

**Market Situation Interpretation and Response: The Role of
Cognitive Style, Organizational Culture, and Information Use**

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J. Chris White
Department of Marketing and Supply Chain Management
Michigan State University
East Lansing, Michigan 48824
Ph: 407-823-6623 (temporary)
Fax: 407-823-3891 (temporary)
E-mail: Chris.White@bus.ucf.edu (temporary)

P. Rajan Varadarajan
Department of Marketing
Texas A&M University
College Station, TX 77843-4112
Ph: 979-845-5809
Fax: 979-862-2811
E-mail: Varadarajan@tamu.edu

Peter A. Dacin
School of Business
Queen's University
Kingston, Ontario, Canada K7L 3N6
Ph: 613-533-2806
Fax: (613) 533-2321
E-mail: pdacin@business.queensu.ca

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Abstract

Improving marketing decision-making calls for a better understanding of the factors that influence how managers interpret and respond to a market situation. Building on extant literature, we develop a model delineating antecedents of and responses to the interpretation of a market situation. We test the model in the context of a marketing decision (annual advertising and promotion budget recommendation) with data collected from a nationwide sample of hospital marketing executives using case scenario methodology. The results of our analysis using partial least squares show that: (1) cognitive style, organizational culture, and information use, affect the extent to which managers perceive a given market situation as one in which they can control the outcomes of their decision; (2) the more managers perceive a situation as controllable, the more they appraise that situation as an opportunity; and (3) the more managers appraise a situation as an opportunity, the greater the magnitude of their response.

Market Situation Interpretation and Response: The Role of Cognitive Style, Organizational Culture, and Information Use

“Perception and cognition are not purely objective, but are also subjectively conditioned. The world exists not merely in itself, but also as it appears in me.” C.G. Jung 1971, 374.

To survive and prosper in a competitive marketplace, an organization must strive to continuously respond to opportunities and threats posed by a changing environment. Marketing managers typically play a lead role in this task through their responsibility for interpreting the environment and making the crucial choices of customers to serve, competitors to challenge, and products and services with which the business will compete (Day 1984). Consequently, how managers interpret a market situation directly affects the solutions considered in their respective organizations, the resources committed to a particular project, and the changes made in products offered or markets served (Thomas, Clark, and Gioia 1993).

There is a general consensus among managers and researchers that improving marketing decision-making calls for a better understanding of factors that influence how managers interpret and respond to information that pertains to a market situation (Barabba and Zaltman 1991; Marketing Science Institute Research Priorities, 2002-2004; Moorman 1995; Mullins and Walker 1996; Prabhu and Stewart 2001). Understanding how managers interpret the information they choose to use is important in light of the growing body of evidence which suggests that there may be significant differences in the way individual managers interpret and respond to a situation (Jackson and Dutton 1988; Mullins and Walker 1996; Thomas et al. 1993).

In this study, we investigate the role of individual differences in managers' interpretation of a market situation to gain insights into why managers arrive at different perceptions of the same situation. Specifically, the paper focuses on the following research questions: (1) What factors influence managers' interpretation of a market situation? (2) How do managers decide the extent to which a market situation represents an opportunity or a threat for their organization? (3) How

does the extent to which managers appraise a market situation as an opportunity or a threat affect the magnitude of their response? Toward this end, we develop and test a model that delineates antecedents of and responses to the interpretation of a market situation. *Cognitive appraisal theory* provides a unifying theoretical framework for the proposed model (Folkman 1984; Lazarus 1991; Lazarus and Folkman 1984).

Antecedents and Consequences of Market Situation Interpretation

Figure 1 presents the proposed model of antecedents and consequences of interpretation of a market situation. The model depicts cognitive style, perceived organizational culture, and information use as key influences of perceived control. Perceived control is modeled as mediating the relationship between these antecedents and appraisal. Appraisal is posited as mediating the relationship between perceived control and magnitude of response.

[Insert Figure 1 about here]

Antecedents of Interpretation. According to cognitive appraisal theory, individual cognitive traits, the social environment, and information use can affect interpretation of an ambiguous environment (Lazarus 1991; Skinner 1995). In considering potential cognitive traits and social environment variables that can impact interpretation, literature pertaining to cognitive views of organizational information processing suggests that *cognitive style* and *organizational culture* are especially relevant. *Cognitive style* is defined as the relatively stable mental structures or processes that individuals prefer when they perceive and evaluate information (Jung 1946; Myers and McCaulley 1985). *Organizational culture* is defined as “the pattern of shared values and beliefs that help individuals understand organizational functioning and that provide norms for behavior in the organization” (Deshpandé, Farley, and Webster 1993, p.4). Both cognitive style and organizational culture are archetypes that reflect underlying values and assumptions. These archetypes directly influence the way a manager filters and processes information so that an

otherwise ambiguous situation takes on meaning (cf. Deshpandé and Webster 1989; Moorman 1995; Nutt 1990, 1993). The third antecedent, *information use*, is defined as the extent to which a decision-maker relies on the description of a market situation to make a marketing decision.

Information use is an important antecedent of interpretation because of the role of information in reducing the ambiguity and uncertainty associated with a market situation.

Interpretation. *Interpretation* is defined as the conversion of information into knowledge and understanding. In this study, we seek to extend cognitive appraisal theory in two ways. First, we apply the theory in a new context, viz., a decision-maker's interpretation of a market situation. Second, researchers in this literature stream have theorized that the interpretation of an ambiguous situation may entail two separate but related stages (Folkman 1984; Lazarus and Folkman 1984), perceptions of control and appraisal. We address researcher's calls for an empirical examination of this theoretical framework (Folkman 1984; Lazarus 1991; Skinner 1995) by conceptualizing interpretation as two stages. In the first stage of interpretation, managers characterize a situation based on their perceptions of control. *Perceived control* refers to the decision-maker's sense of ability to manage a market situation.¹ The more managers feel that they can manage a situation, rather than have the situation manage them, and the more they feel that the outcomes of their decisions are not simply a matter of chance, the more they will perceive a situation as controllable. Building on Folkman's (1984) conceptualization of perceived control as antecedent to appraisal, we model perceived control as mediating the relationships between the previously discussed antecedents of perceived control and appraisal, the second stage of interpretation.

Appraisal refers to the extent to which decision-makers perceive a situation as an opportunity and the extent to which they perceive it to be a threat (Dutton and Jackson 1987; Krueger and Dickson 1994; Lazarus 1991; Skinner 1995). When managers appraise a situation, they attach

labels to describe their overall evaluation. The labels chosen stem from cognitive classifications that group objects, events, or ideas with similar perceived attributes and are important because they reflect a categorization process that affects subsequent cognitions and motivations. Managers rely on this process of attaching labels when appraising a situation to reduce the complexity of otherwise ambiguous information. It is important to note that extant research demonstrates opportunity and threat to be empirically distinct dimensions that are clearly related, but not identical. In situations that are highly ambiguous, managers are likely to experience both positive and negative emotions at the same time (Folkman and Lazarus 1985). Further, perceptions of opportunity and threat can occur simultaneously and therefore must be considered as separate, albeit related, constructs (Lazarus and Folkman 1984). In accord with cognitive appraisal theory, we model appraisal as mediating the relationship between perceived control and response.

Responses to interpretation. Finally, cognitive appraisal theory suggests that the assessment of opportunity and threat is followed by an assessment of the potential options and resources for coping (Lazarus 1991). Coping is the psychological equivalent of an action tendency (Lazarus 1991), and in this study, we focus specifically on an aspect of coping we label magnitude of response. *Magnitude of response* refers to the manager's propensity to commit more or less resources based on his or her interpretation of the market situation. Since market situations are seldom perfectly structured, managers must exercise some discretion as to the magnitude of their response. Therefore, it is important to understand whether the magnitude of a decision-maker's response is related to the perceived magnitude of opportunity or threat for the organization. Researchers argue the relationship between interpretation and response may hold the key to understanding an organization's ability to adapt successfully to a changing environment (Jackson

and Dutton 1988; Thomas et al. 1993). Next, we develop hypotheses pertaining to each of the linkages delineated in the model.

Cognitive Style and Perceived Control

Although several classifications of cognitive style exist, the most widely adopted classification scheme is one based on the work of Carl Jung and further developed by Isabel Myers and her colleagues (Jung 1946, 1971; Myers and McCaulley 1985). This scheme classifies individuals along four dimensions of cognitive style: extrovert-introvert, judging-perceiving, sensing-intuiting, and thinking-feeling. The four dimensions refer to an individual's preferences for interpreting his or her environment and acting on that interpretation. Research relating to cognitive style and perceptions of information has focused primarily on the sensing-intuiting and thinking-feeling dimensions of cognitive style, largely ignoring the extrovert-introvert and judging-perceiving dimensions. However, cognitive style theory suggests these dimensions reflect predispositions towards interaction with the outside world and therefore may have important implications for how managers interpret information (Nutt 1986). Consequently, we seek to extend extant literature by investigating the influence of all four dimensions of cognitive style on the interpretation of a market situation.

We conceptualize each of the four dimensions of cognitive style (extrovert-introvert, judging-perceiving, sensing-intuiting, and thinking-feeling) as a bipolar continuum. For example, the greater the score on the extrovert-introvert scale, the more the cognitive style tends towards extrovert, while the lower the score, the more the cognitive style tends towards introvert.²

Extrovert-introvert. The extrovert-introvert dimension of cognitive style refers to individual preferences for interacting with others when making a decision. According to Jung (1946), people with more extroverted cognitive styles are more adept at dealing with the outer world. When extroverts try to make sense of a situation, they place great weight on the views of other people

(McCaulley 1987). In addition, extroverts are much more prone to freely share information or ideas in their nascent stages in an attempt to build support for their interpretations (Jeffries 1991). Compared with introverted managers, more extroverted managers are better able to shape a discussion because of their ability to deal with and influence people to accept and support their assessments of new information. Interestingly, Kilmann and Thomas (1975) report that extroverted managers excel at handling conflict because they have the ability to be both assertive *and* cooperative. Because they can effectively utilize these somewhat paradoxical skills, extroverted managers should be able to elicit support from others in their organizations and, as a result, are more likely to perceive that they can control a new situation. Conversely, more introverted managers are less proactive in seeking input from others because they prefer to deal with the internal world. Thus, they are less adept at influencing others and may have more difficulty in garnering support for their ideas. As a result, more introverted managers are less likely to perceive that they can control a new situation. Hence:

H₁: The more extroverted a marketing manager's cognitive style, the more the manager will perceive a market situation as controllable.

Judging-perceiving. The judging-perceiving dimension of cognitive style refers to individual preferences with regard to pro-activeness when making a decision. Managers with more judging cognitive styles tend to be more proactive whereas managers with more perceiving cognitive styles tend to be more passive when it comes to their assessment of a situation (Nutt 1986). Managers with more judging cognitive styles are often characterized as organized, purposeful, and decisive (McCaulley 1987). They are very "closure" oriented and, all else equal, are more apt to feel they have adequate information on hand to make an informed judgment (Jeffries 1991). Because they are more likely to believe they have enough information to make an informed decision, judging managers are more likely to perceive less risk in a given situation

(Nutt 1986) and to have less uncertainty. When managers have greater certainty, they are more likely to have success in convincing other managers to support their decisions (Dutton and Webster 1988), and more likely to perceive a greater ability to successfully manage a given situation and resolve problems should they arise (McCall and Kaplan 1985). As a result, they are more likely to perceive a given situation as controllable.

In contrast, managers with more perceiving cognitive styles tend to postpone a decision as long as possible because they are typically concerned with missing one last critical fact (Jeffries 1991; McCaulley 1987). If a manager perceives that critical information is not available, this is likely to decrease the perceived controllability of a situation. Although cognitive style theory suggests that a manager with a more perceiving cognitive style is often more curious or spontaneous than a more judging manager (Jeffries 1991; McCaulley 1987), Gyskiewicz and Tullar (1995) report that managers with more judging cognitive styles are in fact more adaptive. This suggests that managers with more of a perceiving cognitive style may be less adaptive because they are concerned with the sufficiency of available information and thus they may perceive a situation as less controllable. Hence:

H₂: The more judging a marketing manager's cognitive style, the more the manager will perceive a market situation as controllable.

Sensing-intuiting and thinking-feeling. The sensing-intuiting and thinking-feeling dimensions of cognitive style both pertain to an individual's tolerance for ambiguity and risk propensity. Managers with more intuiting and thinking cognitive styles are more adaptive, imaginative, eager to explore new experiences, and ambitious (McIntyre, Wheatley, and Uhr 1996). They tend to tolerate low certainty and high ambiguity, and are thus more tolerant of risk (McIntyre and Mokwa 1993). Because of their greater risk-seeking propensity, these managers may perceive a greater ability to control an otherwise ambiguous situation (Stumpf and Dunbar 1991). In their study of the effects of cognitive style on choices made in strategic decision situations, Stumpf

and Dunbar (1991) found that managers with intuiting and thinking cognitive styles take actions that reflect a “positivity bias.” Similarly, Henderson and Nutt (1980) found that such managers are more likely to adopt potentially risky projects. We suggest that managers who have more intuiting and thinking cognitive styles take actions that are more ambitious because of a greater perceived ability to control a situation.

Conversely, managers with more sensing and feeling cognitive styles tend to prefer a more stable environment. The ideal organization for these managers is one characterized by complete control, certainty, and specificity (Kilmann and Mitroff 1976). Cognitive style theory suggests that, because of their greater desire for stability and relatively lower tolerance for ambiguity, managers with more sensing and feeling cognitive styles are likely to be more concerned about their ability to control the outcomes of an ambiguous situation (Mitroff and Kilmann 1975). This concern for control may explain why their strategic recommendations are more likely to be low risk (Nutt 1986). Hence:

H₃: The more intuiting a marketing manager’s cognitive style, the more the manager will perceive a market situation as controllable.

H₄: The more thinking a marketing manager’s cognitive style, the more the manager will perceive a market situation as controllable.

Perceived Organizational Culture and Perceived Control

According to cognitive appraisal theory, evaluation of information is influenced by the contrived mental reconciliation between individuals and their perceptions regarding the shared values and beliefs within relevant social settings (Lazarus 1991). For managers, those shared values and beliefs arise from the culture of the organization. Thus, we propose that organizational culture influences perceptions of controllability by providing a cognitive context for decision-makers. In this study, we focus on managers' perceptions of organizational culture. To differentiate this level of analysis, we use the term perceived organizational culture.

The *competing values* model of organizational culture is an appropriate theoretical paradigm for the investigation of issues associated with market situation interpretation because it focuses on the cognitive structure of the manager, rather than the operational structure of the organization (Deshpandé et al. 1993; Quinn and Rohrbaugh 1983). The competing values model of organizational culture focuses on competing tensions and conflicts inherent in any organization, such as the conflict between change and stability.

Organizations with a more informal adhocracy or clan culture encourage flexibility, spontaneity, individual initiative, and market responsiveness. Deshpandé (1982) proposes that managers in more flexible organizations may believe they have more freedom in doing their jobs. Further, managers in organizations with informal cultures encourage greater horizontal communication and cooperative action, and the values and beliefs of such organizations are highly conducive to collaborative communication (Brown and Starkey 1994) as well as greater participation in the decision-making process (Ashmos, Duchon, and McDaniel 1998). Moorman (1995) finds that organizations with an adhocracy or clan culture tend to stress participation, teamwork, and cohesiveness, and this leads to greater trust, commitment, and cooperation among organizational members. Managers should perceive a market situation as easier to control when they have freedom to act and when they are accustomed to receiving cooperation from others within the organization. Concomitant with an emphasis on flexibility, organizations with an adhocracy or clan culture tend to stress innovation and adaptation (Bluedorn and Lundgren 1993) and, thus, are more likely to provide adequate resources in the event of unforeseen contingencies. Consequently, managers operating in an informal adhocracy or clan culture are more likely to perceive a given situation as more controllable.

Conversely, an organization with a more formal hierarchy or market culture is primarily concerned with stability and the ability to maintain control. Therefore, managers in such

organizations seek to minimize disruptions in operations (Quinn and Rohrbaugh 1983). Organizations with a formal culture tend to stress tight structure, formal authority, and impersonal coordination (Bluedorn and Lundgren 1993). Managers in these organizations rely more on formal information systems and less on person-to-person information systems (Quinn and Rohrbaugh 1983). As a result, managers in organizations with a formal market or hierarchy culture may not have the same freedom to act, receive the same level of cooperation, or expect the organizational resource support as managers in organizations with informal cultures. Hence:

H₅: The more a marketing manager perceives the organizational culture as an adhocracy or clan (as opposed to a market or hierarchy), the more the manager will perceive a market situation as controllable.

Information Use and Perceived Control

In general, individuals seek to learn as much as possible before making decisions, especially in new or ambiguous situations (Skinner 1995). When managers use more information, they reduce uncertainty, reduce perceived risk (McCall and Kaplan 1985), and increase confidence by basing their interpretations on more comprehensive intelligence and a better sense of cause and effect relationships (Milliken 1990). Increased information use leads to increased confidence in interpreting market situation information because managers perceive that they are better equipped to cope with ambiguous situations. Eisenhardt (1989) reports that confidence increases as information usage increases because managers have the feeling that “no stone has been left unturned.” Reducing uncertainty and increasing confidence is especially important because it increases perceived competence, which is a key factor in assessing ability to control an ambiguous situation (Bandura 1977, 1989; Skinner 1995). Therefore, increased information use should lead to greater confidence, greater perceived competence, and in turn, greater perceived ability to control a situation. Hence:

H₆: The more a marketing manager uses available information to interpret a market situation, the more the manager will perceive that situation as controllable.

Experiential knowledge and the need to reduce uncertainty are key factors influencing interpretation (Lazarus 1991; Skinner 1995); that is, a decision-maker's information use will be guided by past experiences and the need to reduce uncertainty. We propose that, because of their experiences and need to reduce uncertainty, decision-makers will rely more on negative (vs. positive) and external (vs. internal) information when interpreting a market situation. As suggested by prospect theory, managers are more concerned with potential loss than with potential gain (Tversky and Kahneman 1986). Resource dependence theory suggests that decision-makers will rely more on external information when evaluating a situation because organizations depend on the environment for scarce and valued resources and therefore external information has a greater capacity for reducing uncertainty (Pfeffer and Salancik 1978). In a somewhat surprising finding, Jackson and Dutton (1988) report that, despite a disproportionate focus on both negative and external information, managers tend to under-recognize and under-appreciate the implications of threatening information. Whether it is because of a disproportionate concern for loss, the concern for reducing uncertainty, or simply the need to avoid repeating past mistakes, managers are likely to evidence a bias in favor of negative (versus positive) and external (versus internal) information. Hence:

H_{7a}: Marketing managers will use negative information more than positive information when interpreting a market situation.

H_{7b}: Marketing managers will use external information more than internal information when interpreting a market situation.

Perceived Control and Appraisal

The two categories most frequently used by managers in making their appraisal of a situation are *opportunity* and *threat* (Dutton and Jackson 1987). *Opportunity* is defined as the extent to which

the manager perceives a market situation as one in which the firm could experience an increase in sales and/or profits. *Threat* is defined as the extent to which the manager perceives a market situation as one in which the firm could experience a deterioration in sales and/or profits.

Before addressing the relationship between perceived control and appraisal, we first discuss the mediating role of perceived control. In the development of cognitive appraisal theory, researchers have proposed that perceptions of control are shaped by individual cognitive traits, the social environment, and information use (Lazarus 1991; Skinner 1995), and in turn, perceptions of control are antecedent to appraisal (Folkman 1984; Lazarus and Folkman 1984). In other words, when interpreting an ambiguous situation, “control can be viewed as a cognitive mediator” (Folkman 1984, p.850). Hence:

H₈: The relationship between antecedents of perceived control (cognitive style, perceived organizational culture, and information use) and appraisal will be mediated by perceived control.

When managers perceive that they can control the outcomes of a decision, they are more likely to experience positive emotions (Bandura 1977; Folkman and Lazarus 1985), the situation they are faced with will seem more attractive (Taylor 1989; Walsh, Henderson, and Deighton 1988), and they may be more inclined to set high goals (Schunk 1990). They are better able to visualize a concrete series of action steps leading to a desired outcome. As a result, they can be expected to assess the situation as one in which their organization can perform profitably (i.e., an opportunity).

Conversely, when managers perceive a given situation as less controllable and as one in which outcomes will be a matter of chance, they are likely to experience negative emotions (Bandura 1977; Folkman and Lazarus 1985), set low goals (Shunk 1990), and perceive the situation as one with negative implications (i.e., a threat). They are likely to imagine a process full of anxiety, culminating in a poor outcome (Bandura 1989). Hence, marketing managers’

perception of the controllability of a situation can be expected to influence appraisal of the situation as follows:

H₉: The more a marketing manager perceives a market situation as controllable, the more the manager will appraise that situation as an opportunity.

H₁₀: The less a marketing manager perceives a market situation as controllable, the more the manager will appraise that situation as a threat.

Appraisal and Magnitude of Response

Before addressing the relationship between appraisal and magnitude of response, we first discuss the mediating role of appraisal. Cognitive appraisal theory, research on perceived control, and extant research on decision-making lend support to the assertion that perceived control is an important antecedent for predicting appraisal of an ambiguous situation (Folkman 1984; Jackson and Dutton 1988; Lazarus and Folkman 1984; Skinner 1995). In turn, both theoretical and empirical works on cognitive appraisal theory lend support to the relationship between appraisal and response (cf. Lazarus 1991). Although empirical evidence is lacking, researchers studying cognitive appraisal have theorized that appraisal mediates the relationship between control and response (Folkman 1984; Lazarus and Folkman 1984). As Lazarus and Folkman (1984, p.45) write, "Cognitive appraisal is central in mediating subsequent thought, feeling, and action."

Hence:

H₁₁: The relationship between perceived controllability of and magnitude of response to a market situation will be mediated by appraisal of the situation.

Although the exact nature of the relationship between a manager's appraisal of and subsequent response to a situation is subject to debate, as we discuss next, there is strong support in both the cognitive appraisal and decision-making literature suggesting they are closely linked (e.g., Bateman and Zeithaml 1989; Lazarus 1991; Thomas et al. 1993).

Opportunity appraisal and response. Appraising a market situation as an opportunity has a

psychologically powerful impact on managers as well as other members of an organization (Dutton 1992). From an individual perspective, an opportunity appraisal increases the positive affect associated with a situation and serves to both further heighten perception of control as well as suppress consideration of threatening aspects. As Dutton (1992) suggests, the label “opportunity” seems to give an otherwise ambiguous situation a “positive gloss.” Enhanced feelings of control also result in reduced uncertainty and a greater sense of confidence (Dutton 1992; Dutton and Webster 1988; Jackson and Dutton 1988; Milliken 1990; Taylor 1989; Walsh et al. 1988). Because an opportunity appraisal heightens perceptions of control, reduces uncertainty, and positively impacts confidence in decision-making it should increase managers’ perceptions of the feasibility of accomplishing desired results. This is important because decision theory suggests that managers are likely to recommend greater resource commitments when they believe that they can accomplish desired results (cf. Heath and Tversky 1991; Krueger and Dickson 1994; Mullins and Walker 1996).

From an organizational perspective, when managers assess a situation as an opportunity, that opportunity becomes more attractive to others in the organization because it imbues the market situation with the value of proactiveness and progressiveness. Ashmos et al. (1998) report that the participation of managers is significantly greater when responding to issues labeled as an opportunity than when responding to issues labeled as a threat. Indeed, words such as “opportunity” may be viewed as a linguistic symbol of managers seeking to communicate their interpretation and, in doing so, create interest and excitement in a market situation that others may see as vague and ambiguous. Empirical evidence also lends support for a propensity toward a response of greater magnitude when managers label a situation as an opportunity (cf. Ginsberg and Venkatraman 1992; Mullins and Walker 1996; Thomas et al. 1993). For instance, Thomas et al. (1993) report a positive relationship between managers’ labeling of a situation as controllable

and actual product and service changes in their businesses. Hence, when managers perceive a market situation as more of an opportunity, they are likely to be predisposed toward making a greater resource commitment.

H₁₂: The more a marketing manager appraises a market situation as an opportunity, the greater will be the magnitude of the manager's response.

Threat appraisal and response. As noted previously, *prospect theory* suggests that because people tend to be more risk averse than risk seeking, potential losses loom larger than potential gains (Kahneman and Tversky 1979). Further, evidence suggests that managers may develop a threat bias over time and thus be more sensitive to negative disconfirmation of their expectations (Jackson and Dutton 1988). Consequently, managers may be predisposed to commit greater resources when they categorize a situation as threat-distinctive. In support of this perspective, some studies report that when managers perceive a situation as threatening, they tend to recommend a response of greater magnitude (Fredrickson 1985; Nutt 1984; Tversky and Kahneman 1986).

A contrasting perspective suggests that if managers associate a perceived threat with a lack of control (Jackson and Dutton 1988), threat perceptions may result in psychological stress and anxiety, a restriction of the number of alternatives considered, and intensified concerns about efficiency (Staw, Sandelands, and Dutton 1981). Concerns about efficiency have implications for response because they are likely to result in cost cutting, budget tightening, and restriction of the business unit's activities (Starbuck and Hedberg 1977). In light of the equivocal arguments concerning the nature of the relationship between the appraisal of a market situation as a threat and the magnitude of response, a formal statement of hypothesis is not presented. Instead, the relationship is treated as an empirical issue.

Method

Sample

The sample consists of the directors of marketing and public relations at 2000 randomly selected general medical and surgical hospitals in the U.S. While a multi-industry sample would permit an examination of inter-industry effects and potentially broaden the study's generalizability, in the present study it is critical that the inherent level of ambiguity associated with a situation remain approximately consistent for all respondents. The best way to accomplish this is to focus on a single industry.

The hospital marketing directors received a letter explaining the purpose of the research, followed one week later by a phone call soliciting their participation. Of the 2000 marketing directors contacted, 87 declined to participate. The remaining 1913 were mailed a questionnaire and cover letter explaining the purpose of the research and promising a summary of results if desired. One week later, a reminder postcard was mailed. Two weeks later, marketing directors who had still not replied were mailed a reminder letter and second questionnaire.

Non-response bias was assessed by comparing (1) the number of beds in the hospitals of respondents and nonrespondents ($t=.523$, $p>.05$), (2) the proportion of responses received from respondents affiliated with profit versus nonprofit hospitals (difference not significant at $\alpha=.05$ for binomial proportion confidence interval), and (3) the geographic distribution of respondents and nonrespondents ($\chi^2=5.56$, d.f.=3 versus critical value of 7.82). All three of these tests indicated no significant differences between the two groups. Both the number of usable questionnaires returned (757) and the overall response rate (37.9%) compare favorably with the results reported in mail surveys employing the case scenario approach (cf. Thomas et al. 1993).

Case Scenario

A case scenario methodology was used to study interpretation. A key advantage of the case scenario method is that all respondents receive a standardized stimulus in which characteristics

of a market situation (information pertaining to strengths, weaknesses, opportunities, and threats) can be balanced. The first step in constructing the case scenario was to compile a list of market situation related issues that were important to hospital marketing executives. This step entailed interviews with health care marketing executives and reviews of hospital strategic planning documents, articles in leading health care journals, case studies related to health care issues, and relevant articles in the popular press. Health care executives were also asked to provide sources of market information they deemed trustworthy and reliable. During our development of the case scenario and again during pre-testing, we asked the participating hospital marketing executives to describe the most important strategic marketing decision they had to make each year. The decision of whether to increase or decrease the annual advertising and promotion budget was by far the most frequent response. Determining the decision most likely to be deemed of strategic importance was important because the processes of evaluating and interpreting strategic information constitute patterns of decision behavior and therefore the manager's interpretation of a market situation is more likely to be consistent when that information is perceived as strategically important (Fredrickson 1984).

The second step was to draft the case scenario. In creating the scenario, every effort was made to provide a realistic yet balanced market situation. To assure balance, the scenario was constructed with an equal number of items pertaining to strengths, weaknesses, opportunities, and threats. Prior to constructing the scenario, a panel of hospital marketing executives evaluated each of the information items under consideration. Based on their input, items were refined and then resubmitted to these executives for evaluation. The information items included in the case scenario were subjected to multiple rounds of this refinement process.

The completed case scenario was pretested with a sample of hospital marketing executives to assure it presented a realistic depiction of information that might be encountered in marketing

budget decisions. During development and pretesting, the overall content validity of the case scenario was assessed by asking executives, “On the whole, is the scenario representative of the type of market information typically evaluated by hospital marketing executives when making decisions about the advertising and promotion budget?” The responses of the 44 executives participating in the final pretest were unanimously affirmative. The resulting case scenario (Appendix A) describes a hospital faced with several changes (both internal *and* external) that are likely to impact its advertising and promotions budget.

Measures

The scales used to measure the various constructs central to the study are summarized in Appendix B. A brief discussion of each follows.

Cognitive style. Jung’s theory of psychological type, operationalized by the 70-item Keirsey Temperament Sorter, was used to measure cognitive style (Keirsey and Bates 1984). Although the 128-item Myers Briggs Type Indicator (MBTI) is the more widely used measure of cognitive style, it is extremely lengthy. The results of correlational comparisons to the MBTI suggest that the two instruments measure the same constructs (Quinn, Lewis, and Fischer 1992).

Perceived organizational culture. The measure of perceived organizational culture developed by Deshpandé et al. (1993) was used. The instructions and descriptions were altered to replace the word “organization” with “hospital.” In this study, the items comprising this measure of culture were treated as formative indicators because the intent of this measure is to capture multiple but potentially unrelated facets of organizational culture (e.g., organizational goals, leadership style, operational emphasis, etc.). A linear combination of these items defines the culture construct and therefore a reflective construct would be inappropriate (Hulland 1999). Because this constant-sum measure asks respondents to allocate points to four categories (adhocracy, clan, hierarchy, and market), the four resulting variables are ipsative, resulting in a

non-positive definite input covariance matrix. In the analysis, we omit one culture (hierarchy) and test the impact of the other three relative to the one omitted. The results will support H₅ if the coefficients for adhocracy and clan are positive and significant (which means they are significantly greater than hierarchy) and the coefficient for market is non-significant (which means it is not significantly greater than hierarchy). In other words, this result would indicate that adhocracy and clan cultures are significantly related to perceived control, while hierarchy and market cultures are not. By omitting hierarchy and limiting the analysis to the three remaining cultures, the resulting input data are not ipsative and can be analyzed in a path model. The descriptive statistics also show that the resulting data are normally distributed and have sufficient range.

Information use. Thomas et al.'s (1993) measure of information use is adapted to measure the extent to which specific pieces of information would be used in a marketing decision. The directions immediately preceding the case scenario provide sufficient information to establish a decision context for the information in the case. In developing the case scenario, managers told us that when they make their budget decisions, they use information pertaining to the organization's strengths and weaknesses, along with external opportunities and threats. As shown in Appendix B, the case scenario itself contains eight distinct pieces of information that, in total, represent a balanced situation analysis; that is, two items representing strength, two items representing weakness, two items representing opportunity, and two items representing threat. Respondents are asked to rate the extent to which they would use each piece of information in making a recommendation. These eight information items are treated as formative indicators to assess information use. Again, because the intent of this measure is to capture multiple but potentially unrelated facets of a situation analysis, a reflective construct would be inappropriate (Hulland 1999).

Perceived control and appraisal. The items for measuring managers' perceived control (2 items), as well as their perception of opportunity (3 items) or threat (3 items), are borrowed from the work of Dutton and Jackson (1987), Thomas and McDaniel (1990), and Thomas et al. (1993). Although, Thomas and his colleagues use a valence assessment (i.e., the extent to which a situation is interpreted as having positive or negative implications for the organization) as a proxy for opportunity or threat, we combine their items with an additional item that directly assesses perceived opportunity or threat (the first item shown for each measure).

Magnitude of response. The case scenario is one in which marketing directors are asked to make a decision regarding the amount budgeted for advertising and promotion.³ To develop measures for this response, we followed the same procedure used to create the case scenario. In the final measure, two items assessed the response. The first item, a single item 9-point scale anchored by "1=substantial decrease" and "9=substantial increase," asked marketing managers to indicate how they would recommend changing the current advertising and promotion budget. The second item, asked managers to provide a specific estimate of the amount of money they would recommend for next year's advertising and promotion budget. The two items comprising this measure of magnitude of response are treated as formative indicators because a linear combination of these items defines the construct (Hulland 1999).

Control variables. Based on extant literature, constructs measuring managerial experience, organization size, organizational performance, and organization type (profit/non-profit) are included in the model as control variables (cf. Hitt and Tyler 1991; Zinkhan, Joachimsthaler, and Kinnear 1987). Managerial expertise was operationalized as a formative construct that includes age, education, job title, and job tenure. A database purchased from the American Hospital Association provided information pertaining to the organizational variables size, performance, and hospital type.

Results

Partial Least Squares

To test the hypothesized relationships depicted in Figure 1, we used partial least squares (PLS), specifically, PLSGRAPH v.3.00. PLS is most appropriate when the model incorporates both formative and reflective indicators, when assumptions of multivariate normality and interval scaled data cannot be made, and when the primary concern is with the prediction of dependent endogenous variables (Chin 1998; Diamantopoulos and Winklhofer 2001; Fornell and Bookstein 1982). Because PLS considers all path coefficients simultaneously (thus allowing analysis of direct, indirect, and spurious relationships) and estimates multiple individual item loadings in the context of a theoretically specified model rather than in isolation, it allows the researcher to avoid biased and inconsistent parameter estimates for these equations. Results from the measurement model, are discussed next.

Assessments of Validity and Reliability

We attempted to achieve content validity through the depth of literature search used to define the domain, the number of items generated, and pretesting with both managers and academics. The adequacy of the measurement model was assessed by evaluating the reliability of individual items, the internal consistency between items expected to measure the same construct, and the discriminant validity between constructs. We inspected the loadings of measures on their corresponding constructs to assess individual item reliability. In all cases, a high degree of individual item reliability was maintained by retaining only items with factor loadings greater than .50 (as recommended by Hulland 1999). Most final loadings are, in fact, greater than .70.

We evaluated internal consistency using a measure recommended by Fornell and Larcker (1981). This measure is similar to Cronbach's alpha, but preferred in this context because it estimates consistency based on actual construct loadings. The internal consistency values for

reflective constructs exceed the 0.70 guideline recommended by Nunnally (1978) for exploratory work. Appendix B presents the measures used in the study.⁴

We assessed the discriminant validity of each construct in three ways. First, as shown in Table 1, the square root of the average variance extracted is greater than all corresponding correlations (Fornell and Larcker 1981). Second, all constructs exhibit discriminant validity because each correlation is less than 1.0 by an amount greater than twice its respective standard error (Bagozzi and Warshaw 1990). Third, an examination of the theta matrix confirmed that no item loaded more highly on another construct than it did on its associated construct. Based on these three tests, all constructs exhibited satisfactory discriminant validity.

[Insert Table 1 about here]

Test of Hypotheses

In Table 2, we report the beta coefficients and t-values for the model, along with the R^2 for each endogenous construct, as indicated by the PLS analysis. Since PLS makes no distributional assumptions, traditional parametric methods of significance testing (e.g., confidence intervals, χ^2 , etc.) are not appropriate. Therefore, a bootstrapping method (sampling with replacement method) is used to ascertain the stability and significance of the parameter estimates. The t-values are computed on the basis of 500 bootstrapping runs. The variance explained for the endogenous constructs ranges from .083 to .224 and is comparable to the values typically reported in similar research (cf. Henderson and Nutt 1980; Moorman 1995; Stumpf and Dunbar 1991; Thomas et al. 1993).

[Table 2 about here]

Results indicate that extrovert, judging, intuiting, and thinking cognitive styles, adhocracy and clan cultures, and information use are all significantly related to the extent to which a market situation is perceived as controllable. Thus, H_1 through H_6 are supported. Perceived control of a

market situation is positively related to an opportunity appraisal and negatively related to a threat appraisal, thus supporting hypotheses H_9 and H_{10} . Finally, a positive significant relationship exists between the extent to which a market situation is appraised as an opportunity and the magnitude of response supporting H_{12} . Given the equivocal nature of relevant theoretical arguments, no formal hypothesis was offered regarding the relationship between an appraisal of threat and the magnitude of response. In this study, this relationship is not significant.

Because opportunity and threat are independent continua, there are actually four possible interpretations of a market situation as noted by the following groups: (1) high opportunity and high threat, (2) high opportunity and low threat, (3) low opportunity and high threat, and (4) low opportunity and low threat. After performing a mean split (high/low) of managers' appraisals of opportunity and threat, we assessed the relationship between these four groups and magnitude of response using analysis of variance ($F=7.023$, $p<.001$), and then assessed differences among the groups using post hoc contrasts to control for family-wise error. The recommended budget was significantly greatest ($p<.05$) for group 1 (high-high; \$2.55 million), followed by group 2 (high-low; \$2.39 million), followed by groups 3 (low-high; \$2.28 million) and 4 (low-low; \$2.24 million). Groups 3 and 4 were not significantly different. In other words, the magnitude of the recommended budget was greatest for managers who perceive high levels of both opportunity and threat, next highest for managers who perceive high levels of opportunity but low levels of threat, and lowest for managers who perceive either low levels of opportunity and high levels of threat or low levels of both opportunity and threat.

We assessed the use of negative versus positive (items with the notation “-” and “+” respectively in Appendix B) and external versus internal information (items with the notation “E” and “I” respectively in Appendix B) in two ways. First, we performed a simple t-test to compare the means. We found that the mean for use of negative information is significantly

greater than the mean for use of positive information (21.2 versus 18.9; $t < .001$) and the mean for use of external information is significantly greater than the mean for use of internal information (21.3 versus 18.7; $t < .001$). Overall, managers indicated they would rely more on negative (relative to positive) and external (relative to internal) information when making a marketing decision thus supporting H_{7a} and H_{7b} . Next, we created two additional PLS models in which we separated information use into two separate constructs, negative and positive information use and then external and internal information use. The beta coefficients were not significantly different in either model. Therefore, this analysis suggests that while managers do indicate they would rely more on negative and external information, positive and internal information are equally important in determining perceived controllability of a market situation.

Control Variables

The findings also indicate that individual and organizational characteristics influence interpretation and response. As reported in Table 2, hospital size is significantly related to perceived control; hospital type (profit/non-profit) is significantly related to opportunity appraisal; and managers' expertise is significantly related to response. Future investigations may wish to further examine the role of these variables since they appear to impact interpretation.

Test of the Mediating Role of Perceived Control and Appraisal

To test the extent to which perceived control mediates the relationships between antecedents of interpretation and appraisal (H_8) and the extent to which appraisal mediates the relationship between perceived control and magnitude of response (H_{11}), direct (i.e., non-mediated) effects were assessed in a two-step process. First, the theta matrix was reviewed to check for potentially significant non-specified paths. Second, these paths were added to the model and the model re-run to assess significance. The analysis revealed that there are only two significant ($p < .05$) non-mediated paths: between information use and an opportunity appraisal and between a clan

culture and an opportunity appraisal. The direct path between perceived control and magnitude of response was not significant. Notwithstanding these two exceptions, our results provide reasonably strong support for the mediation effects hypothesized in H_8 and H_{11} .

Discussions and Implications

At a managerial level, the insights obtained in this study provide answers to the research questions that served as the foci of the study. Specifically, our key findings suggest that (1) the factors that influence managers' interpretation of a market situation include cognitive styles, perceptions of organizational culture and extent of information use; (2) managers base their appraisal of a market situation as an opportunity or threat on their perceptions of control; and (3) the extent to which managers appraise a market situation as an opportunity is positively related to their magnitude of response.

At a theoretical level, the results provide empirical support for a model that delineates the antecedents of and the responses to the interpretation of a marketing situation. Further, our results suggest a path of effect as illustrated in our framework. In developing the model, we address researchers' calls for an extension of cognitive appraisal theory by empirically assessing perceived control as a construct that mediates the relationship between the antecedents of interpretation and appraisal (Folkman 1984; Lazarus 1991; Skinner 1995). In addition, we develop conceptual arguments and provide empirical support for the link between cognitive style and the appraisal process. Consequently, this research contributes to multiple literature streams concerned with the interpretation of information and its impact on decision making.

In addition to these general contributions the results of this study have specific implications for both theory and practice. The following discussion highlights several of these implications.

Antecedents to Interpretation

Cognitive Style: Our findings suggest that researchers investigating individual influences on

the interpretation of market information should consider all four dimensions of cognitive style, rather than just the sensing-intuiting and thinking-feeling dimensions most commonly investigated in the literature. While organizations may already find measurements of cognitive style useful in selecting managers (Leonard and Strauss 1997) our results highlight an important implication for practice. In our study, managers with more extroverted, judging, intuiting, and thinking cognitive styles (relative to those with more introverted, perceiving, sensing, and feeling styles) tend to perceive situations as more controllable. Consequently, they are likely to perceive less risk when interpreting a given market situation and are more likely to appraise that situation as an opportunity. In other words, these managers are likely to be proactive and aggressive in their decision making. Conversely, managers with more introverted, perceiving, sensing, and feeling styles, are likely to be more cautious and sensitive to threats when evaluating market situations. Since most decisions that are likely to have a major impact on organizations tend to be addressed by a group or team, our results suggest that it may be desirable to *sensitize* managers as to how the cognitive styles of team members influence their information processing and decision-making.

Information use. While we find that managers may use negative information significantly more than positive information and external information significantly more than internal information, this focus on the threatening aspects of a situation does not necessarily result in a negative interpretation.⁵ Rather than the valence of information, we find that it is the *total amount of information* used in a situation that drives interpretation—managers who use more market information in a given situation perceive that situation as more controllable. These results are consistent with the propositions that increased information use may reduce uncertainty and perceived risk (Dutton and Webster 1988; Milliken 1990). For researchers, these findings suggest that models of the relationship between information use and response (cf. Thomas et

al.1993) need to include perceived control as well as appraisal of a situation as mediators in order to gain better insights into decision-making.

Perceived organizational culture. Researchers have demonstrated a link between organizational culture and business performance (Deshpandé et al. 1993). However, there is a paucity of research pertaining to the role of cultural antecedents in information processing within an organization (cf. Moorman 1995). We address this gap in our study and find that managers' perceptions of organizational culture influence information processing and the extent to which managers perceive they can control a situation. For instance, the results of our study suggest that, compared to marketing managers who perceive their culture as more of a hierarchy or market, marketing managers who perceive their organization's culture as more of an adhocracy or clan are more likely to perceive that they can control the outcomes of an otherwise ambiguous situation. One reason for this may be that managers who perceive themselves in a more formal culture (i.e., hierarchy or market) may also be more prone to perceive that they are unable to control a given situation.

In terms of managerial implications, as with cognitive styles, our findings relating to the relationship found between organization culture and perceived control of a market situation suggest that organizations may benefit from *sensitizing* managers as to how perceptions of organizational culture may affect information processing and decision-making. For researchers, our findings suggest that the influence of organizational culture on the perceptions of *individual* managers is an important consideration in any quest to better understand the *organizational* implications of culture.

Interpretation

Our study finds that the relationship between cognitive style and the manager's recommendation is mediated by two stages of interpretation: perceived control and appraisal. The more managers

perceive a situation as one in which they can control the outcomes, the more they are likely to appraise that situation as an opportunity. These results are consistent with other findings suggesting similar relationships between feelings of control and the appraisal of a situation as either an opportunity or threat (Jackson and Dutton 1988). As with information use, our findings reiterate the importance of incorporating interpretation as a mediating variable when assessing the relationships between cognitive style and decision-making tendencies.

Further, our findings suggest that the extent to which managers perceive they can control a situation mediates the relationship between their information use and appraisal of a situation. It is important to understand that while managers' perceptions of control do not add to their actual talent or ability, it may still give them greater access to all the resources in their repertoire. That is, greater perceived control may lead to greater realization of extant competence (Skinner 1995).

Magnitude of Response

This study adds to the growing body of evidence that the magnitude of a manager's recommendation is greater for perceived opportunity than for perceived threat. While most managers in our sample recommended increasing advertising spending in the presence of perceived opportunity (69% recommending more, 8% recommending less), in the face of a perceived threat managers were less certain whether an increase in advertising expenditures would produce the desired outcome (46% recommending more, 29% recommending less) (test of association $\chi^2=23.9$, $p<.01$). When faced with making recommendations without the benefit of probabilistic assessments of outcomes, the magnitude of a manager's response may be driven by the cognitive and affective "baggage" associated with the interpretive labels they use. For example, the positive emotional charge associated with the label "opportunity" may foster a greater behavioral response than the stress and anxiety evoked by the label "threat." A recurrent theme in the interpretation literature is that the labels managers attach to situations are powerful

determinants of organizational response, or lack thereof. Magnitude of response also depends on the perceived ability to produce a desired outcome. Thus, another explanation for the results of this study is that managers simply do not view increases (or decreases) in advertising expenditures as having equivalent effects in opportunistic and threatening situations.

An interesting finding regarding the relationship between appraisal and magnitude of response is that the recommended advertising expenditures were greatest for managers who perceived the market situation as both an opportunity *and* a threat. Perhaps managers who perceive high levels of both opportunity and threat are more likely to believe that a response of greater magnitude is necessary to ensure a positive outcome.

Directions for Future Research

This study was conducted in a single industry. In a recent study, Prabhu and Stewart (2001) report that context and timing influence the interpretation of market information. Clearly, research is needed to investigate whether the findings of this study generalize to other settings. The relationships hypothesized in this study were tested through the use of a hypothetical, though realistic, case scenario. In future research, it may be desirable to utilize other methods to test these relationships. For example, researchers could observe how managers interpret actual market information. Another methodological improvement would be to replicate this research with a longer case scenario (i.e., a description of a situation containing “richer” information). Such a scenario would also allow researchers to investigate whether relationships involving information use are linear in nature, or whether there is a non-linear relationship associated with information overload.

We posited multiple explanations for our finding that the magnitude of response is greater for perceived opportunity than for perceived threat. We also offered a plausible explanation for why the magnitude of response may be even greater for managers who appraise a market situation as

high on both opportunity *and* threat dimensions. Future research is needed to examine the validity of these explanations. Our findings also suggest that market situation interpretation mediates the relationship between marketing managers' cognitive style, perceived organizational culture, and information use, and their response. However, additional research is needed to gain better insights into the relationship between interpretation and response. For example, a useful extension of our work would be to include estimates of specific, likely outcomes of advertising expenditures, and to relate these to the managerial estimates of the importance of these outcomes (in reference to perceived threats and opportunities).

In our study we measured managers' responses without consideration of the quality of those responses. In addition, the choice of a single scenario limits potential explanatory power. Complementing the dependent variable employed in the research reported (advertising budget increase/decrease) has the potential to provide further insights. For example, additional dependent variables could measure support for particular advertising themes that relate to the scenario perceptions, or relative emphasis on specific advertising themes or directions. It can be argued that increasing advertising of previously ineffective content may have been a reason why those perceiving threats did not support substantially greater budgets. By adding terms for the qualitative (i.e., thematic) elements of advertising decisions, as well as for interactions with dollars budgeted overall, future researchers might be able to increase the explanatory and predictive power of the model presented in this paper.

As noted earlier, most decisions that are likely to have a major impact on organizations tend to be addressed by a group or team rather than by individual managers. Against this backdrop, another interesting avenue for future research would be to study how the effects uncovered in this study may change in interactive decision-making settings. For example, it would be interesting to compare the interactions and decisions of groups with varying degrees of diversity

of cognitive styles.

Conclusion

In sum, in today's knowledge economy, many managers realize that information is as plentiful as sand on the beach. Competitive advantage is more likely to arise from a better understanding of the influences and outcomes of market situation interpretation. Therefore, we hope that the issues addressed in this study contribute to improving marketing managers' ability to analyze and respond to market situations. Clearly, this research is merely one step in that direction and we hope it serves as an impetus for further research in the area.

NOTES

¹ Perceived control of a situation captures both efficacy beliefs (the competence to produce a successful outcome) and strategy beliefs (existence of resources and/or conditions necessary to produce a successful outcome) (Bandura 1989; Skinner 1995). When we ask managers to estimate the extent to which they can control the situation described in the situation scenario, their responses capture both efficacy beliefs and strategy beliefs. Skinner (1995) opines that while conceptually distinct, it may not be possible to disentangle these two beliefs because efficacy beliefs presuppose the existence of strategy beliefs and vice versa. In other words, she theorizes that the two beliefs must be combined to understand perceived control. According to Folkman (1984), under conditions of ambiguity, a generalized belief about control (i.e., an efficacy belief) is functionally equivalent to a perception of controllability with respect to the specific situation (i.e., an outcome-based or strategy belief). Thus, when the environment is ambiguous, generalized control beliefs and situational control beliefs are analogous.

² Although cognitive style has traditionally been analyzed by creating categorical combinations of these dimensions, we argue that the use of independent continua rather than a categorical typology permits a more fine-grained theoretical and empirical analysis. Managers may have strong preferences on only one cognitive style dimension (Nutt 1990), therefore a categorical typology that fails to capture strength of preference could misrepresent how they actually process information (Nutt 1990).

³ In this investigation, marketing managers are asked to make an advertising and budget recommendation in order to establish a familiar decision-making context for their assessment of a market situation. Extant literature provides valuable insights into antecedents of an advertising and promotion budget (cf. Balasubramanian and Kumar 1990). Our focus here is limited, however, to how a marketing manager's magnitude of response (i.e. make recommendations regarding resources allocated to an advertising and promotion budget) is influenced by his or her interpretation of a market situation.

⁴ Formative indicators can have positive, negative, or no correlation with one another. As a result, observed correlations among these indicators are not meaningful and traditional assessments of individual item reliability and convergent validity are irrelevant (Hulland 1999).

⁵ We wish to further note that we cannot rule out the possibility that our findings are the result of respondents' perceptions of the relevance of the information to determining opportunities and/or threats, rather than a preference for negative or external information per se. For example, the results could be misleading if the distribution of one positive information item were significantly different from the distribution of the other positive information items. To minimize this possibility, the scenario was developed using an expert panel and then pre-tested to ensure that all information items have equivalent expected utility. In addition, an assessment of the means and standard deviation shows that there are no items within the any pool of like items (i.e., positive, negative, internal, or external) with a distribution significantly different from any other item within the same pool.

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TABLE 1
Correlations Among Constructs¹

	1	2	3	4	5	6	7	8	9	10	11	12
1. Extrovert-Introvert Cognitive Style	.692											
2. Judging-Perceiving Cognitive Style	.068	.662										
3. Sensing-Intuiting Cognitive Style	-.049	.374	.627									
4. Thinking-Feeling Cognitive Style	-.062	.317	.261	.624								
5. Adhocracy Culture	.021	.022	-.064	.011	--							
6. Clan Culture	.109	.004	.013	.066	.066	--						
7. Market Culture	-.012	.009	.018	.015	-.199	-.198	--					
8. Information Use	.091	.082	-.077	-.010	-.008	.027	-.073	--				
9. Perceived Control	.104	.122	-.148	.120	.129	.113	-.089	.281	.846			
10. Opportunity Appraisal	.127	.020	-.138	.011	.057	.124	-.033	.392	.459	.791		
11. Threat Appraisal	-.065	-.066	.030	-.004	-.026	-.027	.072	-.091	-.391	-.413	.790	
12. Magnitude of Response	.039	-.019	-.122	-.019	-.068	.027	-.048	.146	.132	.232	-.059	--

¹ Numbers on the diagonal shown in **bold** denote the square root of the average variance extracted (for reflective constructs only).

TABLE 2
Test of Hypothesized Relationships: Beta Coefficients and T-Values ¹

	Market Situation Interpretation			Magnitude of Response
	Perceived Control	Appraisal: Opportunity	Appraisal: Threat	
<i>Cognitive Style</i>				
Extrovert-Introvert ²	.062 (2.17)**			
Judging-Perceiving	.127 (3.60)*			
Sensing-Intuiting	-.202 (-6.33)*			
Thinking-Feeling	.130 (3.31)*			
<i>Organizational Culture (relative to Hierarchy)</i>				
Adhocracy	.095 (2.94)*			
Clan	.082 (2.73)*			
Market	-.035 (-0.89)			
<i>Information Use</i>				
Overall	.248 (6.51)*			
<i>Perceived Control</i>		.465 (13.11)*	-.398 (-9.77)*	
<i>Appraisal</i>				
Opportunity				.237 (5.24)*
Threat				-.050 (-1.09)
<i>Control Variables</i>				
Expertise	-.012 (-0.27)	-.052 (-1.14)	.074 (1.48)	-.138 (-2.47)**
Size	.089 (2.53)**	-.061 (-1.82)	.082 (1.92)	.072 (1.47)
Performance	-.018 (-0.61)	-.014 (-0.47)	.042 (0.62)	-.064 (-1.29)
Hospital Type	.064 (1.78)	-.089 (-2.18)**	-.002 (-0.05)	-.064 (-1.41)
Construct R ²	.172	.224	.170	.083

¹ T-values are reported in parenthesis.

² Since these four dimensions are conceptualized as bipolar continua: a) the higher the score on the extrovert-introvert dimension, the more extroverted the manager (supporting H₁) while the lower the score, the more the manager is introverted; b) the higher the score on the judging-perceiving dimension, the more judging the manager (supporting H₂) while the lower the score, the more the perceiving the manager; c) the higher the score on the sensing-intuiting dimension, the more sensing the manager while the lower the score, the more the intuiting the manager (supporting H₃); and d) the higher the score on the thinking-feeling dimension, the more thinking the manager (supporting H₄) while the lower the score, the more the feeling the manager.

* $\rho < .01$

** $\rho < .05$

APPENDIX A

Case Scenario

Directions: Imagine that you are the new Vice President of Marketing for Riverview Hospital and it is your job to make recommendations regarding the annual advertising and promotion budget. With 400 beds and approximately \$200 million in annual revenue, Riverview is the third largest hospital in Mayfield. The past several years, Riverview has spent approximately \$2 million on advertising and promotion (1% of revenues is about average for hospitals in Mayfield). The organizational culture at Riverview is virtually identical to the culture at your last hospital and so you have a good sense of the shared values and beliefs in the hospital. However, there have been numerous changes both inside and outside the hospital that suggest a possible need to change the amount budgeted for advertising and promotion. Please read the following situation analysis. Questions that relate to this situation analysis will follow.

The hospital recently completed an extensive renovation and an article in the local newspaper proclaimed, “Riverview now has one of the most attractive facilities in Mayfield. The newly renovated outpatient surgery center is a technological marvel that promises state of the art and yet cost efficient service.” Although it has been suggested that additional advertising might be needed to highlight the new outpatient surgery center, the hospital’s CFO has expressed concern that with approximately 90 percent of outpatient care under managed contracts, it might be unwise to focus more attention on a medical service that stands to gain so little from an increase in non-contract customers.

The hospital’s marketing programs were assessed in a recent report prepared by a local marketing firm. The report indicates that although Riverview has spent more money on image rather than medical services advertising in the past, fewer than 30% of area residents have a clear image of Riverview. On the other hand, the hospital’s CEO has told you that the hospital has had success in the past offering special seminars (e.g., Wellness Week, Seniors’ Day) to increase awareness of targeted health care issues.

The health care market in Mayfield is fiercely competitive and market research indicates that most of the five other local hospitals have been more successful in acquiring exclusive managed care contracts. Further, the managing director of a local PPO has told you that a group of once-loyal physicians may be creating their own physician-sponsored PPO which could take away contracts and duplicate some of the services in which Riverview Hospital currently has a strong market share. On the other hand, Riverview’s Director of Managed Care has privately informed you that the hospital has completed a new contract to provide exclusive service to one of Mayfield’s largest HMOs.

Finally, federal census reports indicate that the population in the ten-county area surrounding Riverview Hospital has been growing steadily for the past five years at 4% per year and that growth rate is expected to continue.

APPENDIX B

Measurement Appendix

Cognitive Style

Choose between answer **a** or **b** and place a check mark (✓) next to your choice.

Extroverted-Introverted $\alpha=.82$ ¹

At a party, do you a) interact with many, including strangers or b) interact with a few, known to you? (.772)²

At parties, do you a) stay late, with increasing energy or b) leave early, with decreasing energy? (.748)

In your social groups do you a) keep abreast of others' happenings or b) get behind on the news?

In phoning do you a) just start talking or b) rehearse what you'll say?

In company do you a) start conversations or b) wait to be approached? (.619)

Does new interaction with others a) stimulate and energize you or b) tax your reserves? (.625)

Do you prefer a) many friends with brief contact or b) a few friends with longer contact?

Do you a) speak easily and at length to strangers or b) find little to say to strangers? (.683)

When the phone rings do you a) hasten to get to it first or b) hope someone else will answer it?

Are you more inclined to be a) easy to approach or b) somewhat reserved?

Judging-Perceiving $\alpha=.82$

Do you prefer to work a) to deadlines or b) just "whenever"?

Do you tend to choose a) rather carefully or b) somewhat impulsively?

Are you usually more a) punctual or b) leisurely?

Does it bother you more having things a) incomplete or b) completed?

Do you usually a) settle things or b) keep options open?

Are you usually rather a) quick to agree to a time or b) reluctant to agree to a time?

Are you more comfortable a) setting a schedule or b) putting things off? (.641)

Are you more comfortable with a) written agreements or b) handshake agreements?

Are you more prone to keep things a) well organized or b) open-ended? (.624)

Do you put more value on the a) definite or b) variable?

Are you more comfortable with work a) contracted or b) done on a casual basis? (.705)

Do you prefer things to be a) neat and orderly or b) optional? (.631)

Are you more comfortable with a) final statements or b) tentative statements?

Are you more comfortable a) after a decision or b) before a decision?

Is it preferable mostly to a) make sure things are arranged or b) just let things happen? (.606)

Is it your way more to a) get things settled or b) put off settlement?

Are you more prone to a) schedule events or b) take things as they come? (.755)

Are you a person that is more a) routinized or b) whimsical?

Is it more like you to a) make snap judgments or b) delay making judgments?

Do you tend to be more a) deliberate than spontaneous or b) spontaneous than deliberate?

Sensing-Intuiting $\alpha=.86$

Are you more a) realistic or b) philosophically inclined?

Are you more intrigued by a) facts or b) similes?

Are you a more a) sensible person or b) reflective person? (.521)

Are you more drawn to a) hard data or b) abstruse ideas?

Are you usually more interested in a) specifics or b) concepts? (.678)

Do you prefer writers who a) say what they mean or b) use lots of analogies?

Facts a) speak for themselves or b) usually require interpretation?

Do you prefer to work with a) practical information or b) abstract ideas? (.704)

Traditional common sense is a) usually trustworthy or b) often misleading?

Children often do not a) make themselves useful enough or b) daydream enough?

Are you more frequently a) a practical sort of person or b) an abstract sort of person? (.673)

Which are you drawn to a) accurate perception or b) concept formation? (.706)

Are you more drawn to a) substantial information or b) credible assumptions?

Are you more interested in a) production or b) research?

Are you usually more interested in the a) particular instance or b) general case?

Do you feel a) more practical than ingenious or b) more ingenious than practical? (.686)

Do you prize more in yourself a) a good sense of reality or b) good imagination? (.637)

Are you more drawn to a) fundamentals or b) overtones? (.562)

Do you have more fun with a) hands-on experience or blue-sky fantasy? (.525)

In writings do you prefer a) the more literal or b) the more figurative? (.535)

Thinking-Feeling $\alpha=.91$

Are you usually more a) fair minded or b) kind hearted? (.552)

Do you tend to be more a) dispassionate or b) sympathetic? (.620)

Is it more natural for you to be a) fair to others or b) nice to others? (.577)

In first approaching others are you more a) impersonal and detached or b) personal and engaging?

Are you more naturally a) impartial or b) compassionate? (.635)

In judging are you more likely to be a) impersonal or b) sentimental? (.669)

Are you inclined to be more a) cool headed or b) warm hearted? (.650)

Would you rather be a) more just than merciful or b) more merciful than just?

Are you usually more a) tough-minded or b) tender hearted? (.620)

Are you more a) firm than gentle or b) gentle than firm? (.582)

Which is more satisfying a) to discuss an issue thoroughly or b) to arrive at agreement on an issue?

Which rules you more: a) your head or b) your heart? (.734)

Are you more comfortable when you are a) objective or b) personal? (.627)

Do you value in yourself more that you are a) unwavering or b) devoted?

Are you typically more a person of a) clear reason or b) strong feeling? (.609)

Are you inclined more to be a) fair-minded or b) sympathetic? (.669)

In judging are you usually more a) neutral or b) charitable?

Do you consider yourself more a) clear headed or b) good willed? (.690)

Are you usually more a) unbiased or b) compassionate? (.707)

Are you typically more a) just than lenient or b) lenient than just? (.500)

Perceived Organizational Culture

Distribute 100 points among the four descriptions depending on how *similar* the description is to your hospital.

Adhocracy

My hospital is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.

The head of my hospital is generally considered to be an entrepreneur, an innovator, or a risk taker.

The glue that holds my hospital together is a commitment to innovation and development. There is an emphasis on being first.

My hospital emphasizes growth and acquiring new resources. Readiness to meet new challenges is important.

Clan

My hospital is a very personal place. It is like an extended family. People seem to share a lot of themselves.

The head of my hospital is generally considered to be a mentor, sage, or a father or mother figure.

The glue that holds my hospital together is loyalty and tradition. Commitment to this hospital runs high.

My hospital emphasizes human resources. High cohesion and morale in the hospital are important.

Hierarchy

My hospital is a very formalized and structured place. Established procedures generally govern what people do.

The head of my hospital is generally considered to be a coordinator, an organizer, or an administrator.

The glue that holds my hospital together is formal rules and policies. Maintaining a smooth-running institution is important here.

My hospital emphasizes permanence and stability. Efficient, smooth operations are important.

Market

My hospital is very production oriented. A major concern is with getting the job done, without much personal involvement.

The head of my hospital is generally considered to be a producer, a technician, or a hard driver.

The glue that holds my hospital together is the emphasis on tasks and goal accomplishment. A production-orientation is commonly shared.

My hospital emphasizes competitive actions and achievement. Measurable goals are important.

Information Use

What is the extent (1="Small Extent" to 5="Great Extent) to which you would use each of the following pieces of information to help you make a budget recommendation? The notations "E" (external), "I" (internal), "+" (positive information), and "-" negative information shown in parentheses for items 1 to 8 below, were *not* on the questionnaire.

1. According to the newspaper, Riverview Hospital has one of the most attractive facilities in Mayfield. (I, +)
2. The CFO has expressed concern about focusing more attention on outpatient surgery since 90 percent of outpatient care is under managed contracts. (I, -)
3. Market research reports that fewer than 30% of residents have a clear image of Riverview Hospital. (I, -)
4. The CEO has told you that the hospital has had success offering special seminars. (I, +)
5. Market research reports that other area hospitals have been more successful in acquiring exclusive managed care contracts. (E, -)
6. The managing director of a local PPO contact tells you that a group of physicians may be creating their own PPO. (E, -)
7. The Director of Managed Care informs you that Riverview has completed a new exclusive contract with a large HMO. (E, +)
8. According to federal census reports, the area population is growing steadily. (E, +)

Perceived Control $\alpha=.83$

If you were the new Vice President of Marketing for Riverview Hospital, to what extent (1="Small Extent" to 5="Great Extent) would you:

Feel you can manage the situation rather than it manage you? (.898)

Feel that the outcome of your budget decision will be a matter of chance? (reverse coded) (.789)

Appraisal

If you were the new Vice President of Marketing for Riverview Hospital, to what extent (1="Small Extent" to 5="Great Extent) would you:

Opportunity $\alpha=.83$

Describe the situation overall as an opportunity? (.944)

Label the situation as something positive? (.635)

Feel the future looks promising for Riverview Hospital? (.750)

Threat $\alpha=.83$

Describe the situation overall as a threat? (.618)

See the situation as having negative implications for the future? (.708)

Label the situation as something negative? (.995)

Magnitude of Response

1. *Change*: Using the scale provided, please circle the number that is the best indicator of how you would recommend changing Riverview's advertising and promotion budget next year.

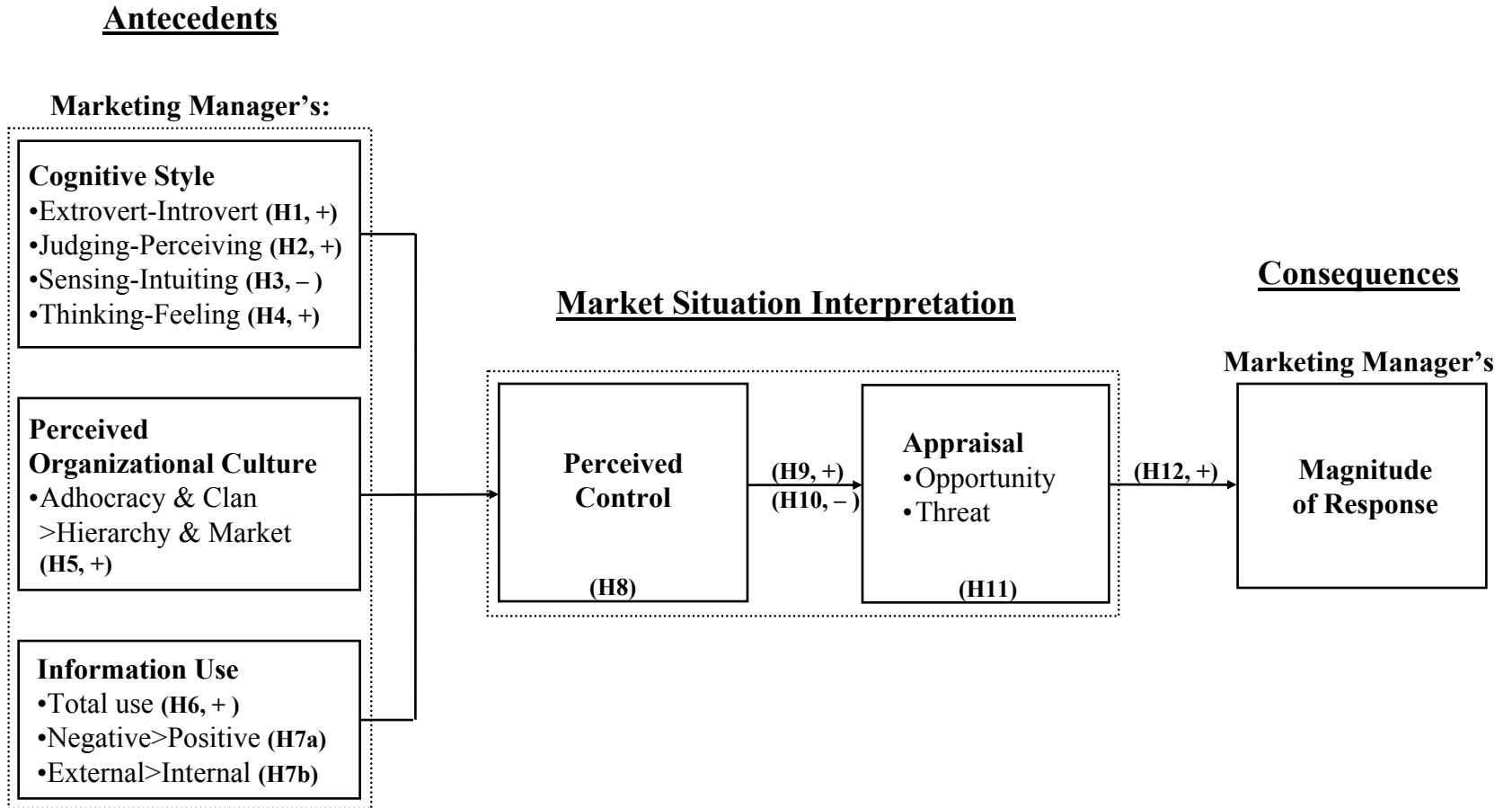
(1 = "Substantial Decrease" and 9 = "Substantial Increase")

2. *Budget*: Recall that for the past several years, Riverview Hospital has spent approximately \$2 million (1% of revenues) on advertising and promotion. Please provide a specific estimate of the amount of money you would recommend for next year's budget for advertising and promotion. Please note that this figure should include **all** promotion expenditures including print and broadcast advertising, brochures, promotional seminars, etc.

¹ Denotes internal consistency of reflective measures (Fornell and Larcker 1981).

² Denotes measurement model loadings for retained items of reflective measures. Items with measurement model loadings of less than .50 (shown in italics) were deleted, as recommended by Hulland (1999). To address possible concerns regarding the impact of deleting items from an established scale, the model was also tested with all cognitive style scale items included; although the R^2 of the perceived control construct was reduced (from .172 to .130), all the of the exogenous constructs remained significant ($p<.05$).

FIGURE 1
Antecedents and Consequences of Market Situation Interpretation^{1,2}



1 All constructs are conceptualized as continuous.

2 Hypotheses 8 and 11 refer to the mediation effects of perceived control and appraisal, respectively.