MANAGING EMOTIONS IN THE WORKPLACE

Neal M. Ashkanasy
Wilfred J. Zerbe
Charmine E.J. Härtel
Editors

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9 DETERMINANTS OF INTUITIVE DECISION MAKING IN MANAGEMENT: THE MODERATING ROLE OF AFFECT

Marta Sinclair, Neal M. Ashkanasy, Prithviraj Chattopadhyay, and Maree V. Boyle

Abstract

In this chapter, we propose a model of managerial intuitive decision making based on problem characteristics, decision characteristics, environmental factors, and individual factors. We propose also that affect moderates the intuitive decision-making process. Based on the affect infusion model (AIM), we suggest three interaction scenarios between the determinants of intuitive decision making and affect: moderate mood, high-intensity emotions, and affective feelings. We theorize that positive mood encourages the use of intuition while negative mood discourages it. We argue further that high-intensity emotions serve as a conduit to intuitive processing, but only if the decision maker focuses on the decision outcome. Conversely, we propose that high-intensity emotions can act as a barrier to intuition if the decision maker focuses on the emotion itself. Lastly, we hypothesize that managers will be more likely to use intuition in subsequent decisions if they receive affective confirmation as a result of their earlier use of intuitive decision making.

Determinants of Intuitive Decision Making in Management: The Moderating Role of Affect

This chapter explores factors conducive to the use of intuition in managerial decision making, and the moderating role of affect. Our model is based on the premise that, if identified, affective states can be used as conscious triggers or modifiers of the intuitive processing. As a result, and depending on the nature of the decision task and situation affect, affect may determine whether managers will use either an analytical or an intuitive decision-making style.

Based on Epstein (1998) and Shapiro and Spence (1997), we define intuition as:

> Non-sequential information processing, comprising both cognitive and affective elements, that results in direct knowing without any use of conscious reasoning.

Within this definition, affect is treated as an umbrella term for all emotional feelings, such as emotions and mood (Forgas 1995; Weiss and Cropanzano 1996). In this chapter, we develop propositions about the determinants and affective moderators of intuitive decision making within three theoretical frameworks: contemporary decision-making approaches (see Eisenhardt and Zbaracki 1992; Langley et al. 1995; Sauter 1999), Epstein's (1990, 1998) cognitive-experiential self-theory (CEST), and Forgas's (1994, 1995) affect infusion model (AIM).

We argue that the need to study intuition in management contexts (e.g., see Mintzberg 1989; Simon 1987) is a direct result of changes in business environment since the 1980s. In particular, this is an environment that has been plagued by high uncertainty (Schon 1983) and rapidly evolving technology (Stepanovich, Uhrig, and Armstrong 1999). Under these conditions, managers are often forced to decide expediently under pressure (Nutt 1999) or without adequate information (Agor 1984; Goodman 1993), often facing multiple alternatives in unprecedented situations (Eisenhardt 1989). These issues have led to a search for new approaches to decision making that hold potential to supplement the traditional analytical processes (Agor 1989; Andersen 2000; Sauter 1999).

Managerial Decision Making and Intuition

Psychologists (e.g., Damasio 1999; LeDoux 1996) have identified the existence of parallel cognitive systems: cognition and affect. In respect

to information processing, Epstein (1990, 1998) has argued that this is reflected in rational and experiential cognitions, where cognitions at the nonconscious level are primarily emotionally driven. This view opens new possibilities for the study of intuition and its intentional use in organizational decision making. Denes-Raj and Epstein (1994) stipulate that information is processed in parallel. In their view, moreover, the experiential mode, which encompasses intuition and other nonconscious processes, is the default. This notion concurs with Cappon's (1993) interpretation of intuition as an *evolved instinct.*

Our position is that intuition and instinct are two related yet *separate* constructs. This implies that, even though experiential information processing and intuition appear to overlap, we do not view them as identical. We suggest instead that experiential cognition encompasses other aspects of information processing besides intuition, such as instinct. Conversely, and as we discuss in more detail later in this chapter, we theorize that intuition may also function on other levels of consciousness, where it might utilize different processes. Similarly, it could also be argued that analysis is only one of the tools used by rational processing. In order to mitigate readers' confusion, in this chapter we will refer to the experiential information processing mode as the *intuitive style,* and the rational mode as the *analytical style,* of decision making.

Similar to Boucouvalas (1997) and Shirley and Langan-Fox (1996) in their literature reviews, we have found a number of conflicting definitions of intuition. Petitmengin-Peugeot (1999) explains these inconsistencies by the lack of appropriate language to describe the intuitive process. Her interpretation concurs with Crossan, Lane, and White's (1999) conclusions about the nonverbal nature of intuition, pointing to a frequent use of images and metaphors in the intuitive process (see also Vaughan 1979). Similarly, Petitmengin-Peugeot (1999) and Rowan (1986) describe intuition as subconsciously perceived and synthesized impressions that are difficult to verbalize. Despite the conceptual differences, most definitions acknowledge three commonalities: (1) the intuitive event originates beyond consciousness, (2) the information is processed holistically, and (3) an emotional aspect frequently accompanies intuitive perception (Shapiro and Spence 1997).

The focus of this chapter is on the use of intuition in intentional decision making in business settings (Harbort 1997). This environment-specific definition is based on Isenberg's (1984) and Simon's (1987) research that delineates managerial intuition as a nonconscious, quick

pattern recognition and synthesis of past professional experience and expertise. In addition, as suggested by Bastick (1982), Shapiro and Spence (1997), and other researchers, our concept of intuition includes an affective component. Further, we incorporate in our model Burke and Miller's (1999) findings that the use of an intuitive decision-making style is subject to situational contingencies.

Analytical and Intuitive Decision-Making Styles in Management

The pressures of today's dynamic business environment are often addressed by an integrated use of analytical and intuitive decision-making styles. This approach builds on Simon's (1987, 61) notion that analytical and intuitive management styles are "complementary components of effective decision-making systems." These styles, according to Mintzberg (1989), enable "non-sequential processing," critical for fast digestion of dense but ambiguous data. Mintzberg (1989) further argues that analytical (or rational) and intuitive styles counterbalance each other's weaknesses in terms of error introduction, processing ease, problem complexity, and use of creativity. Sauter (1999) describes the interaction of both styles as a symbiosis, where analytical and intuitive styles contribute complementary components to decisions. In this model, analytical processes deal with objective information, while intuition covers those areas not amenable to objective analysis, such as uncertainty and complexity (see also Langley et al. 1995).

Moving to a higher level of consideration, Parikh, Neubauer, and Lank (1994) argue that thought processes may have to reach to the "supraconscious" level (see also Vaughan 1979). In this instance, explanation of intuitive insights goes beyond the scope of decision makers' experience-based pattern recognition. We speculate that, on this level, intuition might even act as a conduit to direct knowing (Brockman and Simmonds 1997; Parikh et al. 1994) and, as such, could use different processes than the experiential system. In particular, the notion of higher levels of consciousness seems to be supported by controversial developments in physics and biology, such as the theory of morphogenic fields, where Sheldrake (1987) has proposed that knowledge can be communicated across space and time through "morphic resonance." This theory carries the implication that people can tune intuitively into any thoughts accumulated during human evolution. This concept, however, has yet to

be tested scientifically and is, therefore, beyond the scope of the present discussion.

Based on our outlined position, we propose that there are two parallel modes of information processing, anchored on different levels of consciousness, and testable by currently available scientific methods. These are the rational (or analytical) mode on the conscious level, and the experiential (or intuitive) mode operating predominantly on the nonconscious level. Both modes are assumed to function in an integrated manner, interacting mostly beyond an individual's awareness (Denes-Raj and Epstein 1994). The dominance of either mode seems to be determined by contextual factors, such as degree of novelty, and other parameters, including cognitive style preference, level of experience and expertise, and degree of emotional involvement (Epstein et al. 1996), and their cumulative effects seem to be moderated by different affective states, as discussed later in this chapter.

In summary, we argue that each information-processing mode supports a different decision-making style, suitable for a different type of problem solving. The analytical style of the rational mode is intentional, predominantly verbal, and comparatively affect-free (Epstein et al. 1996). It follows abstract, general rules of analysis and logic and is suitable, for example, for solving complex mathematical problems (Denes-Raj and Epstein 1994). In contrast, and again according to Epstein et al. (1996), the intuitive style of the experiential mode is intrinsically automatic, preconscious, holistic, associationistic, primarily nonverbal, and strongly linked to affect. It adheres to context-specific, heuristic rules. This style therefore deals with complex situations by means of prototypes and metaphors (Epstein 1998).

Figure 9.1 depicts the three decision-making styles we have discussed, incorporating the various influences on intuitive decision making. In particular, we argue that intuitive decision making is affected by characteristics of the problem, the decision, the environment, and the decision maker. Affect is also shown in our model as a moderator of individual and environmental factors. A corollary of this argument is that decision makers are likely to benefit from consciously matching their decision-making style with the decision task and situation. In the following sections of this chapter, we develop the model shown in Figure 9.1 in more detail. We begin with a discussion of the principal underpinnings of analytical and intuitive decision-making styles, and go on to consider the specific determinants of intuitive decision making identified in the

Figure 9.1 **Decision-Making Model**

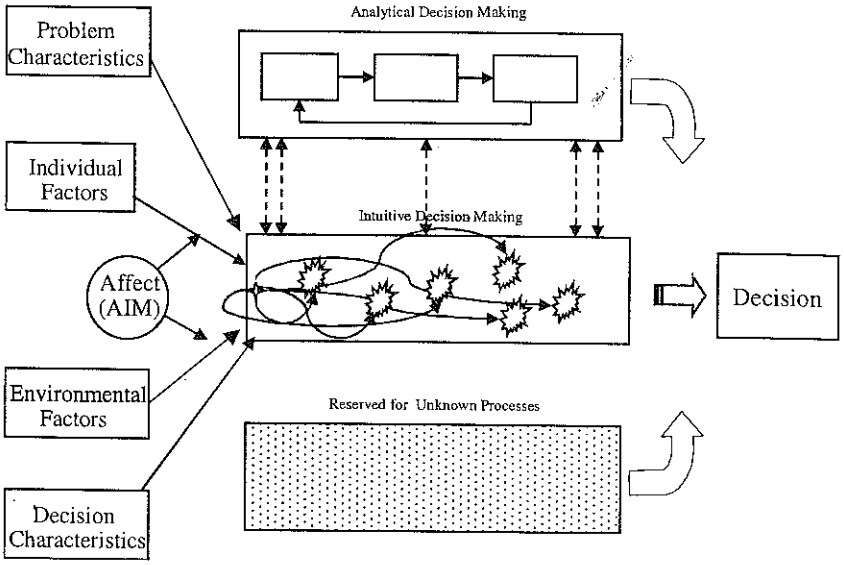

figure. In the final part of this chapter, we deal with the effect of mood, high-intensity emotions, and affective confirmation based on previous history of success in making intuitive decisions.

Rational Decision Making

Classical decision-making models are based on a cognitive process that usually occurs in a linear temporal sequence and leads to a logical and objective outcome (see Langley et al. 1995; Nutt 1999). These models assume the existence of perfect rationality, which requires an unambiguous problem definition, well-defined goals, known alternatives and their outcome, clear and stable preferences, no time or cost constraints, and a decision choice aimed at maximizing the economic payoff (Plous 1993). Since many of these conditions are not met in organizational life, decision makers usually operate within "bounded rationality" (Simon 1997). This implies that the chosen decision does not have to be ideal or even optimal, so long as it satisfies the individual's most important needs (Plous 1993). Despite various attempts to elaborate on Simon's (1960) original model by adding dynamic factors (e.g., Mintzberg, Raisinghani, and Theoret 1976), rearranging the sequence (e.g., Nutt 1984), or focusing

on particular stages of the process (e.g., Pounds 1969), recent findings indicate that the success rate of rational decision-making tends to be only around 50 percent (Nutt 1999). Indeed, Mumby and Putnam (1992) have gone so far as to suggest that decisions in organizations are more appropriately characterized as "bounded emotionality." Clearly, as Carroll, Pandian, and Thomas (1993) have concluded, analytical models still fall short of providing all of the answers.

Intuitive Decision Making

Intuitive decision making addresses the need to process information and to arrive at a decision at a speed that precludes an orderly sequential analysis (Simon 1987). Aided by intuition, Eisenhardt (1989) suggests, decision makers can not only act quickly, but can also adjust their response to changing stimuli. Most literature on intuitive decision making in business context has been linked to experience and expertise (e.g., Isenberg 1984; Klein 1998; Simon 1987). According to this interpretation, experienced decision makers are inclined to forsake the analytical model in favor of a holistic scanning of memory for similar events or situations. Upon retrieving this information, they creatively reorganize these information chunks into a new interrelated pattern. This intuitive processing depends on years of experience and the level of expertise (Behling and Eckel 1991; Härtel and Härtel 1996; Isenberg 1984; Simon 1987), and therefore does not seem to be applicable to novice managers or unprecedented situations.

Hammond et al. (1987) contradict this position by pointing out that such a narrow definition might degrade intuition to a form of nonconscious analysis. Similarly, Mintzberg (1989) and Langley et al. (1995) argue that less experienced decision makers may also arrive at creative solutions to complex problems in unprecedented situations. As a consequence, they suggest that managers in general can draw on their subconscious to grasp instantaneously a whole new structure. The discrepancy regarding the role of experience has been partially addressed by Crossan, Lane, and White (1999), who distinguish between "expert intuition," which relies on past pattern recognition, and "entrepreneurial intuition," which enables decision makers to connect patterns in a new way. This typology seems to provide a common ground for the expert-based (Simon 1987) and the inventor-based (Mintzberg 1989) interpretation of how intuition works. We argue that both types of intuition

can coexist. In this respect, they represent narrow aspects of the same more broadly defined construct, and therefore relate to the same group of factors and affective states.

Factors Determining Decision-Making Styles

We have organized the identified factors that influence managerial decision-making style into four groups (see Figure 9.1): (1) problem characteristics, (2) decision characteristics, (3) environmental factors, and (4) individual factors. These factors are similar to Kelley's (1967) three-dimensional cube of attribution theory, dealing with person, task, and environment. Since our research focuses on determinants of intuitive decision making, we will limit our discussion to key factors conducive to the use of intuition, listed in Table 9.1.

Problem Characteristics

We argue that decision makers tend to use intuition when they face problems characterized by ambiguity, information complexity or inadequacy, and lack of precedence. This position concurs with Behling and Eckel (1991), who suggest that intuition is useful in situations where problems are poorly structured. The results of Parikh, Neubauer, and Lank's (1994) survey also indicate that managers are more likely to use intuition when solving ill-defined problems where there are no precedents available. Mintzberg (1989) has hypothesized that important management activities rely to a large extent on holistic and intuitive processing because of problem ambiguity and complexity. Agor (1984) arrived at a similar conclusion: that intuitive decision making is employed when managers face conflicting facts or inadequate information. In addition, Burke and Miller (1999) have reported the use of intuition in unprecedented or novel situations. Thus:

> Proposition 1: The more ambiguous a problem is, the more likely it is that managers will use intuition in decision making.
>
> Proposition 2: The more complex or inadequate the available information is, the more likely it is that managers will use intuition in decision making.
>
> Proposition 3: The less precedence there is for a problem, the more likely it is that managers will use intuition in decision making.

Table 9.1

Determinants of Intuitive Decision Making

Problem Characteristics
- Ambiguity
- Information complexity or inadequacy
- Lack of precedence

Decision Characteristics
- Nonprogrammed
- High importance
- Significant impact

Environmental Factors
- *Organizational Characteristics*
  - Configuration
  - Encouragement of tacit knowledge
  - Industry category
- *Situational Variables*
  - Time pressure

Individual Factors
- *Personal Characteristics*
  - Cognitive style
  - Attitude to intuition
  - Affective orientation
  - Creativity
  - Risk tolerance
- *Personal Variables*
  - Experience
  - Expertise

Decision Characteristics

We identify three decision characteristics conducive to intuitive processing: (1) nonprogrammed, (2) high importance, and (3) significant impact decisions. Nonprogrammed decisions are defined as nonrecurring or nonroutine decisions that require a unique approach (see Simon 1960). This description implies that such decisions are prone to ambiguity and lack precedents. Wally and Baum (1994) have supported this assumption by identifying the use of intuition as a key personal determinant of speedy strategic decision making, which tends to require unique solutions because of the ambiguity and unprecedented nature of most strategic issues. In addition, Goodman (1993) has listed the perceived importance of the decision as one of the contextual factors leading to nonsequential processing of information because of time pressure. Again, this is a scenario that might be conducive to intuition. Based on Kriger and Barnes's (1992) findings that decision events have different organi-

zational and individual significance, however, we will treat this characteristic from two separate perspectives: the importance of the decision for the organization on the one hand, and the perceived impact of the decision for the manager on the other. Therefore:

> Proposition 4: The less routine the nature of a decision is, the more likely it is that managers will use intuition in decision making.
>
> Proposition 5: The greater the importance of a decision is for an organization, the more likely it is that managers will use intuition in decision making.
>
> Proposition 6: The more significant the perceived impact of a decision is for the manager, the more likely it is that he or she will use intuition in decision making.

Environmental Factors

We have divided environmental factors into two groups: (1) organizational characteristics, which are fairly stable, and (2) situational variables. We deal with each of these groups in turn.

Organizational Characteristics

In our model, we consider three broad organizational characteristics that seem to influence the use of intuition: configuration, encouragement of tacit knowledge, and industry category. We deal with each of these in turn in the following.

Configuration. It describes the way in which an organization functions in terms of its structure and formalization of procedures (Mintzberg, Ahlstrand, and Lampel 1998). Mintzberg and his associates have identified seven configuration types: entrepreneurial, machine, professional, diversified, adhocracy, missionary, and political. Mintzberg argues that each configuration influences the degree to which analytical or intuitive decision making is encouraged and used. Specifically, entrepreneurial, innovative organizations with a flat informal structure tend to be more intuitive in terms of decision-making style. Mintzberg's position is supported by the findings of Crossan, Lane, and White (1999) concerning the use of the entrepreneurial type of intuition in situations prone to

innovation and change. It seems reasonable to conclude, therefore, as Maidique and Hayes (1984) suggest, that a lack of formal procedures, common in entrepreneurial organizations, leads to ambiguity, and therefore is conducive to the use of intuition. Hence we posit:

> Proposition 7: The more entrepreneurial is the configuration of an organization, the more likely it is that managers will use intuition in decision making.

Encouragement of tacit knowledge. Leonard and Sensiper (1998) have defined tacit knowledge as knowledge that a decision maker has acquired through nonconscious learning and is either unaware of or cannot explain it fully. Reber (1989) has shown further that nonconscious learning and knowledge development can be more effective in decision making than rational methods. He concluded that this is because tacit knowledge increases with a more developed knowledge base and higher levels of expertise. On the other hand, research findings by Brockmann and Simmonds (1997) indicate that the use of tacit knowledge is influenced by a combination of a decision maker's experience and his or her use of intuition, which serves as a conduit. Studies in group tacit knowledge (Leonard and Sensiper 1998) and collective intuition (Eisenhardt 1999) have shown that successful organizations utilize tacit knowledge in decision making by encouraging their managers to use intuition. Therefore we propose:

> Proposition 8: The more an organization encourages the use of tacit knowledge, the more likely it is that managers will use intuition in decision making.

Industry category. Based on Parikh, Neubauer, and Lank (1994) and Agor (1984), we propose that intuition is used more in industries characterized by ambiguous problems and lack of adequate information. We propose further that intuition is associated with unprecedented situations (Burke and Miller 1999). Consistent with Wally and Baum (1994), we therefore argue that the use of intuition is likely to be more prevalent in fast-paced industries where time plays a major role in decision making:

> Proposition 9: In more fast-paced industries, it is more likely that managers will use intuition in decision making.

Situational Variables

The most important situational variable we have identified, and therefore included in our model, is time pressure. Schoemaker and Russo (1993) state that, when time is short, intuition might be the only option for the decision maker. Similarly, Thompson (1967) has determined that nonrational methods are best used when the time is limited. In addition, Wally and Baum (1994) have identified time pressure in terms of decision speed as a factor encouraging the use of intuition. We argue that, under time constraints, decision makers might have to resort to rapid nonsequential processing, as described by Simon (1987), and therefore will be more inclined to use intuition. Hence:

> Proposition 10: The more time pressure is exerted on managers, the more likely it is that they will use intuition in decision making.

Individual Factors

We have grouped the individual factors emerging from literature into two categories: (1) personal characteristics based on personality traits and attitudes and (2) personal variables of contextual nature. Out of each category, we have selected factors that have the strongest theoretical support and are viable for measurement.

Personal Characteristics

The personal characteristics considered in our model include (1) cognitive style, (2) attitude to intuition, (3) affective orientation, (4) creativity, and (5) risk tolerance.

Cognitive style. Messick (1976, 5) has defined cognitive style as "consistent preference in preferred ways of organizing and processing information and experience." Based on this definition, other researchers (e.g., Allinson and Hayes 1996) have argued that cognitive style influences managers' preferences for analytical or intuitive decision making and other managerial activities. Similarly, Taggart et al. (1997) have stressed the role of personal style in determining a manager's preferences for a rational or an intuitive approach to work situations. These findings are supported by earlier research (e.g., Agor 1984; Herrmann 1982;

Mintzberg 1989) which established that managers have a distinct mental preference for analytical or intuitive information processing, where the latter is more holistic, creative, and emotional. As Mintzberg, Ahlstrand, and Lampel (1998) pointed out, this mental preference has an impact on managers' leadership styles. Pitcher (1997) has identified three leader types, with "the artist" as the most intuitive manager, characterized by an entrepreneurial, imaginative, and emotional nature, similar to Mintzberg's concept of a holistic "thinking style," or approach to strategic thinking. Hence, we argue:

> Proposition 11: Managers who have a more holistic thinking style are more likely than managers with less holistic styles to use intuition in decision making.

Attitude to intuition. Regardless of cognitive style, the use of intuition seems to be influenced by an individual's attitudes. Burneko (1997) has hypothesized that denial or trivialization of intuition might inhibit its use. Similarly, Epstein et al. (1996, 394) have concluded that the use of intuition depends on "confidence in one's feelings and immediate impressions as a basis for decisions and actions." Therefore, we propose:

> Proposition 12: Managers with a more positive attitude toward intuition are, compared to managers who are less positively inclined, more likely to use intuition in decision making.

Affective orientation. It is defined as the degree to which managers are aware of affective cues, and subsequently use them as guidance in their decision making (Booth-Butterfield and Booth-Butterfield 1990). As mentioned earlier, the use of intuition seems to depend on whether the decision maker is in touch with his or her feelings (Epstein et al. 1996). Booth-Butterfield and Booth-Butterfield have argued that some individuals make decisions based on their feelings because they use affect as information consciously. Conversely, we theorize that non–affectively oriented managers may be more inclined to ignore the influence of their feelings and will attempt to base their decisions on a logical analysis (Epstein 2001). We therefore argue that:

> Proposition 13: Compared to less affectively oriented managers, managers who are more affectively oriented are more likely to use intuition in decision making.

Creativity. According to Bowers, Farvolden, and Mermigis (1995), creativity implies a mental process that generates a novel form or product through an unprecedented insight. Creativity seems to mediate especially the inventor-based or "entrepreneurial intuition" where creative decision makers "discern possibilities that have not been identified previously" (Crossan, Lane, and White 1999, 526; Mintzberg, Ahlstrand, and Lampel 1998). Creativity is closely related to intuition through imagination (Cappon 1994; Crossan, Lane, and White 1999) and associative thinking (Epstein, 2001) and, according to Pitcher (1997) and Westley and Mintzberg (1989), leads to innovation and visionary leadership. Creative problem solving thus seems to assist decision makers especially in unfamiliar, complex, or ambiguous situations (Bowers, Farvolden, and Mergigis 1995; Simonton 1975). Hence:

> Proposition 14: Compared to less creative managers, more creative managers are more likely to use intuition in decision making.

Risk tolerance. Wally and Baum (1994) define risk tolerance as the ability to tolerate ambiguity and a willingness to decide under such conditions. This characteristic describes a decision-maker's ease in dealing with ill-structured situations and vaguely defined problems, prevalent in intuition-conductive scenarios. By the same token, this definition implies a lower level of active involvement than "risk propensity" (Sitkin and Weingart 1995) or an individual's tendency to take risk per se. As Wally and Baum point out, risk tolerance is associated with psychological flexibility, another feature linking it to intuition. Therefore, we posit:

> Proposition 15: Compared to less risk-tolerant managers, more risk-tolerant managers are more likely to use intuition in decision making.

Personal Variables

As the final group of factors in our model, we examine two personal variables: (1) experience and (2) expertise. We view them as two distinct factors, even though they tend to be treated jointly in the literature (see, e.g., Crossan, Lane, and White 1999; Simon 1997).

Experience. According to Isenberg (1984), managers develop their intuitive decision making through trial-and-error experiences in similar

situations. In other words, as Klein (1998, 34) puts it, "some aspects of intuition come from our experience to recognize the situations and know how to handle them," especially how to respond to the nonconsciously registered missing or unusual elements of the scenario. This position is congruent with the results of Burke and Miller's (1999) study, where 56 percent of interviewed managers acknowledged that they based intuitive decisions on their work and personal experience. The importance of knowledge beyond one's domain of expertise is echoed by Monsay (1997), who argues that the creative aspect of intuition is enhanced by experience in a broad range of areas. Our model focuses on intentional decision making in management context, so we limit our scope to experience gathered through management-related activities, and:

> Proposition 16: Compared to less experienced managers, more experienced managers are more likely to use intuition in decision making.

Expertise. Even though closely related to experience, expertise is limited in our model to occupational domain (Härtel and Härtel 1996). In this view, the level of job-related education and years of professional experience in the specific field determine expertise. Our position is based on Härtel and Härtel's (1996) conclusion that an expert's judgment is superior to a novice's only within his or her domain of expertise. For example, an accountant may decide intuitively about a tax issue but analyze carefully all options when learning how to play chess. On the other hand, some researchers suggest that expertise is nothing but rapid pattern recollection, frozen into habit (Simon 1987). Epstein (2001) and Hammond et al. (1987) argue in particular that expertise is more closely linked to nonconscious analysis than intuition. Our definition, however, encompasses also the inventor-based aspects of intuition (Crossan, Lane, and White 1999; Mintzberg 1989). Consequently, it seems reasonable to conclude that experts differ from skilled managers in their ability to combine existing patterns in a novel and creative manner. Once more, this is related to intuitive processing, leading to:

> Proposition 17: The higher the level of the professional expertise, the more likely it is that a manager will use intuition in decision making.

In summary of this section of our chapter, we have identified the four groups of factors, shown in Figure 9.1, that are conducive to the use of

intuition in managerial decision making: problem characteristics, decision characteristics, environmental factors, and individual factors. We have also formulated specific propositions, based on the extant literature, suggesting how each is related to intuitive decision making. In the following section, we argue that their compounded effects are moderated by the affective state of the decision maker.

The Role of Affect

A central tenet of our argument in this chapter is that affect plays a role in decision making. This view is based in part on recent empirical studies (e.g., Elsbach and Barr 1999; Petitmengin-Peugeot 1999) indicating that decision makers are inclined to use or eschew intuition depending on their affective states. In this context, Simon (1987) argues that "emotion-driven intuition," which represents response without careful analysis or calculation, leads to "irrational" decisions. Other researchers have adopted a more neutral stance. For example, Shapiro and Spence (1997) concluded that an affective aspect generally accompanies intuitive events. Their position is consistent with Epstein's (1998) findings that the experiential processing uses affect as a cue for action. As we noted earlier, affect is defined as an umbrella term for emotions and mood (Forgas 1994), where emotions are directed at a specific object or person, while mood lacks object-specificity (Frijda 1993). Moreover, moods tend to be less intense and of longer duration (Frijda 1993). Another distinction, important for our proposition development, is that affective states have two components. The first of these is intensity, measuring the strength of the affect. The second is direction; whether the affect is negative or positive (Petty, Gleicher, and Baker 1991, 183–184). In the following section, we develop specific hypothesized relationships between intuition and affect, based on the affect infusion model (AIM; Forgas 1994, 1995) and findings about the confirmatory role of affect (Bastick 1982; Cappon 1994; Petitmengin-Peugeot 1999).

The Affect Infusion Model

The AIM (Forgas 1995) stipulates that there are four information-processing strategies: direct access, motivated, heuristic, and substantive. The selection of a strategy is determined by a cumulative effect of problem, decision, and individual characteristics. Each strategy has a differ-

ent potential for affect *infusion*, which indicates how much the processing and its outcome are influenced by affectively loaded information. In the instance of our model, the direct-access mode is not relevant because it is not focused on affective elements. Therefore, we will discuss the motivated, heuristic, and substantive modes, and interpret them in the light of our arguments concerning proclivity to use intuitive versus analytical decision-making styles.

The Role of Affect in Heuristic Versus Substantive Strategies

The heuristic and substantive decision-making strategies of the AIM (Forgas 1995) correspond respectively to Epstein et al.'s (1996) rational and experiential information processing modes. Forgas (1995) argues that decision makers tend to use heuristic processing when in a positive mood, which indicates favorable conditions to proceed. Negative mood, on the other hand, evokes a sense of danger and, therefore, prompts substantive processing. This implies that the selection of intuitive versus analytical decision making might be influenced by the current mood of the decision maker. Elsbach and Barr (1999) have identified a similar trend in their study of complex decision making. Their findings indicate that positive mood is likely to encourage simplified, heuristic processing while negative mood leads to a reliance on rational decision-making protocols.

Furthermore, recent research by Ashby, Isen, and Turken (1999) indicates that positive and negative affective states are mediated by independent neural pathways and, as such, are not necessarily opposites. Based on results of their studies, Ashby, Isen, and Turken (1999) concluded that different affective states appear to have different effects on memory, judgment, processing strategies, and social behaviors. Isen's earlier work also indicates that moderate positive affect has an important role to play in decision-making outcome (see Nygren et al. 1996; Estrada, Isen, and Young 1997). Isen and her colleagues (e.g., Ashby, Isen, and Turken 1999) stress that this holds true for only moderate levels of emotion. Based on these findings about the asymmetrical nature of negative and positive affect, we treat the impact of each separately:

> Proposition 18a: Managers in moderately positive affective states are more likely to use intuitive decision making than managers in moderately negative affective states.

Proposition 18b: Managers in moderately negative affective states are more likely to use analytical decision making than managers in moderately positive affective states.

Motivational Strategy

In contrast to the heuristic and substantive strategies, the motivational strategy in the AIM is relatively affect-free during actual information processing (Forgas 1995). This strategy is guided by the decision maker's strong motivation to arrive at a desired outcome; nevertheless, the processing is likely to be *triggered* by a high-intensity affect. Forgas (1995) notes that the impact is independent of the negative or positive direction of the affect. For example, anger is just as likely as elation to trigger a motivational strategy.

The affect, however, appears to have a different effect on the use of intuition depending on the focus of the decision maker. Expanding on the AIM, and consistent with Palmer (1998), we argue that *high-intensity* affect is likely to trigger intuitive processing so long as the decision maker focuses on desired outcomes and goals. In other words, emotion can be used to reinforce an individual's intent to find a solution, therefore activating intuition. This notion is supported by Monsay's (1997) depiction of intuitive process as inevitably accompanied by a strong desire to solve a particular problem.

On the other hand, it appears that high levels of affect are likely to *preclude* access to intuition when the decision maker focuses on the affect itself, rather than finding a solution to the problem at hand. This position is consistent with Elsbach and Barr's (1999) findings that stress can impede intuition. Further, Petitmengin-Peugeot (1999), in a study of highly intuitive people, found that strong emotion disturbs intuitive listening. Similarly, Vaughan (1979) found that emotions such as fear and anxiety tend to interfere with intuitive perception by blocking subtle incoming signals.

In summary, our arguments suggest that the impact of high-intensity emotions on the use of intuition depends on whether the decision maker focuses on the problem or the affect. Hence, we propose:

Proposition 19a: For managers in high-intensity affective states, affect is likely to facilitate the use of intuition in decision making, but only if the manager's focus is on the decision outcome.

Proposition 19b: On the other hand, if the manager's focus is on the affect, then affect is likely to block the use of intuition in decision making.

Affective Elements of the Confirmatory Process

The final topic we discuss is the effect of a manager's confirmation that intuitive decision making is useful and successful. This process is in addition to the interactions we have outlined already. In this respect, the function served by affect depends on whether it is perceived in the first place and, if so, how it is perceived. Many researchers (e.g., Agor 1986; Bastick 1982; Cappon 1994; Petitmengin-Peugeot 1999; Vaughan 1979) point out that some decision makers tend to use feelings as their preferred mode of perception. For example, Petitmengin-Peugeot identified that an intuitive insight might be transmitted by means of a kinesthetic, sensational, or affective feeling. Research findings indicate that these feelings take on a specific quality, which serves as confirmation of "true" intuition. Cappon (1994) and Petitmengin-Peugeot (1999) have independently concluded that the genuine nature of the intuitive outcome tends to be confirmed by an emotional signal such as suddenly feeling calm, certain, or relieved. Cappon (1993, 45) describes "a feeling of certitude through the stomach," while Petitmengin-Peugeot (1999) refers to a feeling of certitude and coherence. Similarly, Bastick (1982, 85) talks about the "warm feeling of being right."

In line with our earlier arguments that positive affect leads to more use of intuition in decision making, we argue that the positive affect generated by intuitive decision making would likely be self-reinforcing, and would therefore encourage further use of intuition. Thus, our final proposition is:

Proposition 20: Managers who receive affective confirmation of the successful and useful nature of their intuitive experience are more likely to use intuition in future decision making than managers who do not receive this confirmation.

Discussion

In this chapter, we have described a model of the determinants and affective moderators of intuitive decision making in management context. This model is especially timely because the pace and complexity of modern business life has led to a greater interest in managerial

intuition. Consequently, there is an imperative for management scholars to understand these processes. Our theoretical framework is based on contemporary decision-making approaches (Eisenhardt and Zbaracki 1992; Langley et al. 1995; Sauter 1999), CEST (Epstein 1990, 1998), and AIM (Forgas 1994, 1995). We addressed four groups of factors conducive to the use of intuition: problem characteristics, decision characteristics, environmental factors, and individual factors. We also discussed the nature of intuition and affect, and explored the role of affect in the intuitive decision-making process. The model we propose incorporates the moderating effect of positive and negative mood, high-intensity emotions, and the confirmatory affective feelings on the use of intuition.

As a final note, we acknowledge four limitations in our model. First, there may obviously be additional factors that affect decision-making styles that we have not considered. Second, the testing of our model is likely to be limited by the reliability and validity of the available scales used to measure the identified factors. In particular, most measures (e.g., the Positive and Negative Affect Scale (PANAS), Watson, Clark, and Tellegen 1988) are based on self-reports. Third, it is to be noted that our framework is limited to intentional decision making in business context. Finally, it might be necessary to identify more specifically the effect of industry type on decision-making styles, and to determine whether there are any significant differences across cultures or gender. Irrespective of these limitations, however, we believe that our model constitutes another step toward facilitating systematic and rigorous research of intuitive decision making and will further our understanding of the role of affect in this process.

In conclusion, identification of the determinants and affective moderators of intuitive managerial decision making has important implications for management practice. In particular, if empirical testing bears out our propositions, the knowledge can be used to train managers to become more aware of their affective states and the important factors involved in the decision-making process. Managers can subsequently use this newly acquired skill to shift from one decision-making style to another, and thus access intuition consciously whenever appropriate. For example, if a manager does not have adequate information, or is under pressure to make a decision too fast to apply analytical decision making, he or she could consciously trigger intuitive processing. Conversely, if a manager arrives at an intuitive decision, he or she could consciously switch to the analytical process to scrutinize the outcome.

This way, the use of managerial intuition could complement analytical decision making and thus possibly contribute to an improved speed, accuracy, and quality of decisions.

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