial implementations associated with best practice failures, especially given that a manager’s attention is often fragmented among many competing agendas (Mintzberg, 1975).

As noted above, the social context that accompanies best practice decisions was not incorporated into our model, though we agree it is a valuable complement to our work. We focused our work on individual decision makers, but additional meso-level analyses that include the decision context and multiple stakeholders are of value also (House, Rousseau, & Thomas-Hunt, 1995). Recent theoretical work helps identify how the social structure of an organization may facilitate knowledge about a best practice (Kleinbaum & Tushman, 2007). Indeed, the social network of managers may result in industry-wide adoption of “best” practices without substantial analysis and evaluation of their effectiveness (Spender, 1989).

We treated the diffusion process as a single-cycle event even though an initial incorporation of a best practice may influence decision-making behaviour in subsequent delibera-

tions concerning innovations. As such, future research can evaluate the potential importance of a feedback loop in our model. This would provide for a systematic consideration of reciprocal effects. For example, not only may affective states influence decisions, but decisions may influence affective states. In all, our model as presented, together with a variety of potential enhancements, offers plenty of research possibilities for those interested in the diffusion of innovation.

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