Best Practices as Innovations:
How Decision-Making Biases and Affective State Impact Diffusion of Innovations

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faye smith*
Department of Management
Missouri Western University
E-mail: fsmith6@missouriwestern.edu

Thomas H. Stone
Department of Management
Oklahoma State University

Jennifer L. Kisamore
Department of Psychology
University of Oklahoma-Tulsa

I. M. Jawahar
Department of Management & Quantitative Methods
Illinois State University

*corresponding author

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Abstract

Rogers's (2003) stages of innovation adoption and diffusion (knowledge of innovation, persuasion, decision, implementation, and confirmation) are used as a framework for understanding the decision-making biases and heuristics (i.e., anchoring, framing, confirmatory and availability biases, overconfidence, and representativeness) embedded in an organization's adoption and implementation of best practices. Also, the role of affect on the diffusion of innovations is examined using the Affect Infusion Model (Forgas, 1995). Propositions are stated specifying effects of decision heuristics and affect on each stage of the diffusion of innovations.

Key Words: Affect, Best Practices, Decision-Making, Heuristics, Innovation

JEL Classification: O33 - Technological Change: Choices & Consequences; Diffusion Processes

Résumé

Rogers (2003) les stades d'adoption d'innovation et de diffusion (la connaissance d'innovation, persuasion, décision, implémentation et confirmation) est utilisé comme une base pour comprendre les inclinations de prise de décision et l'heuristique (c'est-à-dire, l'ancrage, encadrant, confirmatif et les inclinations de disponibilité, l'insouciance et représentatif) fixé dans l'adoption d'une organisation et l'implémentation des meilleures pratiques. Aussi, le rôle d'affecte sur la diffusion d'innovations est examiné en utilisant le Modèle d'Injection Affecte (Forgas, 1995). Les propositions sont exposées en spécifiant des effets d'heuristique de décision et affectent sur chaque stade de la diffusion d'innovations.

Mots Clé : Affectez, les Meilleures Pratiques, la Prise de décision, l'Heuristique, l'Innovation

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"Innovation at its core is about ambiguity" (Frost & Egri, 1991, p. 231).

The adoption and implementation of a best practice is an organizational innovation filled with ambiguity as it involves selecting a best practice from an array of choices, convincing organizational members to support adoption of the practice, implementing the best practice, and deciding how to measure 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* refers to a "process involving the comparison of organizational, department or unit performance to that of another, higher performing organization, department, or unit to assess whether adoption of management processes used by the higher performer are worthy of consideration (Szulanski, 1996, p. 27)."

When decision makers in one organization adopt another organization's best practice, an innovation is being diffused from one organization to another. As described by Rogers (2003), the diffusion process follows a pattern common to many different types of innovation. Rogers's (2003) model has five stages: 1) knowledge of the innovation, 2) persuading oneself of its value, 3) making the decision to adopt or reject it, 4) implementing the innovation, and 5) confirming the effectiveness of the innovation.

Behavioral decision theory (Hodgkinson & Healey, 2008), identifies various decision biases and heuristics (Tversky & Kahneman, 1974) that can impede decision making. A decision maker's affect, whether positive or negative, however, may influence the decision process so as to moderate the effects of decision biases on judgments (Forgas, 1995; Forgas & George, 2001; Isen, 2000; Weiss & Cropanzano, 1996). We apply Forgas's (1995) Affect Infusion Model

(AIM) to clarify the joint effects of affective states and biases on best practices decisions. 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 another organization's best practice leads to or thwarts achievement of a particular goal (e.g. improved performance) (Arthur, 1994; Becker & Gerhart, 1996; Harrington, 2004; Huselid, 1995; Pfeffer & Sutton, 2006). Although prescriptive suggestions for improving the outcomes of best practice adoptions have been proposed (Bazerman, 2006) and a substantial literature has accumulated about the diffusion of innovations, neither literature has provided a systematic analysis of "why" failures occur. Instead, the literatures describe cases in which innovations or best practices have failed or succeeded (Arthur, 1994; Becker & Gerhart, 1996; Harrington, 2004; Huselid, 1995; Pfeffer & Sutton, 2006), propose models of the diffusion of innovation processes (e.g., Agaral & Prasad, 1997; Alange, Jacobsson & Jarnehammar, 1998; Mahajan, Muller, & Wind, 2000), and provide practical advice about how to manage the best practices process (Bazerman, 2006*)*.

Diffusion of innovation studies are largely field and case studies crossing an array of academic disciplines (e.g., communication, marketing, management, education, sociology, geography). The addition of our study's decision-making and affect variables to this diverse domain is intended to clarify how diffusion decisions are made. Merging the best practices processes with the stages of innovation diffusion can reveal why best practices may fail in a new organizational context and at which stages failure is most likely to occur.

In this paper, we apply the theoretical concepts of decision-making biases (Tversky & Kahneman, 1974) and the role of affect in decision-making processes (Forgas, 1995). We treat

decision makers as inherently rational, and then address how biases and affect may cause decision makers to deviate from that rationality when considering adoption of a best practice. We recognize that decision makers are subject to bounded rationality (Simon, 1947), and they are often embedded in organizational contexts that include social and political agendas that impact decisions (e.g., Mintzberg, Raisenghani & Theoret, 1976; Mintzberg, & Waters, 1985). We focus, however, on the decision maker's cognitive processes and affective positive or negative moods in order to capture the primary effects of decision-making biases and affect during the sense-making process (Weick, 1979) leading to a decision.

We proceed by presenting a brief discussion of best practices as a managerial decision and an innovation, thus providing the context of the paper. Next, we present the fundamental constructs from which our theoretical propositions are derived. Finally, a set of propositions are developed identifying how specific decision biases, heuristics, and affective states impact each stage of the innovation diffusion process as a best practice is identified, adopted, and evaluated.

Characteristics of Best Practice Decisions

Tallman, Leik, Gray and Stafford (1993, p. 162) define decisions as "preferences made under conditions of uncertainty and risk...." 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). Generally, decisions about best practices are strategic in nature; they often require substantial resources for implementation with the expectation that adoption will lead to improved organizational performance (Schendel & Hitt, 2007).

Research is mixed as to whether adopting a best practice is beneficial for the performance of the adopting organization. Research has shown that 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). Contrary findings (Harrington, 2004; Pfeffer & Sutton, 2006), however, have been noted indicating that adoption and execution of best practices can affect a firm's performance adversely on measures including value added per employee, return on investment, and customer satisfaction. Furthermore, research suggests that a significant number of best practice efforts fail (Harrington, 2004; Pfeffer & Sutton, 2006). For example, 15 to 50 percent of all Total Quality Management (TQM) efforts undertaken in the early 1990s within the U.S. failed (Harrington, 2004).

It may be that failure to achieve positive results from adopting a best practice results from failure to adjust or adapt the best practice to organizational idiosyncratic needs. Work by Fitz-enz (1997), Harrington (2004), and Pfeffer and Sutton (2006) assert that best practices must be tailored to each organization. Failure to adapt is reflected in Reger, Gustafson, DeMarie, & Mullane's (1994) argument that implementation of TQM fails due to lack of proper framing by top management. Harrington (2004) showed that success requires adapting best practices to the performance level of the particular organization. Even though failure of an adopted best practice is likely to be most salient during or after implementation, examination of the earlier stages of the diffusion process may reveal multiple causes for the overall failures (Agarwal & Prasad, 1997). Benefits of best practice implementation will more likely emerge when there is a supportive culture and an adaptive foundation prior to adoption of the practice (Burke, 2002; Grant, Shani & Sloan, 1994). Finally, it may be that managers in the same industry tend to

follow industry recipes (Spender, 1989) such that certain practices become the industry norm without significant cognitive effort.

Factors Affecting Innovation and Decision Processes

We present a brief overview of three literatures and concepts used to understand why best practices may fail when adopted by a different organization.

Model of Diffusion of Innovations

There are five stages of Rogers's (2003) model of 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 colleagues or sales people 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 the innovation. According to Rogers (2003), while the knowledge stage is primarily cognitively-based, the persuasion stage is affect-based. During the third stage, *decision*, adoption or rejection of the practice occurs. In the fourth stage, *implementation*, the innovation is put into use. The key concern at this stage is how to use the innovation to achieve organizational objectives. During the final stage, *confirmation,* the manager seeks evidence supporting or refuting the efficacy of the adoption decision.

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, complexity), the decision-maker (personal involvement,

motivation, affective state, cognitive capacity), and the situation (e.g., need for accuracy, availability of criteria, need for confidentiality). The AIM assumes that the type of information processing strategy used will differentially impact the effects of mood on judgments. Open information search strategies require constructive thinking (Fiedler, 1990), while closed strategies involve more predetermined and directed search (Forgas, 1995).

Four judgmental strategies (direct access, motivated processing, heuristics, and substantive) comprise the AIM. Two of these strategies, 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 require 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 the decision (Forgas, 1995). Substantive processing is more likely when the decision is complex or atypical, and the decision-maker is motivated to be accurate.

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. Further, such substantive processing requires a relatively open search for information consistent with "…active generation of new information…" (Fiedler, 1990, p. 2). Affective states inform cognition and judgments 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 suggests, "…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" (Forgas, 1995, p. 44).

Decision Making Biases and Heuristics

In this section, we provide an overview of six biases and heuristics identified by Tversky and Kahneman (1974) including framing, anchoring, availability, confirmation, overconfidence, and representativeness. We also connect each of these with the processes of identifying, selecting, and implementing the decision to adopt a best practice. In the next section, we provide a more detailed application of these biases to each stage of 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 events, 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 (Miller & Ross, 1975; Hammond et al., 1998), 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. In this section we investigate the impact of each decision bias/heuristic, as well as the impact of a positive or negative affective state, on each stage of the diffusion of innovation process. Each stage of the diffusion process is treated as separate and distinct, and each stage follows the sequence presented in the initial model (Rogers, 2003). We begin with a discussion of the framing bias. Figures 1 through 6 summarize our propositions.

Insert Figures 1 through 6 about here

Framing. When managers make a decision to adopt a best practice innovation, they are departing from the organization's status-quo. Status-quo is a decision trap (Hammond et al., 1998) characterized by a preference for doing things as has been done in the past because it is familiar and perceived to be a safe choice. In competitive environments, however, managers often cannot afford to simply maintain the status-quo.

How the situation is framed and how the need for change is defined affects managers' decisions given that people can frame a decision in terms of possible gains or losses (Hammond et al., 1998; Tversky & Kahneman, 1974). Prospect theory and research shows that when a decision is framed in terms of gain, people tend to be risk-averse, making more conservative decisions (Kahneman & Tversky, 1979; Hammond et al., 1998). When situations are framed in terms of loss, however, individuals tend to be more tolerant of risk and make bolder decisions. Research suggests that people generally "have a greater fear 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 from a loss frame (e.g.,

reducing extent of market share loss) versus a gain frame (e.g., increasing market share). When managers perceive a probable loss of valued resources, they may feel they are falling behind and need to keep up with the competition. Research conducted with both undergraduate students and experienced managers supports the framing biases (Hodgkinson, Bown, Maule, Glaister & Pearman, 1999). Our first propositions (See Figure 1) are:

> *Proposition 1a*: Framing a best practice in a gain (*1a.1*) or loss (*1a.2*) frame will increase or decrease the likelihood that decision makers will adopt the best practice, respectively.
>
> *Proposition 1b*: Framing a best practice in a gain (*1b.1*) will or loss (*1b.2*) frame will reduce or increase, respectively, the likelihood that decision makers will adopt risk-averse best practices.

Contrary to the predictions of prospect theory that framing an issue as a gain will lead to risk-averse choices, affective state research suggests an individual with positive affect will focus on the positive information available about the best practice and develop a favourable attitude toward the practice (Forgas, 1998; Ashton-James & Ashkanasy, 2008). Such an individual is likely to approach the best practice from a gain frame, view the best practice as a certain gain and select riskier best practices for implementation (Johnson & Tversky, 1983; Mittal & Ross, 1998). Conversely, an individual with negative affect will be somewhat skeptical about the best practice, focus on the negative information available about it or search for negative information, and develop an unfavourable attitude toward the best practice under consideration (Brief, Burke, George, Robinson & Webster, 1988). The negative affective state would lead to framing the best practice alternative as a "loss" and choosing a risk-averse option.

As described, research shows that negative affective states are associated with choice of risk-averse alternatives while positive affect is associated with riskier choices aimed at avoiding

losses (Johnson & Tversky, 1983; Lerner & Keltner, 2000; Mittal & Ross, 1998). Two theories offer contrary explanations of this behaviour. First, Isen and Patrick (1983) argue for a "mood maintenance" hypothesis in which those with positive affect avoid risk to maintain their good mood while those experiencing negative affect take risks to reverse the negative affect. Mano (1992, 1994), contends that negative affect is associated with greater risk taking due to decreased attention and information processing capacity caused by the arousal of negative affect.

Thus, we expect that positive affect will lead to a positive awareness (i.e., knowledge stage) and positive attitude (i.e., persuasion) about most best practices. At the later stages, however, because the decision is framed as a gain, a positive mood will lead to selecting riskier best practices for implementation. Additionally, because these riskier best practices have a lower *a priori* likelihood of success, there will be more perceived variance from expectations during the confirmation stage. On the other hand, negative affect may cause the decision maker to frame the best practice in terms of expected losses if a best practice is not adopted (Forgas, 1998), resulting in an overestimation of the probability of the loss (Johnson & Tversky, 1983; Lerner & Keltner, 2000). Although there may be an impact on the implementation stage, the length of time required in the diffusion process could mitigate that impact, suggesting no outcome on the implementation or confirmation stages. This leads to our propositions:

> *Proposition 1c:* Positive affect will increase the likelihood that best practices are approached from a gain frame resulting in the selection of a riskier best practice.
>
> *Proposition 1d:* Negative affect will increase the likelihood that best practices are framed from a loss frame (*1d.1*) resulting in the selection of a more risk-averse practice, i.e., maintenance of the status quo. (*1d.2*).

In addition to the stages of the diffusion of innovation, Rogers's (2003) research suggests that adoption of innovations 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). It is likely that followers and laggards adopting a best practice will find it less successful in terms of returns on investments than early adopters because the later the adoption, the smaller the competitive advantage to be gained from the decision (smith & Wilson, 1995). Also, if followers and laggards fail to adapt the best practice to their idiosyncratic needs, a best practice may be less valuable (Fitz-enz, 1997; Harrington, 2004; Pfeffer & Sutton, 2006).

Proposition 1e: Those who frame a best practice as a gain are more likely to be early adopters, and those framing it as an avoidance of loss are more likely to be late adopters.

Anchoring. When people are in an ambiguous situation, they often rely on anchors in making 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 judgment of a decision maker (Hammond et al., 1998). Though anchors help managers resolve uncertainty and justify their decisions, the anchors used may be inappropriate for a particular decision or the decision making may fail to make sufficient adjustments from the initial anchors (Bazerman, 2006; Tversky & Kahneman, 1974). Particularly salient anchors include the practices of other organizations. Even if these practices 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 be adapted to each specific situation. Pfeffer and Sutton (2006, p. 6) contend that a major source of poor decisions is the managerment practice of "casual

benchmarking," 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 is consistent with Rogers' (2003) findings also.

Fitz-enz (1997, p. 97) illustrated how anchors can lead to poor rather than improved decision making. He relayed an anecdote in which a manager was seeking an anchor in the form of metrics to compare her firm with others to justify business decisions. Fitz-enz told her he would provide norms for the demographics of her company, but she should not use them for staffing and budgetary 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 to serve as justification as they suggested there was an empirical basis for her decisions even though the data were not sufficiently relevant to her situation. Such justifications may be perceived as superior to analysis and judgments made by the decision makers, but may be misleading nevertheless.

Tversky and Kahneman (1974) argued that anchoring leads people to underestimate the probabilities of failure in complex systems. Complex 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 is 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 break down or blockage can occur. Neverthelesss, they described quality circles as the "most popular form of participative management in America" in spite of its high failure rate (Ledford et al., 1988, p. 255). Clearly managers underestimate the

probability of failure when implementing such practices, likely as a result of anchoring estimates of success on the probability of success of a single event rather than the entire series of events.

As decision makers anchor on particular pieces of information, their affective state may influence their estimates of the probabilities of failure or success. Positive affect is associated with a casual cognitive style that is heuristic; negative affect is associated with more substantive processing (Forgas, 1995; Isen, 2000; Schwarz, 1990). Positive affect is likely to reduce the effects of anchoring for all stages of the innovation diffusion process. Positive affect should increase receptivity to the existing knowledge of a new innovation, enhance development of a favourable attitude in the persuasion stage, increase likelihood of an adoption decision, smooth the implementation stage and focus attention on reaffirming results during the confirmation stage. Negative affect, on the other hand, should result in a more substantive information processing that increases the search for additional information (Conway & Giannopoulos, 1993). Substantive processing, however, may also focus the decision maker on anchors, and direct the search process to anchor-consistent information (Bodenhausen, Gabriel & Lineberger, 2000). As a result, negative affect should result in an over-reliance on anchors.

Decision makers with negative affect may be more influenced by early anchors of the knowledge and persuasion stages, yet may be more likely to make appropriate adjustments from their initial anchors due to their more effortful processing. Negative affect should lead to an increase in anchoring effects in the persuasion, selection, and implementation stages and motivate the decision maker to overestimate the probability of failure. If the best practice is adopted anyway, however, the decision maker is unlikely to be a champion for the practice during the implementation or confirmation stages. Negative affect is likely to result in relatively conservative implementation resources for the innovation. Therefore, (see Figure 2) we propose:

Proposition 2a: Anchoring will cause the decision maker to underestimate the probability of failure throughout all the diffusion of innovation stages.

Proposition 2b: Decision makers with positive affect will evidence lower levels of anchoring effects than decision makers with negative affect in persuasion, decision, implementation and confirmation stages of diffusion.

Proposition 2c: Positive affect will cause the decision maker to underestimate the probability of failure even more severely during the persuasion and decision stages of diffusion of innovation, than during the implementation and confirmation stages.

Proposition 2d: Negative affect will cause the decision maker to overestimate the probability of failure during the persuasion, decision, implementation, and confirmation stages of diffusion.

Information Selection Biases. Unless managers thoroughly research the best practice, they are likely to fall victim to another judgment biases, *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. In 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 that displays 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 available about non-adopting organizations or adopters of the practice that showed no positive results. 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.

Data from Rynes, Colbert and Brown (2002) suggest why managers may be susceptible to the availability heuristic. They found less than one percent of a large sample of human resource (HR) managers and executives read the type of academic journals in which evidence of problems related to various innovations might be found. Indeed, most read practitioner-oriented HR journals and popular business journals such as *Business Week* and *Fortune*. The "filtering" process for including information about practices in these types of media suggests that mostly successful results are reported. This also affirms the missing cell issue, because failures are less likely to be reported, and thus will not be accessible to decision makers. In addition, Rynes et al. (2002) found the primary source of help with HR problems used by HR managers was colleagues in their own organization, while external sources such as websites, HR research literature, and consultants were mentioned by few respondents.

We expect that positive affect will increase the impact of the availability heuristic in the knowledge, persuasion and decision stages of diffusion due to a less critical search processes (Forgas, 1998). If decision makers are in a positive affective state, they are not likely to notice the absence of information or whether information is constructive or unconstructive. Positive affect will cause decision makers to focus on the benefits associated with the best practice under

consideration whereas a negative affective state will focus attention on its risks. Negative affect, however, may motivate decision makers to search more diligently for non-confirming data, increasing the likelihood that missing cell information will be recognized and the riskiness of the decision will be moderated (Forgas, 1995; Mittal & Ross, 1998; Staw & Barasade, 1993). Thus, (see Figure 3) we propose that:

> *Proposition 3a:* Decision makers subject to the availability heuristic will make non-optimal adoption decisions due to selective use of positively biased information.
>
> *Proposition 3b:* Positive (negative) affect will increase (decrease) a manager's reliance on the availability heuristic resulting in non-optimal best practice adoption decisions in the knowledge, persuasion and decision stages of the innovation process

Confirmation Bias. As managers become aware of a best practice innovation, they begin to move toward Rogers' second stage, *persuasion*, during which attitudes are further developed regarding whether to adopt the best practice. To a considerable extent, the search for and acceptance of information may be biased already due to initial anchoring information. Hammond et al. (1998, p. 52) label 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." The psychological phenomenon of selective perception underlies the confirmatory bias. In theory, the confirmatory bias occurs after a preliminary decision is made (e.g. after the decision stage of the diffusion process). In the adoption of best practices process, however, the previously discussed biases of framing, anchoring, and availability may have affected the decision such that the confirmatory bias is also functioning early in the diffusion of innovation process. Therefore, we contend confirmation bias affects all stages of the process except the knowledge stage

because decisions following the knowledge stage are more-or-less path dependent, lending themselves to a confirmatory evidence trap.

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 continue to be interpreted as potential opportunities (Forgas, 1998). Similar to availability, positive affect among decision makers increases the odds of selective pursuit and use of information consistent with the initial pro-innovation adoption decisions. Decision makers experiencing negative affect, however, may be less likely to experience confirmatory bias as their more skeptical attitude leads them to seek disconfirming as well as confirming information (Isen, 1987; Schwarz, 1990). Thus, (see Figure 4) we propose:

> *Proposition 4a:* Information that confirms 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.
>
> *Proposition 4b:* Positive (negative) affect will increase (decrease) the likelihood of seeking and accepting information that confirms the preconceived expectations about a best practice (confirmatory bias) during the persuasion, decision, implementation and confirmation stages.

Overconfidence. The decision to adopt and implement a best practice often requires a considerable financial investment by the organization. We expect that managers in organizations rarely make a major investment unless they are reasonably confident of a positive return on their investment (Hodgkinson, 2002). In making the decision to adopt or not adopt 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). According to Hammond et al. (1998, p. 56) "most of us are not good at making estimates or forecasts; we actually tend to be overconfident about our accuracy." In their discussion of poor decision practices, 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 of such a belief is that stock options and related equity incentives (a form of best practice adoption) increase organization performance. Though many managers are supremely confident in their belief in stock options, a meta-analysis of over 220 studies found no consistently positive results (Dalton, Daily, Certo & Roengpitya, 2003).

Overconfidence can be especially problematic for decisions regarding best practices, as these are non-routine decisions for many managers. Research indicates that people exhibit the greatest degree of overconfidence when faced with questions of moderate to high difficulty (Bazerman, 2006; Fischhoff, Slovic & Lichtenstein, 1977; Koriat, Lichtenstein & Fischhoff, 1980; Lichtenstein & Fischhoff, 1977). Conversely, when faced with familiar questions, people tend to be under-confident (Bazerman, 2006). During the knowledge stage of the diffusion process, we would not expect the overconfidence bias to have an impact, because decision makers are engaging 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 of the innovation process. It is at these stages when predictions are most likely to occur, whereas during the implementation and confirmation stages, the best

practice decision is becoming a real-time alternative rather than a forecasted event that would be susceptible to the overconfidence bias.

Positive and negative affect are also expected to contribute to decision makers' confidence in a decision. Both affective states are expected to magnify the effects of overconfidence in the persuasion and decision stages, but in opposite directions. Positive affect is expected to motivate an overestimate of the likelihood of success (Forgas, 1998) during the persuasion and decision stages while negative affect is expected to do the converse. At the confirmation stage, we expect that positive affect will continue to provide a context in which success-oriented information is given more weight than failure-oriented information (Ashton-James & Ashkanasy, 2008). Again, the opposite effect is expected when the decision maker experiences negative affect. Our resulting propositions (see Figure 5) are:

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 is a judgmental heuristic in which people rely on stereotypes while ignoring base rates to predict outcomes (Tversky & Kahneman, 1974). In the case of best practices, managers may see their organization's situation as more similar to those of referent organizations than is accurate. Therefore, managers may erroneously decide a best practice is appropriate for their organization. The literature on benchmarking (Barr & Driscoll, 1995; Fitz-enz, 1997; Gunasekaran, 2001; Henczel, 2002; Pfeffer & Sutton, 2006) argues that organizations must carefully examine the appropriateness of a best practice for their organization. Similarly, though managers may be aware of somewhat low base rates for a specific best practice, they may

see their organization as representative of unique successes versus the more common failures.

The representativeness bias may be facilitated by bias in management to publicize successes, but not failures, of best practices. Managers are susceptible to this bias because, like the availability bias, they are less aware of the population of organizations that did not use a particular 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 so that missing cells are more salient. Kahneman and Tversky (1972) found people can use base rate information correctly if it is provided. Without base rate information, however, managers may rely on representative information to estimate the possibility of a best practice's success during the persuasion, decision, and confirmation stages.

From Forgas's (1995) AIM, positive affect will lead to a higher likelihood of overestimates of success. This is because decision makers focus on information that is representative of their expectations about a best practice's usefulness rather than base rate information regarding likely success of the practice. By contrast, negative affect encourages decision makers to find, examine and utilize 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 of the innovation process. In the case of positive affect, the absence of disconfirming information resulting from the representativeness bias 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 level of success of the best practice is typical (representative) of other organizations. Negative affect, however, leads to greater search effort to learn about the base rate information, reducing the effect of the representativeness bias in the persuasion, decision, and confirmation stages. Thus we propose

(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 confrmation stages.

Discussion

Summary

By integrating the decision-making biases and affect literatures, we believe that the resulting more refined model of innovation diffusions will help researchers explore barriers to successful adoption of best practices. Both innovation and best practice have become part of the management vernacular, and we hope our study will lead to better implementation of practices, and a better understanding of the factors that contribute to this complex decision-making process.

Contributions to Scholarship

This paper articulates how decision-making biases, heuristics and affective states influence stages of the diffusion of organizational best practices from one organization to another. We argue that these factors are one avenue of explanation for how decision-making errors may occur when managers adopt best practices. The effects of a positive or negative affective state, and the decision biases/heuristics of anchoring, framing, confirmatory bias, availability bias, overconfidence, and representativeness are discussed. Specifically, we have stated propositions articulating the effects of these factors within the stages of an innovation diffusion process. In this analysis, we refined the best practices process from a coarse-grained succeed/fail assessment to a more fine-grained assessment across multiple stages of the diffusion

process. Additionally, our application of behavioral decision theory and affective states revealed that the joint effects modified or reversed the effects expected from single-theory predictions.

Applied Implications

Research shows people can learn to recognize and properly apply general principles from experiences when they abstract concepts from previous experiences (Bazerman, 2006; Lowenstein, Thompson & Gentner, 2003; Moran, Bereby-Meyer & Bazerman, 2005; Thompson, Gentner & Lowenstein, 2000. Our proposed model offers managers a framework for extracting concepts from their experiences facilitating corrections at each diffusion stage when considering adoption of best practices.

Managers should pay particular attention to the confirmation stage of the diffusion process, making sure that a feedback loop occurs to help them avoid similar mistakes in future decisions. Bazerman (2006) suggests managers should acquire more experience and expertise. While experience could improve decision making, Tversky and Kahneman (1986) and Einhorn and Hogarth (1978) contend that basic judgmental biases will not correct themselves over time, nor can expertise be acquired without conditions supporting effective learning such as accurate and immediate feedback.

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. Together, in a management team, each affect should lead to wiser decisions and increase the odds of success. Fischhoff's (1982) methods for reducing bias include maintaining awareness of the potential effects of biases and discussing how they will affect decisions. Feedback and coaching are also expected to help reduce biases (Fischhoff, 1982). Though some biases such as

overconfidence (Lichtenstein & Fischhoff, 1980; Bazerman & Neale, 1983), anchoring (Soll & Klayman, 2004), and framing may be reduced (Huff, 1990), Tversky and Kahneman (1986) suggest it is a challenge.

Kahneman and Lovallo (1993) found that an outsider makes better estimates and decisions than an insider. The insider tends to view each situation as unique while the outsider is able to generalize across many situations. Therefore, when adopting a best practices innovation, managers should solicit the views of someone who has familiarity with similar situations. The use of our model would provide a common language for such discussions.

Limitations and Future Research Directions

The propositions stated in this paper are based on behavioral decision and prospect theory and affective states literature. Future research may examine the extent to which managers who fall into various decision-making traps tend to have less successful innovations. For example, although the decision-making literature reveals that anchoring will lead to an underestimate of the probability of failure throughout all diffusion of innovation stages, we anticipate that a positive or negative affective state toward the diffusion process will accentuate the under or overestimation of failure at various stages. Our propositions suggest that such differences will occur, yet at this point in the research, we cannot suggest how much accentuation will occur.

In our paper we have treated moods as positive or negative. An additional line of analysis would determine how specific emotions impact the diffusion of innovation decisions. For example, emotions such as anger, sadness, disgust, fear/anxiety, and joy/happiness (Brief & Weiss, 2002), appear to affect risk-taking or risk-avoidance behaviors (Ashton-James & Ashkanasy, 2008). Further, future research may explore the effects of trait-based affect, whereas

we explored mood which is a state-based affect that can be influenced by contextual factors such as social relations, political issues, and general organizational climate.

Studies of the diffusion of innovation are often field studies or case studies, spanning multiple academic disciplines. The addition of the decision-making and affect variables from our propositions may refine some types of study. For example, for those studies using self-report data about an innovation, questions targeting the decision-making biases or adopters' positive or negative attitudes may discover additional causes for successes or failures.

Although we do not believe that the sequence of the stages in the diffusion process, per se, will change the effects predicted in our propositions, this is subject to empirical examination. For example, it is not clear whether the changes in sequence (e.g. from knowledge-persuasion-decision to knowledge-decision-persuasion) would lead to different effects. We have oriented our examination to North American organizational decisions but collectivist cultures may have a different sequence of diffusion stages as compared to individualistic cultures (Rogers, 2003).

In the current paper, we presume that decision makers act in a cognitively rational manner. It may, however, be that decisions to adopt a best practice are made intuitively (Dane & Pratt, 2007), especially if the practices are "outside the box" of the current thinking within the adopting organization. Further, individuals may be more-or-less resistant to change, making them more-or-less receptive to implementing a best practice. Additionally, few organizations have designated decision makers to pursue and incorporate best practices into their organizations (Daniels, Johnson & de Chernatony, 1994). This might explain some of the superficial implementation that occurs, given that a manager's attention is often fragmented among many competing agendas for action (Mintzberg, 1975), leading to bounded rationality.

The social context of the best practice decisions was not incorporated into this paper, although we agree that such a context is a valuable complement to our work. A concerted effort was made to focus our analyses on individual decision makers, but additional meso-level analyses that include the context of the decisions would contribute to this line of research too (House, Rousseau, & Thomas-Hunt, 1995). We recognize other managers, superiors, and employees may be engaged in the entire diffusion process also. Recent theoretical work regarding innovations within an organization help identify how the social structure of an organization may facilitate knowledge about a best practice (Kleinbaum & Tushman, 2007).

We have treated the diffusion process as a single-cycle event, but in many organizations the learning that occurs with an initial incorporation of a best practice may lead to different decision-making behaviors in subsequent analyses of other best practices. As we proceeded with our application of the biases and affective states to each stage of the diffusion process, the absence of a feedback loop in the diffusion of innovation model became salient. Further, not only may affective states influence decisions, but decisions may also influence affective states.

Conclusion

In general, framing, anchoring, confirmatory, availability, overconfidence, and representativeness decision-making biases, and the affective state (positive or negative) of decision makers, may lead to poor decisions -- in terms of adopting the best practice most appropriate to the organization, and to poor adaptation of the best practice to the organizational context. Together, they may explain the relatively high failure rates and the unrealized expected benefits from the diffusion of a best practice from one organization to another. Our application of the behavioral decision theory biases and heuristics and research suggests that some predictions made by behavioral decision theory should be modified, and sometimes reversed,

when positive or negative affective states are included in analysis of the decision making process. In particular, the two theories predict opposite outcomes as framing a choice as a gain will lead to a risk-averse decision according to prospect theory, but positive affect can lead to riskier decisions. Further, affective states are expected to moderate the relationships of all the other biases and heuristics examined.

In conclusion, this paper proposes a cognitive and affect-based model of the diffusion of innovation process integrating three distinct, yet related literatures. While alternative models may be developed, this model is the first to propose testable propositions of the innovation adoption decision process. The scholarly and practical utility of our model will be reinforced by future research and practice.

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Figure Captions

Figure 1. Relationship between Stages of Innovation, Affect, and Framing

Figure 2. Relationship between Stages of Innovation, Affect, and Anchoring

Figure 3. Relationship between Stages of Innovation, Affect, and Availability Bias

Figure 4. Relationship between Stages of Innovation, Affect, and Confirmatory Bias

Figure 5. Relationship between Stages of Innovation, Affect, and Overconfidence

Figure 6. Relationship between Stages of Innovation, Affect, and Representativeness

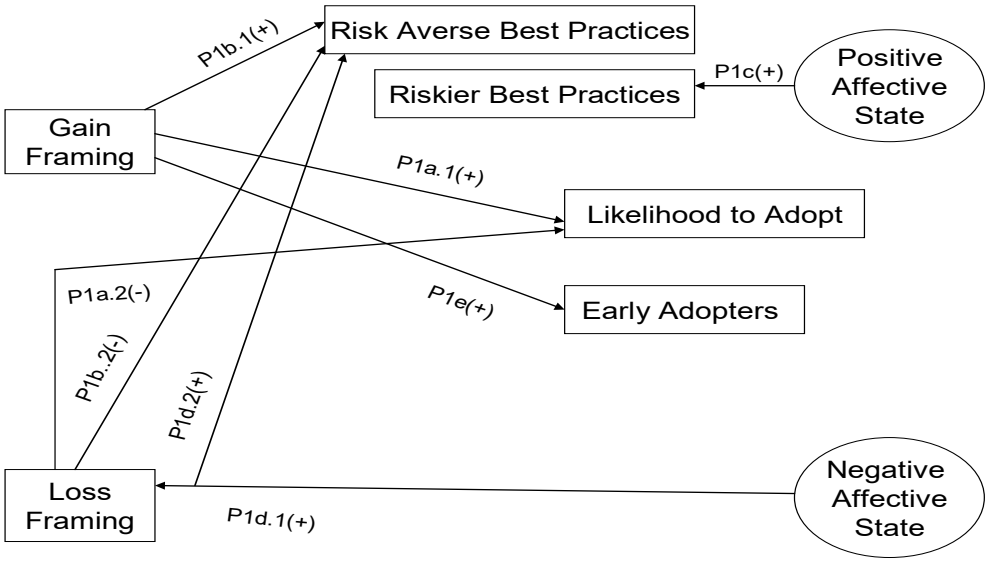


Figure 1 – Relationship between Stages of Innovation, Affect, and Framing

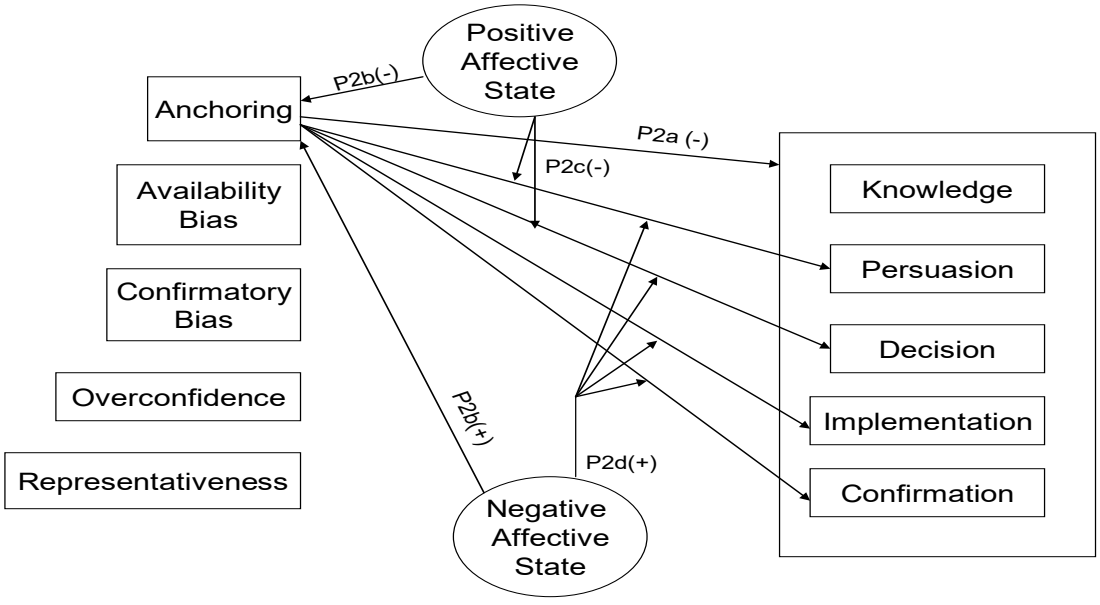


Figure 2 – Relationship between Stages of Innovation, Affect, and Anchoring

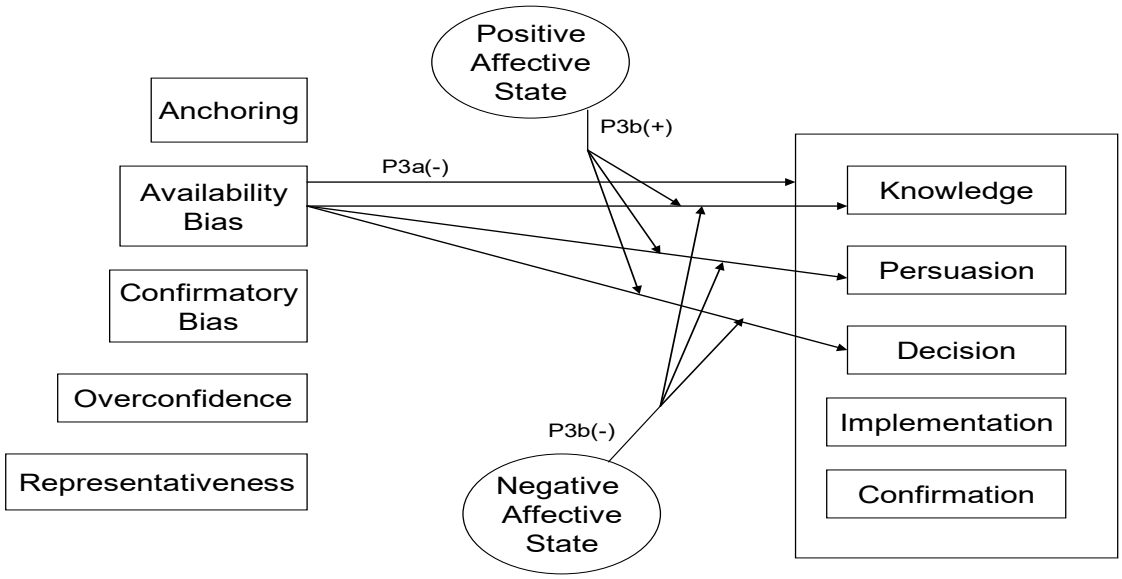


Figure 3 – Relationship between Stages of Innovation, Affect, and Availability Bias

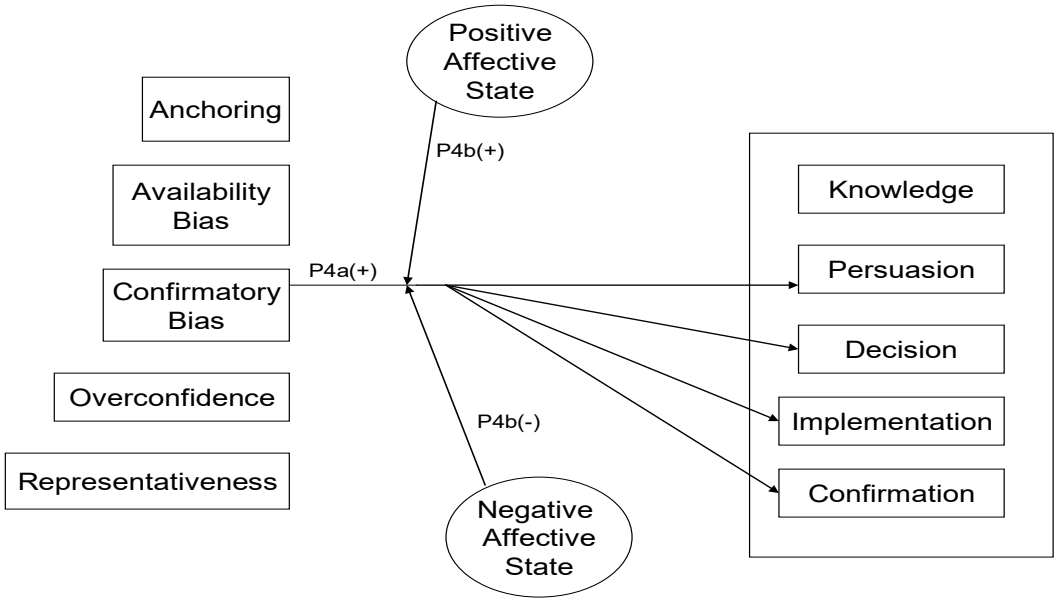


Figure 4 – Relationship between Stages of Innovation, Affect, and Confirmatory Bias

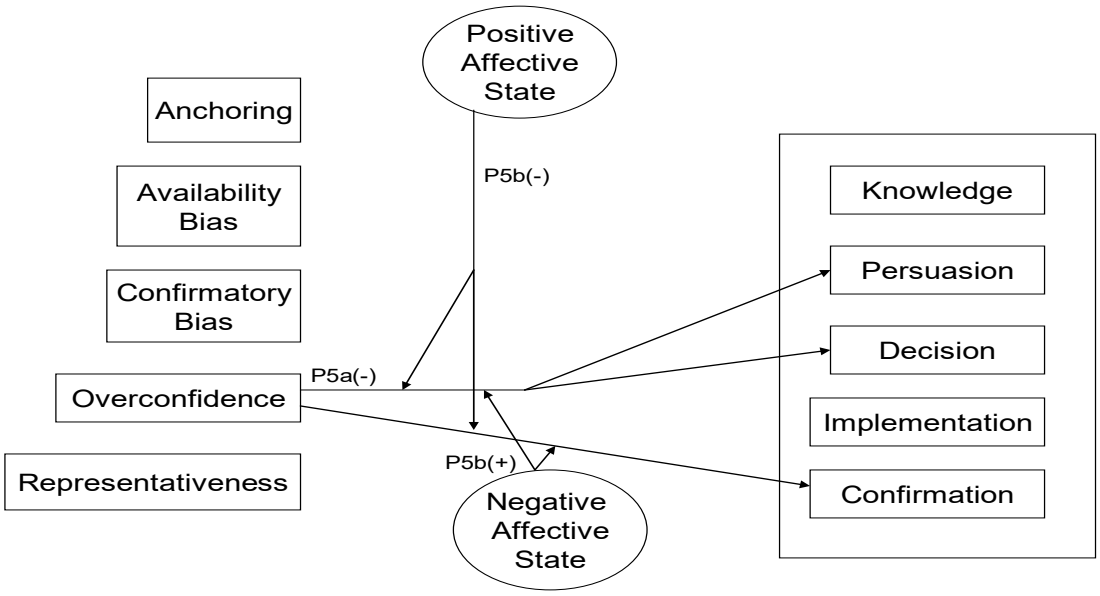


Figure 5 - Relationship between Stages of Innovation, Affect, and Overconfidence

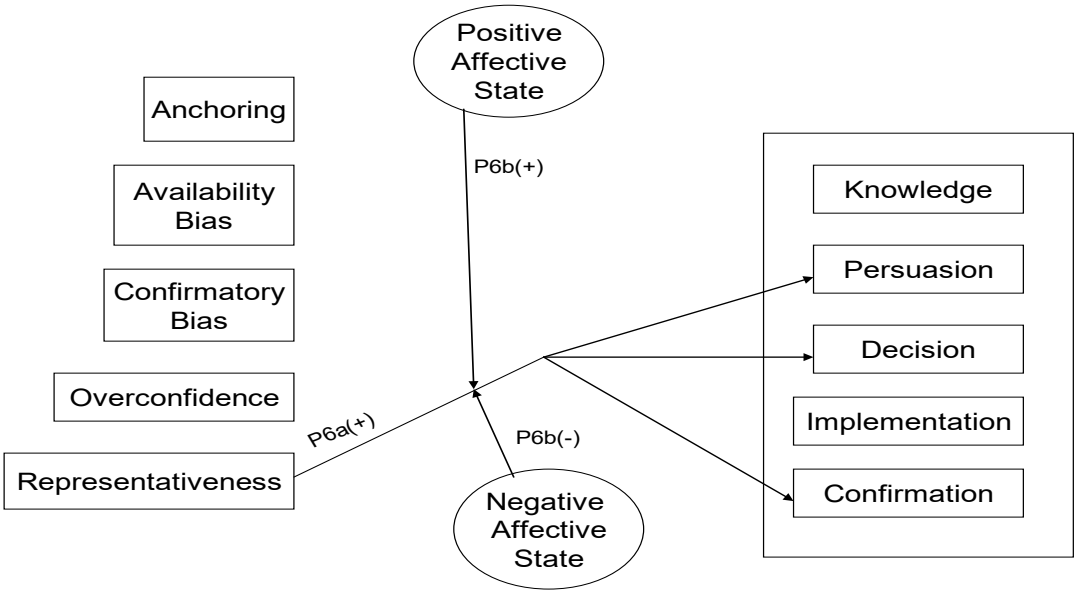


Figure 6 - Relationship between Stages of Innovation, Affect, and Representativeness