

An examination of cognition and affect in strategic decision making

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Abstract

Purpose – The purpose of this article is to better understand the nature of the decision maker's cognitive-affective information processing behavior in the context of strategic decision making.

Design/methodology/approach – Reviews of the psychological science, organizational behavior, and strategic management literatures serve as a foundation for the development of a model and a series of research propositions. Propositions and model development lead to a discussion regarding limitations of the current literature, as well as areas for future research that incorporates cognitive-affective information processing issues in organizational research.

Findings – Organizational homogeneous and heterogeneous behaviors in the organizational adaptation process depend on a strategic decision maker's cognitive-affective informational interpretation of both internal and external environmental stimuli.

Research limitations/implications – The focus of this article is limited to the individual level of analysis. Further theoretical and empirical research should investigate how the framework could be applied at the team and organizational levels and how it holds under various industrial and/or environmental conditions.

Practical implications – This article informs practicing managers of how their decision-making behavior is influenced by both cognition and affect when they scan and process their strategic informational environment and, furthermore, how these influence their choice of organizational forms and practices.

Originality/value – Extends theoretical understanding of cognitive-affective informational processing and its influence on the organizational homogeneous-heterogeneous adaptation process.

Keywords Decision making, Cognition, Organizational behaviour

Paper type Conceptual paper

The causes of variability in organizational forms and practice has long been an issue in the literature on how organizations develop and change over time (DiMaggio and Powell, 1983; Sinangil and Avallone, 2002). Multiple theories in the organizational studies literature have been used to explain this phenomenon (Lewin and Volberda, 1999). Among the most widely recognized approaches to explaining organizational divergence and similarity in forms and practices within a population (i.e.

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organizational diversity) are population ecology (e.g. Amburgey and Rao, 1996; Carroll, 1988; Hannan and Freeman, 1977, 1989) and institutional theory (e.g. Hannan and Carroll, 1992; Powell and DiMaggio, 1991; Scott and Meyer, 1983). However, these theories primarily focus on the environment-structure contingency in the developmental process and provide limited explanation about the critical role of managerial discretion. More specifically, they focus on the individual decision maker's perceptive response to environmental information in the adaptation and change process (Üsdiken and Leblebici, 2002).

Although some scholars have proposed alternative theoretical viewpoints that consider multiple levels of analysis (e.g. Klein *et al.*, 1994; Lewin *et al.*, 1999) and their interdependencies (Hrebiniak and Joyce, 1985), few new insights beyond the ecological prescriptions of variation, retention, and selection have emerged to account for the organization's homogeneity and heterogeneity behavior. By homogeneity we mean the similarity of structure, competitive strategy, and implementation practices observed in an organization; by heterogeneity, we mean the dissimilarity in these characteristics. Furthermore, despite the rich theoretical literature in managerial cognition, there has been little research that specifically ties individual decision-making behavior to more generalized theories of organizational adaptation (Cyert and March, 1963; Gavetti *et al.*, 2007). Moreover, much of the research on risk and uncertainty in strategic management has been influenced by a neoclassical economic perspective that continues to hold old notions of decision making as inherently rational (Hodgkinson, 2002).

This article explores the decision maker's perception of environmental stimuli as a means of explaining adaptive behavior of organizational homogeneity and heterogeneity. The theoretical model we develop focuses on the role of the strategic decision maker's perceptive-informational behavior in response to varying degrees of environmental stimuli, which in turn affects the decision maker's homogeneous-heterogeneous behavior in the strategic adaptation process. We further relate homogeneity-heterogeneity forces emanating from environmental stimuli with the phenomenon of organizational population, consistent with the position of the Carnegie scholars (e.g. Cyert and March, 1963; Gavetti *et al.*, 2007). We suggest that a strategic decision maker's cognitive-affective environmental interpretation is an overlooked yet key element of the organization's development and adaptation process. Propositions and implications are derived from the theoretical model in an effort to promote further research in this area.

Organizational homogeneity and heterogeneity

Organizational diversity is an overarching snapshot of a population, whereas organizational form represents the formal structure of the organization, the patterns of organizational activity, and the normative order (Hannan and Freeman, 1977). Organizational diversity reflects important strategic activities and processes that may influence performance variables such as effectiveness, efficiency, and survival. Specifically, we define organizational homogeneity and heterogeneity in a population – or more concisely termed here as organizational diversity – as the extent of relative similarities and differences among organizational forms, processes, and strategic actions in an organizational population.

Two of the most prominent theories that account for organizational homogeneity and heterogeneity are institutional theory and population ecology. These theories

emphasize different macro-level forces (sociological versus ecological) in explaining organizational diversity, but are unable to completely explain this phenomenon independently (Carroll and Huo, 1986; Zucker, 1987). Population ecology provides an explanation for the shape and dynamics of organizational populations. Population ecologists (e.g. Aldrich, 1979; Hannan and Freeman, 1977) use an analogy of ecological life to better understand populations of organizations, by focusing on organizational change in ecologically competitive environments. Ecological theory predominantly uses specialism and generalism to explain diversity of populations in a community, emphasizing environmental variability. The belief here is that an ecological selection mechanism regulates organizational diversity by dictating the survival of specific organizational forms (Hannan and Freeman, 1977). Ecological theorists argue that environmental selection criteria, such as external pressure for legitimacy, forces of competition, and institutionalization, favor inert organizations that demonstrate reliability and accountability (Hannan and Freeman, 1984, 1989).

From an organizational diversity perspective at the population level, a competitive "select-out" process is an external force that contributes to organizational homogeneity because the ecological mechanism continuously selects out unadjusted or divergent organizations from the population. Population ecology provides an explanation for diversity at the community level using the concept of ecological environmental variance. Levinthal (1997) emphasized the interrelationship between organizational change and population-selection forces, arguing that selection pressures affect the distribution of the organizational forms in the population through the organizational adaptation process. Other researchers focusing on population effects on organizational forms have identified the relative impact of organizational adaptation forces and population selection pressures (e.g. Singh *et al.*, 1986).

On the other hand, institutional theorists (e.g. Aldrich and Fiol, 1994; DiMaggio and Powell, 1983; Meyer and Rowan, 1977) emphasize organizational conformity to institutional norms, such that that benefits are gained through access to resources, status, and right-to-exist (Aldrich and Auster, 1986; Baum and Oliver, 1991; Hannan and Carroll, 1992). The focus here is on the relationship between organizational legitimacy and organizational founding, mortality, and survival (Baum and Oliver, 1991, 1996; Baum and Singh, 1994). From an institutional standpoint, we recognize the legitimization process as a normative pressure on organizations to resemble one another. This process has been termed sociological isomorphic institutionalism (DiMaggio and Powell, 1983).

Even in today's highly interconnected and open society, however, there is some doubt as to the extent that legitimacy itself is a powerful enough force for organizations to remain in homogeneous forms. Because organizations have different resources, structures, and value systems, they cannot easily adapt to the same pressures of social legitimacy. Thus, some organizations may not be "permitted" to adapt to social legitimacy changes because of structural inertia (Burns and Stalker, 1961) or different resources and capabilities (Galbraith and Kazanjian, 1986; Prahalad and Hamel, 1990), while others might take a compromising position between external and internal pressures so that variability is established. More importantly, legitimacy itself is perceptive and cognitive in nature (Aldrich and Fiol, 1994). Generally stated, top-level decision makers are surrounded by diverse internal and external informational environments. We argue that because decision makers have limited

information processing capabilities and informational biases, there will be variations in their strategic choices (e.g. Beach and Connolly, 2005; Hastie and Dawes, 2001; Tversky and Kahneman, 1974).

In addition to these two main theoretical viewpoints, there have been some controversial and supplementary assertions contributing to this body of organizational knowledge. For example, Powell and DiMaggio (1991) explained variability of organizations in an institutional environment by pointing out how different resources flow in organizations. Also, Paradis and Cummings (1986) suggested that organizations go through a negotiation and compromise process in response to coercive pressures, such as government policies and state mandates. Thus, to more fully address the organizational diversity phenomenon, we have incorporated a strategic choice argument into our framework.

It has long been held that organizational decision makers have discretion and their choices impact the organization and the environment in which the organization operates (Child, 1972; Smircich and Stubbart, 1985). However, as Hrebiniak and Joyce (1985) suggest, these deterministic views may represent only one side of the explanation. A strategic choice argument emphasizes the active role of organizational decision makers in interpreting and enacting the environment in the process of organizational change (Child, 1972; Smircich and Stubbart, 1985). Such changes are primarily associated with the heterogeneity of organizations in the population because subjective and interpretive views of the environment dictate competitive strategic activities (Anderson and Paine, 1975; Corner *et al.*, 1994; Schwenk, 1984). In the following section, we further elaborate upon the role of the strategic decision maker, specifically on the element of his/her cognitive-affective informational behavior. This, in turn, is believed to influence organizational homogeneity-heterogeneity behavior in the process of organizational adaptation.

Cognitive-affective informational behavior in strategic adaptation

As Eisenhardt and Zbaracki (1992) note, strategic decision making is both central and crucial because it involves the fundamental decisions that shape the course of an organization. The strategic decision process is typically subject to both internal and external forces (Simon, 1976) and determines choice alternatives so that "the environment and strategic choice may interactively determine courses of organizational evolution" (Romanelli and Tushman, 1986, p. 618). Such interactive views have been supported in organizational research where both external and internal conditions jointly influence strategic choice and organizational adaptive actions (Amburgey and Miner, 1992; Corner *et al.*, 1994; Dutton and Duncan, 1987).

A strategic choice model would, of necessity, examine the decision maker's cognitive behavior, such that the organization and environment are created together in a socially enacted environment (Smircich and Stubbart, 1985). Thus, the perceptions of the strategic decision maker become of paramount importance to subsequent strategic choice and actions. However, given the limited information processing capabilities of people (Miller, 1956; Simon, 1976), decisions are inevitably based on incomplete and imperfect interpretations of the environment (Beach and Connolly, 2005). These cognitive limitations may affect decision makers' choices, which then could lead to systematic bias in organizational change and adaptation (e.g. Barnes, 1984; Bazerman, 2005; Corner *et al.*, 1994; Schwenk, 1984; Tversky and Kahneman, 1974). For example,

in an information overload situation, a decision maker tends to simplify complex cognitive problems through mechanisms such as chunking (Miller, 1956), cognitive mapping (Hambrick and Mason, 1984) and heuristics, such as anchoring (Schwenk, 1984; Tversky and Kahneman, 1974) and referencing (Fiegenbaum *et al.*, 1996; Kahneman and Tversky, 1979). This simplification is a common form of bias that can substantially impact the number of options available, as well as the final decisions made. The simplification of information may necessarily reduce the level of information sophistication and restrict the comprehension level in the decision-making process. Furthermore, decision makers have different cognitive styles in organizing and processing information due to different cognitive schemas or knowledge structures (e.g. Lord and Maher, 1990; Messick, 1984). This too results in information biases and further choice diversity (Hambrick and Mason, 1984).

Given these theoretical developments in behavioral decision making, we suggest that the factors underlying organizational diversity must include the organizational decision maker's cognitive information processing capacity because it can lead to differences and similarities in organizational forms through explicit strategic decisions. We will now consider additional details about the decision maker's cognitive behavior in response to environmental stimuli emanating from external and internal conditions.

Developing perceptions based on both rational and affective (i.e. emotional) states is a natural part of the cognitive process (Izard and Ackerman, 2000; Lazarus, 1991; Salovey and Mayer, 1989/1990). Cognitive scientists suggest that decision making is neither purely rational nor one-directional, but rather that affective processes and rational cognitive computation interact (Berkowitz, 1993; Bower, 1981; Zajonc and Markus, 1982). Previous research on emotion has used different terms interchangeably in defining human affectivity (e.g. emotion, affect, feeling, mood). Daniels (1998, p. 165) argued that emotion denotes feelings toward an event, object or person; mood denotes feelings that are not linked to a specific event, object or person and are transitory in nature (Watson *et al.*, 1988); and affect is more general and subsumes the other terms. Watson and Clark (1992, p. 443) argued that negative affect and positive affect are the two dominant dimensions of emotional experience and, together, these two account for "roughly one-half to three-quarters of the common variance among emotion-related terms."

Previous research in the area demonstrated that cognitive interpretation influences distinct emotional states (Clore *et al.*, 1994; Lazarus, 1991, 1993). Damasio (1994) argued that affect is necessary for rational decision making in that evaluations of environmental stimuli are first emotionally made, and only then cognitively processed (Bargh, 1994; Barrett *et al.*, 2007). Cognitive neuroscience research has found that three qualitatively different information processing architectures are involved in the experiencing and regulation of emotions and cognitions: emotional, connectionist, and symbolic architectures (Lord *et al.*, 2002).

Emotional architectures are very fast and reliable operating processes that rely on dedicated and domain specific systems. These architectures can rapidly orient individuals toward an external environment and quickly initiate the appropriate social or individual response (Bechtel and Abrahamsen, 2002; Lord *et al.*, 2003). Lord and Harvey (2002) argued that these systems affect how individuals react to their environment. According to Lord and Harvey (2002), an individual's emotional

architecture may quickly orient to important environmental events while the individual's connectionist architecture may automatically compute a primary appraisal and initiate categorical responses. Furthermore, symbolic processes, which are slower-acting, may further refine an individual's reactions through secondary appraisal and attempts to modify the individual's response that may already be in the process of being executed.

In fact, there has been a trend in integrating cognitive neuroscience findings into organizational behavior theory. For example, Lord *et al.* (2003) argue that Vroom's (1964) Valence-Instrumentality-Expectancy (VIE) theory can benefit from being viewed from a neural network standpoint. Howard (1993) also emphasized the complementary relationship between rationality and emotions by discussing emotion as a major player in the decision-making process. Similarly, Forgas and George (2001) discussed how affect influences a variety of work-related behaviors, such as worker motivation, creativity, performance appraisal judgment, and selection interviews.

Previous researchers focusing on cognitive-decision behavior have also argued and/or empirically demonstrated that affect influences perceptive cognition (e.g. Burke *et al.*, 1993; Maitlis and Ozelik, 2004; Sayegh *et al.*, 2004; Westen *et al.*, 2006; Wong *et al.*, 2006). For example, Dalglish and Watts (1990) empirically showed that anxiety biases attention towards threat, and negative affect biases attention toward negative information. Wong *et al.* (2006) showed that regardless of whether negative affect was conceptualized as a dispositional trait or transient mood state, individuals high in negative affectivity were more prone to an escalation tendency when they were responsible for the prior decision. Similarly, Parkinson (1995) emphasized the reciprocal causation between cognition and affectivity, in that affectivity both influences and is influenced by cognition in the decision-making process.

In the following section, we further relate these affective elements in cognitive mental functioning to the decision maker's informational behavior in environmental interpretation. We suggest that affective responses in environmental scanning shape the organizational decision maker's homogeneity and heterogeneity behavior in the process of organizational adaptation.

Cognitive-affective interpretation of internal conditions

Organizations are not capable of being exactly alike. Every organization has its own history, culture, resources, structural inertia, technical competences, capabilities, and other characteristics. These different organizational traits, under different environmental conditions, create or break down barriers that restrict organizations from easily adapting to external environmental change (Andrews, 1971; Daft, 2007; Hofer and Schendel, 1978). Previous researchers suggested that these internal conditions include organizational capabilities, resources, managerial structures, and organizational value systems (e.g. Ansoff, 1965; Hofer and Schendel, 1978; March and Simon, 1993).

In addition to actual restrictions from the organization itself, successful organizational change may also be hindered by the discrepancy (i.e. dissonance) between reality and the perception of the situation. The reality of the situation may be more or less similar to the perceived reality. Various organizational perceptual differences may exist regarding organizational performance levels, the decision maker's power in implementing decisions, internal structural inertia, and so forth.

These factors, in turn, influence decisions when considering organizational resource allocation and other strategic choices. More specifically, a host of perceived internal conditions about organizational resources and leadership power will together determine a decision maker's cognitive confidence level, which impacts the implementation likelihood of organizational changes (Winkielman *et al.*, 2007).

Confidence – an affective response to environmental stimuli – enhances the potential for taking more strategically adaptive actions (Ginsberg, 1988; Milliken, 1987; Thomas *et al.*, 1993). Under highly uncertain and complex environments (Canon and St. John, 2007), cognitive dilemmas may delay decisions and/or force decision makers to mimic organizational models that they believe are more successful (Lieberman and Asaba, 2006; Milliken, 1987). In these decision-making contexts – and depending on the level of information asymmetry – risk enters the equation, leaving some decisions to be based more on individual risk-taking aptitudes rather than rationality (Bettis, 1981; Cool and Dierickx, 1993; Pablo *et al.*, 1996). Strategic decision makers who perceive unfavorable internal conditions in resources and/or leadership power may have lower levels of confidence and, thus, be less likely to take risks.

Extant literature on threat-rigidity (George *et al.*, 2006; Ocasio, 1995; Staw *et al.*, 1981) and prospect theory (Kahneman and Tversky, 1979; Wiseman and Gomez-Mejia, 1998) also strengthen the behavioral argument in strategic decision processes. The threat-rigidity hypothesis suggests that events perceived as threatening cause executives to respond to them with risk-averse behavior (George *et al.*, 2006; Sitkin and Pablo, 1992). As empirically tested by strategic reference theory (e.g. Fiegenbaum *et al.*, 1996), risk-taking behavior depends on the strategic decision maker's reference point. If perceived performance is above the strategic reference point, firms are less likely to take risky options or make more heterogeneous choices. The reverse is also true. These strategic decision theories suggest that behavioral elements play an influential role in strategic choices and adaptive actions.

Under lower levels of perceived confidence, strategic decision makers may show a propensity to copy other organizations in a population, particularly those that seem successful (Lieberman and Asaba, 2006). This is likely because the decision maker can perceive the evidence of the decision before the decision is actually made, reducing the level of risk involved in the decision. Without a strong motivational factor, such as risk-bearing compensation (Fama, 1980; Jensen and Meckling, 1976), the decision maker would not be willing to take risky options or seek variability under unfavorable internal conditions. Behavioral decision theorists have found that a positive feeling about a situation enhances favorable evaluations, even without objective evidence (Forgas and George, 2001; Pham, 1998, 2004; Zajonc and Markus, 1982). This dynamic contributes to increasing organizational homogeneity in a population. Conversely, a decision maker with a higher level of perceived confidence about internal conditions is more likely to take alternative (or heterogeneous) options while seeking organizational competitive advantages. Thus, we suggest the following proposition:

- P1.* Among organizational strategic decision makers, perceptions of unfavorable (versus favorable) internal organizational conditions are related to more homogeneous (versus heterogeneous) decisions regarding organizational forms in the strategic adaptive process.

Cognitive-affective interpretation of the external environment

The external environment is dynamic not static, and continually undergoing a process of change. Top-level managers spend large portions of their time and effort scanning the environment and attempting to predict these changes (Anderson and Nichols, 2007). The dynamics involved vary by firm and industry, but seem to stem from changes in the number and type of stakeholders and their impending interactions. These changes, in turn, lead to environmental uncertainty and complexity. As the external environment becomes more uncertain and dynamic, the decision maker devotes more time and effort to analyzing and predicting the environmental changes (Anderson and Nichols, 2007; Milliken, 1987).

Strategy researchers have also found that environmental representations of opportunity and threat influence the level of risk taking (Chattopadhyay *et al.*, 2001; Dutton and Jackson, 1987) and organizational adaptation (Gioia and Chittipeddi, 1991; Thomas *et al.*, 1993). Hostile or more threatening environments are often those associated with high complexity, high dynamism, and low generosity; relatively simple, stable, and charitable environments are more often associated with an "opportunity" (Dess and Beard, 1984; Jackson and Dutton, 1988). So, in a certain or more favorable environment, decision makers are more easily able to access, discern, prioritize, and resolve information, and, thus, get a feeling of control that helps them label the situation as an "opportunity" (Chattopadhyay *et al.*, 2001). Also, the decision maker attends to more diverse issues and informational components in environmental scanning, leading to multiple paths for achieving goals and heightening perceptions of feasibility (Dutton and Webster, 1988). Perceived feasibility is associated with control and the probability of resolving the issue, which is typically labeled as an opportunity (Dutton and Duncan, 1987; Dutton and Webster, 1988).

In highly complex and uncertain environments, cognitive limitations make it impossible to fully comprehend and objectively analyze the numerous components and mechanisms involved (Unsworth and Engle, 2007). In such situations, reducing the cognitive complexity of the situation comes from modeling other more successful organizations in a population. Milliken (1987) argued that the perceived uncertainty felt by an organizational strategist impacts the strategy formulation process, often causing strategists to imitate or copy the strategic responses of others. Thus, increased environmental uncertainty and ambiguity may influence decision-making behavior by encouraging imitation (Lieberman and Asaba, 2006).

In the opposite situation, where the decision maker perceives that the external environment is stable and more certain, decision makers may have more initiative and confidence to exert comparably more heterogeneous options. Such decisions are often based on opportunity recognition and the need to achieve competitive advantage. Jackson and Dutton (1988, p. 374) empirically found that perceptual attributes, such as "issue is visible", "many solutions", and "feelings of control", are all associated with the perception of opportunity, affecting information processing behavior and the firm's adaptive choice. Such perceptions suggest a simpler and stable environment and increase the probability of adaptive behaviors. Also, perceptions of understanding and feasibility about an issue increase the probability of adaptive choice (Dutton and Duncan, 1987). Therefore, environmental characteristics of simplicity and stability will likely lead to more organizational heterogeneity in form and practice.

P2 Among organizational strategic decision makers, perceptions of stable and simple (versus unstable and complex) external environments are related to more heterogeneous (versus homogeneous) decisions regarding organizational forms in the strategic adaptive process.

A theoretical model: strategic homogeneity and heterogeneity

The model depicted in Figure 1 delineates how decision makers' cognitive-affective perceptions about the external and internal environment influence their subsequent strategic choices regarding organizational forms. The theoretical arguments presented in the previous section suggest two perceptual pressures of organizational homogeneity and heterogeneity, which separately impact organizational diversity to varying degrees.

These two forces are:

- (1) the perceived internal conditions; and
- (2) the perceived external environmental uncertainty.

Cognitive-affective environmental interpretation of unfavorable internal conditions and uncertainty in the external environment influences organizational decision makers to be less divergent in their strategic choices. Alternatively, favorable internal conditions and stable external environments influence the decision maker to choose more heterogeneous options. Thus, the strength of each factor and the interaction between them affects decision-making behavior to make homogeneous or heterogeneous decisions regarding their organizational forms.

A more comprehensive model of organizational homogeneity and heterogeneity can be developed from Figure 1, shown here as Figure 2. Figure 2 also shows how the homogeneity and heterogeneity forces simultaneously influence the strategic decision-making behavior leading to organizational diversity. These elements are paired according to their external and internal affiliation, and then divided in terms of homogeneity and heterogeneity.

Environmental determinism is a force more inclined to produce homogeneity, while heterogeneity is more likely to emerge from strategic choice. We incorporate the perceptual information processing of external and internal conditions with the integration of determinism and choice. Such simultaneous perceptions about external environment and an organization's internal conditions will affect the strategic

Homogeneity-Heterogeneity Behavior		Perceived internal condition	
		Unfavorable Condition	Favorable Condition
Perceived Environmental Uncertainty	Uncertain (Dynamic /Complex)	Strong Homogeneity	Mixed Diversity
	Certain (Stable /Simple)	Mixed Diversity	Strong Heterogeneity

Figure 1. Environmental perceptions and strategic homogeneity-heterogeneity



Organizational Homogeneity	Perceived Uncertainty/ Unfavorable Internal Condition (Homogeneity Force)	Mixed Diversity
Environmental Determinism (Homogeneity Force)	Decision Maker's Adaptive Behavior	Strategic Choice (Heterogeneity Force)
Mixed Diversity	Perceived Stable Environment / Favorable Internal Condition (Heterogeneity Force)	Organizational Heterogeneity

Figure 2.
Homogeneity and heterogeneity forces and organizational diversity

decision-making behavior and choice of organizational form and adaptation. The environmental dimensions of uncertainty and complexity and the perceptions of internal organizational conditions influence strategic decision-making behaviors to take homogeneous or heterogeneous options.

More specifically, the decision maker's cognitive perceptions of environmental determinism and the uncertain and unfavorable environment will lead to more homogeneous organizational forms in the population. In contrast, the combination of strategic choice and perceptions of favorable internal conditions and a particular external environment lead to greater strategic heterogeneity in a given population. The combination of these dimensions helps explain the phenomenon of organizational and strategic diversity.

Discussion

Previous studies have integrated environmental determinism and strategic choice in explaining and predicting strategic adaptation (e.g. Hrebiniak and Joyce, 1985; Marlin *et al.*, 1994). However, there is still a lack of understanding of the role of the individual

decision maker in the process of organizational adaptive behavior. Furthermore, Hrebiniak and Joyce's (1985) model has only received partial empirical support in explaining and predicting the strategic adaptations of different organizations (Lawless and Finch, 1989; Marlin *et al.*, 1994). This suggests that the integration of the two factors of determinism and choice is just the first step in explaining the complex processes involved.

In response, we highlight a specific element of decision-making behavior: the cognitive-affective informational behavior in the organizational adaptive process. We argued the importance of this element in the earlier description of organizational homogeneity and heterogeneity phenomena. In this regard, we suggested that the theoretical model developed in this article extends our theoretical understanding of the organizational diversity and development process through the inclusion of the individual decision maker's behavioral element in the model. We argued that the model not only has explanatory power regarding organizational homogeneity and heterogeneity, but may also be useful in predicting organizational change within a given population.

Although many management researchers have emphasized the importance of studying cognition in managerial decisions (e.g. Forgas and George, 2001; Markóczy, 1997; Meindl *et al.*, 1994; Stubbart, 1989), most of their studies are limited to the individual level of analysis. Less studied is the impact of affect on individual decision making and how this influences more macro levels of analysis. For example, research in cognitive neuroscience and psychology has shown the effects of emotion on individual decision making (Burke *et al.*, 1993; Winkielman *et al.*, 2007). In particular, more research should be done to determine how affective mental functioning interacts with information processing within a strategic decision environment.

The next step in the development of the theory is to investigate the impact of affect at the macro levels of analysis, such as at the team and organization level. Barsade and her colleagues (e.g. Barsade, 2002; Kelly and Barsade, 2001; Barsade and Gibson, 1998, 2007) have investigated the effects of emotions at the group level. For example, Barsade (2002) found that inducing a positive emotional contagion in an experimental setting led to improved cooperation, decreased conflict, and increased perceived task performance among group members. It remains to be seen how contingencies – such as decision-maker status (i.e. group, CEO), organizational type and structure, and the viability of the organization in the environment – may be affected by, and influence, emotions. While prior research on group emotions conceptualized the effect as arising at the group level and felt by team members (i.e. “top-down” approach), Barsade's research has shown that group emotion may be shaped by the individuals belonging to the team (i.e. “bottom-up” approach) (Barsade, 2002; Barsade and Gibson, 1998, 2007; Kelly and Barsade, 2001). Future theoretical development could investigate the mechanisms of how leaders may induce positive emotions in their teams, how CEOs can influence positive emotions within an organization, and how these affect the organization's adaptive behaviors. Thus far, most work in this area has been anecdotal.

Future research should also look more closely at the strategic decision maker's affective responses and how these responses may influence decision comprehensiveness and complexity, which, in turn, affects organizational choice of adaptive behavior. For example, we know little about why strategic groups behave as a reference group affecting a group member's strategic behaviors (Fiegenbaum and

Thomas, 1995; Peteraf and Shanley, 1997). Moreover, little is known about why decision makers show such rigid responses and contraction in information processing to threatening environments (Staw, 1991). Also, the sensemaking literature (Gioia and Chittipeddi, 1991; Thomas *et al.*, 1993; Weick, 2001; Weick *et al.*, 2005) argues that decision makers analyze chaotic events and uncertainty, turning them into explicitly comprehensible situations that lead to action. Research on sensemaking has implicitly defined the process as rational whereby the decision maker, when confronted with uncertainty, tries to "make sense" of the information and then takes action. In this article, we argue that the decision maker's emotions may impact the interpretation of this information. We often see "bandwagon effects" taking place in managerial practices (e.g. emotional intelligence), but there is still very little empirical explanation for such phenomena (Barrett *et al.*, 2001). Furthermore, our model is more suited for predicting ongoing stabilization and adaptation of the organization, rather than predicting sudden changes (e.g. punctuated equilibrium; Tushman and Romanelli, 1985). Future theoretical developments should include investigations of how emotions at the individual, group, and organizational level adapt and react to sudden changes in the environment.

In conclusion, we suggest that the clearer identification of such cognitive-affective decision-making behavior will contribute to a better understanding of organizational phenomena, such as organizational homogeneity and heterogeneity in the organizational adaptation process. In this regard, a greater understanding of the decision maker's behavioral element (i.e. cognitive-affective informational behavior) in organizational adaptation process should contribute to the development of a more comprehensive model of organizational change processes and the organizational diversity phenomenon.

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