DOES WHAT YOU SEE DEPEND ON WHERE YOU SIT?
LINKING CONTEXT AND STRATEGIC ISSUE CATEGORIES

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ABSTRACT

This paper proposes a general framework for how a manager's organizational context, level in the firm and experience relate to the structure and content of their threat and opportunity categories for strategic issues. Results from a study of 78 strategic planners suggest that level in the firm and experience relate more strongly to the structure and content of issue categories than organizational context variables. In addition, they suggest that context relates more strongly to the content as opposed to the structure of issue categories. Implications for theory and research are discussed.

In the process of managing, decision makers face numerous classification tasks. They classify people into groups, such as hard workers vs. hacks, insightful vs. thoughtless, energetic vs. lethargic. They classify tasks into categories, such as easy vs. difficult, fun vs. boring, routine vs. unusual. They also classify events, developments and trends in order to make sense of the myriad of organizational threats, opportunities, crises and problems that confront them. The classification process is an important component of interpreting (Daft & Weick, 1984) and sensemaking (Giola, 1986; Louis, 1980) processes in organizations. It serves as a starting point for inferences that lead to individual and collective strategic action. Classifying issues into categories or schema activates organizational routines and scripts for dealing with these issue types. Hence understanding the classification of issues helps to understand the initiation and direction for organizational action.

The classification of social and natural objects into categories initiates an individual's interpretation process by activating a cognitive schema in memory. This schema acts as a mental map for a category of objects. It summarizes the important features of categories and their relationships to each other. The schema also serves as a reference guide for interpreting new information. And when information is missing, a schema provides a basis for filling in the gaps.

This paper concerns how the organizational context affects the categories managers use when they interpret and make sense of strategic issues. Strategic issues are defined as developments, trends or events that are perceived as potentially consequential for the organization. Two examples of strategic issue categories frequently used by managers to interpret events that confront their organization are "threat" and "opportunity". Issue categories play an important role in organizational decision making and adaptation processes (Dutton & Duncan, 1987; Dutton & Jackson, 1987). By classifying issues into categories, decision makers simplify their decision making task because issue categories

have associated with them ready-made assumptions about the nature of the issues that belong to the categories i.e., their content, their evaluation, and probable responses. Reliance upon these assumptions affects the process and outcomes of issue responses. Over time, responses to issues create a pattern of strategic action for an organization (McCall and Kaplan, 1985).

Management researchers know very little about how managers' schemas for classifying issues are formed. The purpose of this paper is to use theory developed in psychology to derive a logic for how managers develop cognitive schemas for classifying issues. Although we will draw upon work done by cognitive and social psychologists who have concerned themselves with concept development (e.g., Neisser, 1987; Keil, 1987; Lackoff, 1987), this paper is uniquely concerned with the organizational grounding of strategic issue categories. Organizational and role characteristics are identified as major forces that shape the development of managers' strategic issue categories. These contextual influences on category development account for observed differences in the cognitive schemas held by different managers within the same organization, as well as the observed differences between managers across different organizations.

Our paper is divided into three parts. First, we present a general perspective on the development of strategic issue categories in the minds of managers. Then we establish the theoretical logic for how organizational and role contexts relate to the content and structure of strategic issue categories. Finally, we illustrate the potential power of this approach by examining how a sample of strategic planners differ with respect to their classifications of strategic issues as threats and opportunities.

THE DEVELOPMENT OF ISSUE CATEGORIES

From the time we are children, we are faced with the task of discriminating between objects and classifying them into categories. This process is a fundamental one, underpinning how we navigate in and learn about the world around us.

Explanations for processes of classification rely upon assumptions about the structure of cognitive categories and how these structures affect the categorization process. Currently, debate exists concerning whether categories are based on objective characteristics of the "real world" or whether they are products of implicit theories that individuals hold in their minds -- theories that may bear little relationship to any objective reality. We will not attempt to resolve this debate. However, we will briefly describe the two alternative perspectives as each suggests different hypotheses regarding how organizational and role contexts can affect managers' issue categories.

Categories reflect the real world - The "objectivist" perspective

When theories of concept formation and categorization were initially developed, they were dominated by the objectivist view (e.g., Rosch, 1978; Rosch & Mervis, 1975). According to this perspective, individuals form object categories based on observations about features or attributes that covary in the environment, forming natural, empirically-derived categories for classifying objects. For example, consistent with this perspective, we may learn that leaders speak louder, stand taller and dress a particular way in organizations. Over time as we observe different instances of these correlated features in nature, our category system (in this case a stereotype for leaders) gains coherence and strength. In this depiction, the sense of order in a category comes from the natural orderliness or coherence that exists in the world we observe around us.

If we were to apply this assumption to the development of strategic issue categories in organizations, we would propose that issue categories consist of sets of attributes or

features that managers observe co-vary with different types of strategic issues. In different organizations, and in different roles, individuals are exposed to experiences that serve as the raw data for these observed correlations. The conceptual categories that form are a natural derivative of the data that individuals are exposed to over time. For example, Walton (1986) studied the categories individuals in the financial services industry used to classify successful and unsuccessful organizations. He found that individuals from different sectors (e.g., insurance, savings banks, commercial banks and security dealers) employed different features in discriminating between more and less successful categories of organizations. An objectivist interpretation of these findings is that the observed category differences reflect real differences in the data to which managers in different sectors are exposed.

Categories reflect theories, not realities - The "constructionist" perspective

Recently, the objectivist view of category development has been challenged by a constructionist perspective, which claims that the objectivist view (a) cannot account for category coherence for non-observable objects; and (b) makes unreasonable claims about the computational abilities of individuals (e.g., Lackoff, 1987; Medin and Wattenmaker, 1987; Neisser, 1987). According to constructionists, coherence in the content and structure of category systems is a by-product of idealized conceptual models (Lackoff, 1987) or implicit theories (Neisser, 1987) that individuals employ to make sense of their world. The coherence in category systems comes not from the natural coherence in the "real world" as observed, but from the logic embedded in individual's theories about how the world works (Murphy & Medin, 1985).

For example, organizations have distinctive cultures that are unique in the theories or sets of basic assumptions and beliefs that are shared, unconscious, and taken for granted by organizational members (Schein, 1985, p. 6). Schneider and Shrivastava (1988)

characterize these cultures in terms of basic assumptions that typify organizations, and are manifest at the individual, group and organizational level. Using their idea of an organization that holds a persecution theory, one would expect that members of this type of organization would see the environment as "hostile, cutthroat and threatening", while viewing their organization as victim (Schneider and Shrivastava (1988, p. 498)). Individuals in this type of culture, exposed and socialized to these types of assumptions, acquires a particular perspective in receiving and interpreting issues. In particular, in an organization characterized by a persecution stance, the uncontrollability, hostility and negativity of events or developments may be much more apparent than in an organization where the same events are observed, but the basic assumptions differ. In this example, the way that issues are categorized results from the theories that individuals hold in their heads from their affiliation with the organization, and not from observable characteristics of the issues. In this case, concepts are formed in a way that is consistent with a theory-driven or constructionist perspective.

Because our categories include information about how we <u>behave</u>, Lackoff (1987) calls the defining characteristics of categories "interactional properties" and not features or attributes. His view is consistent with those who argue that category coherence comes from implicit models of the world and not from objective properties of objects:

> "The relevant properties clustering together to define such categories are not inherent to the objects, but are interactional properties, having to do with the way people interact with objects" (Lackoff, 1987, p. 51).

When viewed from this side of the debate, issue categories arise from managers' theories about issues--where they came from, their likely effects or how they can be resolved. Different organizations and different roles may introduce different theories to the individuals who inhabit them, causing differences in how individuals classify issues.

The two perspectives on how individuals' categories for issues form place differing emphases on the major source for order and substance in the category structure. The objectivist perspective on category development is consistent with a bottom-up view of information processing (Norman, 1976). According to this perspective, incoming data stimulate and shape the formation of categories. Prior conceptualizations and expectations are relatively unimportant to the process of category development.

In contrast, a top-down or constructionist view assumes prior expectations have important consequences for category formation. Conceptualizations are codified in the form of theories or frames of reference that organize and give meaning to information as it is encountered. This perspective is aptly captured by Keil's (1987) account of category development:

> People do not simply record how often certain regularities occur in the world, they try to explain them by positing underlying mechanisms and theories of origins. These theories of mechanism and origin have powerful effects on how any concepts within a theoretical domain are structured (Keil, 1987, p. 197).

The Organizational and Role Contexts

These two opposing perspectives on category evolution are useful starting points for a model of how organizational and role factors influence managers' strategic issue categories. The category development debate leads to two alternative perspectives on how the organizational and role contexts affect the content and structure of decision makers' categories.

The objectivist or "bottom-up" perspective (Rummelhart and Ortony, 1977) highlights the importance of the data to which individuals are exposed in a particular organization or role setting. According to this perspective, differences in categorical content or structure arise from differential exposure to information embedded in organization or role settings. Different contexts provide different raw data from which category structures

are formed. For example, differences in the ways issues are interpreted by managers residing in different functional roles arise from the specialized and limited information to which these managers are exposed (Dearborn & Simon, 1958; Hambrick & Mason, 1984). While marketing managers spend their time making sales calls, establishing customer lists and promising services, manufacturing managers spend their time monitoring equipment, translating new product designs into new products, and making decisions about how to improve operations. The task differences translate into different categories for classifying objects and issues formed from repeated exposure to different objects to classify.

The constructionist or "top-down" information processing perspective suggests an alternative view. Consistent with this theoretical lens, the organizational and role contexts are important to the extent that they provide individuals with different models of the world for interpreting the world around them. These "models of the world" have been called frames of reference (Shrivastava & Schnieder, 1984), quasi-theories (Hewitt & Hall, 1973), and belief structures (Dutton & Duncan, 1987; Walsh, 1989). Regardless of the label used, the importance of these shared knowledge structures is that they provide a cognitive lens through which managers view and interpret new objects and data.

Individuals acquire their models of the world through socialization processes (Louis, 1980), which reward organizational members for adopting some views of the world and rejecting others. Thus, in this model of category development, differences in strategic issue categories emerge from repeated application of general organizational or role models in attempts to interpret the world around them. For example, marketing and manufacturing managers' representations for issues differ not because of repeated exposure to different sources of raw data (as the bottom-up approach would imply), but because of their socialization to different world views or logics. According to the constructionists, the differences Lawrence and Lorsch (1967) observed between R & D and marketing managers

can be attributed to the fact that these two types of managers make fundamentally different assumptions about time and effectiveness. From an R & D manager's point of view, a five-year time horizon is reasonable before a payoff is expected from invested resources. The same time period spells failure to a marketing manager. As a result of different reward schedules and different professional associations, R & D and marketing managers acquire different goals, traditions, and ways of "doing things right". These become powerful guiding principles for interpreting objects and actions in organizations. Dearborn and Simon's (1958) finding that industrial executives from different departments interpret ambiguous problems in a manner consistent with their department's affiliation supported this viewpoint. [Note, however, that the validity of this classic study has been recently questioned by Walsh (1988)].

Getting Down to Specifics: The Issue Categories of Threat and Opportunity

Two important categories for the classification of strategic issues in organizations are "threat" and "opportunity." These two categories describe important cognitive appraisals for distinguishing among strategic issues (Dutton & Jackson, 1987). In general, threats are seen as issues that are negative, involving loss, and being somewhat uncontrollable. Opportunities are seen as positive, involving gain and being relatively more controllable (Jackson & Dutton, 1988; Thomas & McDaniels, 1988). Threats and opportunities are not the only categories employed to differentiate between issues but they are two categories frequently used in strategic planning and environmental scanning systems. Such systems routinely classify strategic issues into these two distinct categories. We will use threats and opportunities as categories for illustrating how the organizational and role contexts of managers systematically affect the content and structure of their strategic issue categories.

Describing differences in categories. Differences in individuals' categories can be described in terms of category structure and category content. Across individuals, categories differ in their general structure. Structure describes the patterning of attributes or information bits stored in an individual's category. One dimension along which category structures may vary is complexity. A simple category structure is one in which few bits of information are stored to describe the category. For example, some managers may associate very few attributes with opportunities--they are positive, promise a gain, and are resolvable. In contrast, other managers may have a more elaborate category structure for opportunities, containing the attributes listed above as well as those of visible, stimulating, involving choices about whether or not to act.

Another way managers' issue categories can differ is in their content. The content of a category refers to the attributes associated with a category, which define the meaning of a category for an individual. For example, one manager may see threats as characterized by a considerable time constraint, while another may see time as irrelevant to classifying an issue as a threat. Thus, it is possible for two people to have a simple category structure, but to be different in terms of the content of their issue categories.

The next section describes specific propositions that link organizational and role contexts with the content and structure of managers' strategic issue categories. While the propositions are specific to threats and opportunities, they illustrate a general logic for developing hypotheses about how context can affect the categories that managers employ to make sense of the worlds around them. All of the propositions are stated in summary form in Figure 1. Figure 1 organizes the propositions by independent variable. In addition, it identifies the theory of category formation from which we derived the logic for the propositions.

Insert Figure 1 about here

The Organizational Context: Two aspects of the organizational context will be considered for their role in the development of managers' issue categories: organizational size and diversification strategy. Organizational size and diversification were selected to begin to look at how the organizational context relates to managerial cognitions about issues. The selection of these variables is not exhaustive, but research on the effects of both constructs allows us to build an argument for a probable link to category structure and content.

The size of an organization refers to its pool of employee and financial resources. Organizations of different size expose managers to different experiences and inculcate them with different models of the world, which are reflected in the structure and content of their knowledge categories.

An organization's size is a type of proxy for the power it wields in its competitive and institutional environments. Larger organizations serve as reference points against which individuals compare and evaluate other organizations (Hodgkinson & Johnson, 1987). One theorist argues:

> Size affects not only the people who work in organizations but also those who have contact with it as "outsiders." Even supposedly impersonal and professional people such as accountants apparently are awed by organizational size and give larger business firms more favorable audits than smaller ones. (Hall, 1977, p. 115).

As a result, one might expect managers who are employed by large organizations to gain a sense of omnipotence and invincibility about their organization over time. Using a top-down theory of category formation, we propose that this theory of omnipotence translates into the belief that most strategic issues, whether threats or opportunities, are resolvable. In addition, this theory dilutes the sense of urgency associated with any issue. As a result we expect that individuals employed by larger organizations will have threat and opportunity categories with less time pressure associated with them. Thus, we propose:

<u>Proposition 1: Managers in larger organizations will see opportunities and threats as more resolvable than managers in smaller organizations.</u>

<u>Proposition 2: Managers in larger organizations will see opportunities and threats associated with less time pressure than managers in smaller organizations.</u>

An organization's <u>diversification strategy</u> also influences the structure and content of managers' issue categories. On the one hand, an organization's strategy exposes managers to different types of information from which their understandings of events, developments and trends evolve. For example, managers who reside in more diversified firms (i.e., those which have a broader product base and products that are increasingly less related to one another), face a wider range of more varied strategic issues than managers in single-business firms. Not only are the issues more varied, but they must be interpreted against different competitive backdrops in order for a manager to evaluate what type of issue it is, and to determine if and how the organization can respond. This situation is more pronounced for managers who are in positions which must integrate issues or ideas across the diversified contexts. Thus, the relationship between diversification and category elaboration is likely to be stronger for strategic planners or for managers in corporate roles that serve an integrative function.[1] Using a bottom-up view of categorizing information, managers in more diversified firms are likely to acquire an elaborated sense of the meaning of threats and opportunities. These differences in information exposure suggest a logic for the next proposition:

<u>Proposition 3: Managers in more diversified firms will have more elaborate categories for threats and opportunities than managers employed by less diversified firms.</u>

A firm's diversification strategy does more than expose its managers to a greater variety of strategic issues. A diversification strategy represents a dominant logic or theory of relatedness which decision makers have in their minds (Ginsberg, 1988; Prahalad & Bettis, 1986), affecting the content as well as the structure of issue categories. For

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[1]Thanks to an anonymous reviewer for pointing out the restriction on the applicability of this hypothesis.

example, Thomas and McDaniels (1988) found that managers employed by organizations pursuing a domain offense strategy (Miles, 1982) perceived issues as more controllable in comparison to managers in organizations pursuing a domain defense strategy. Their interpretation of this finding is that a firm's strategy provides "a framework for how a strategic situation is initially perceived as being controllable or uncontrollable" (p. 15). When applied to a firm's diversification strategy, we expect that individuals in more diversified firms will also see threats and opportunities as more resolvable. This sense of resolvability about both categories of strategic issues arises because individuals are exposed to a viewpoint that new situations (e.g., new markets) can be mastered when they are employed by firms that are pursuing strategies of domain offense or unrelated diversifiers. This sense of mastery, we argue, is reflected in the content of threat and opportunity categories by the presence of attributes suggesting these issue types are more resolvable. Based on a top-down theory of category formation our next proposition is:

Proposition 4: Managers in more diversified firms will see threats and opportunities as more resolvable than managers employed by less diversified firms.

The Effects of Experience: Studies have shown that individuals progress through a predictable change in the structure of their categories as a result of increasing familiarity with new instances of the object, and with models for how objects are related to one another. This change has been labeled the "characteristic-to-defining shift," describing the qualitative change that occurs in the logic for classification (Keil, 1987). As individuals become more experienced within a particular realm, they "shift from a relatively even weighting of many features that co-occur frequently with a category to a heavy emphasis on just one or two primary features or fundamental organizing dimensions" (Keil, 1987, p.180). These findings (done primarily with children) as well as studies of experts vs. novices suggest that the classification of objects is related to how much experience an individual has with a particular object set. For example, Chi, Feltovich and Glaser (1981)

demonstrated that experts approach and categorize physics problems very differently than do novices. Experts rely on abstract features to comprehend physics problems, while novices rely on more intuitive and literal features of the problem.

These studies lead to the general proposition that the categorization of strategic issues by managers is related to how much and what type of experience they have with a particular class of issues. As managers become more experienced with a variety of strategic issues through their experiences in different firms, their conceptions of threats and opportunities generalize and conform more closely to the threat and opportunity prototypes. A prototype for objects is similar to a stereotype for persons. It is defined as the set of attributes that describe the central tendency of observed instances of the category (Smith & Medin, 1981). The collective prototype for a category describes the set of attributes that, on average, individuals associate with a category member.

For example, the threat prototype for strategic issues is likely to contain the attributes that the issue is negative, involves loss and uncontrollability (Dutton and Jackson, 1987). The argument here is that as managers are exposed to more contexts and these contexts different from one another, their categories for threats will lose their idiosyncratic content and will begin to converge on the prototypical view of threats. Thus, proposition 5 reads:

Proposition 5: The greater the number of different firms for which a manager has worked, the more closely their threat and opportunity category structures resemble the collective category prototype.

Level in the Organization: As an individual moves up in an organization's hierarchy he/she encounters different types of strategic issues. In addition, the role socialization that takes place as one moves up the corporate hierarchy alters the goals, values and point-of-view of individuals, resulting in distinctive schema for interpreting a firm's strengths and weaknesses (Ireland, Hitt, Bettis and de Porras, 1987).

According to Ireland et al. (1987) there are distinctive differences in the schema employed by managers at different levels because: 1) managers at different levels perform different tasks, and these tasks make different events and features of a firm salient and available in memory; and 2) managers within the same level tend to be similar in age, so they share similar life experiences, values and beliefs. The results from their study of 56 managers in three different firms suggest that managers at different levels and within different firms do categorize organizational strengths and weaknesses differently. Here, we suggest that level in the firm can also be related to their interpretations of threats and opportunities. In particular, when individuals join an organization, the set of issues that they face are limited to the immediate tasks in which they are involved. As individuals move up in an organization, they are exposed to more general, global issues about an organization's mission, competitors' moves, etc.--issues that are less tactical and more strategic in nature. The more experience that managers have with global issues, the more confident they become about what is and what is not a threat or opportunity. The strengthening of these beliefs is reinforced by the implicit rewarding of past ways of interpreting issues. As individuals are promoted up the ladder in an organization, rightly or wrongly, they become more confident in their categorization systems for issues. These arguments lead to the following proposition:

Proposition 6: Higher level managers will be more confident about the content of their threat and opportunity categories than lower level individuals.

Not only do individuals become more confident about the way they view issues as they move up the hierarchy, the substance of these categories changes as well. In particular, as individuals move up in organizations they alter their views of what it takes or does not take to be successful. They learn that opportunities evaporate and threats are increasingly difficult to resolve. In essence, we hypothesize that as individuals move up the

hierarchy, they become more urgent about opportunities and more pessimistic about threats.

Proposition 7: Higher level managers see more time pressure associated with opportunities than lower level managers.

Proposition 8: Higher level managers see threats as less resolvable than lower level managers.

METHOD

Seventy-eight male strategic planners attending executive development courses participated in the study by responding to a questionnaire. The executive development course was designed for enhancing the strategic planning skills. Midway in the program the questionnaires were distributed to participants, and questionnaires were returned the next day. The data were originally collected to identify the prototypical attributes for the categories of threats and opportunities (Jackson & Dutton, 1988). Here we use the data to explore whether individual differences in category structure and content are systematically related to organizational and role contexts.

The questionnaire contained three parts. In part 1, respondents described one strategic issue that was a threat and one that was an opportunity for their firm--a procedure used to increase the accessibility of these categories in memory (Srull & Wyer, 1979). Part 2 contained two parallel sections used to measure the content and structure of each manager's threat and opportunity categories. In one section, managers indicated how well 56 attributes fit their conception of a threat (threat ratings), while in the other section managers indicated how well the same 56 attributes fit their conception of an opportunity. These attributes had been selected based on previous research (see Jackson & Dutton for a justification for the focus on these particular attributes) as well as characteristics generated by 40 MBA students' descriptions of threats and opportunities. The 56 attributes consisted

of 28 pairs of antonyms (e.g., easy to resolve--difficult to resolve; positive--negative). A full listing of the criteria used to measure the attributes appears in Appendix A.

Participants rated each attribute on a 7-point scale in a manner consistent with the procedure used by social cognition researchers to identify a category's structure. For threat ratings the scale anchors were: Not a threat; fits a nonthreat extremely well (-3), can't tell (0), and threat: fits a threat extremely well (+3). Parallel wording was used to anchor the scale used for the opportunity ratings.

Part 3 of the questionnaire asked the respondent several questions about their firm, their personal job histories and their current position in the firm.

MEASURES

The threat and opportunity ratings were used to derive the measures of structure and content for the threat and opportunity categories. For all dependent measures separate measures were devised for threats and opportunities. We describe the measures of category, structure, content, and context variables below.

Structure Measures

Elaborateness of threat and opportunity categories. The elaborateness variable measures the breadth of attributes individuals report as describing the meaning of threats and opportunities. A category's structure can be elaborate in terms of having a large number of attributes that confirm the category, or a large number of attributes that disconfirm the category (discrepant). Either attribute type (confirming or discrepant) helps to define the meaning of an issue that is classified into the category. For example, in an earlier study, Jackson & Dutton (1988) showed that when managers judge an issue to be an opportunity, they assume that the issue is positive, that an individual may gain a great deal by working on it, has autonomy to work on it, etc. However, an opportunity also means

that the issue is not negative, it is not constrained by others, the resolution of the issue is not a matter of chance, etc. We chose to measure the elaborateness of the threat and opportunity categories by measuring the number of attributes that "definitely fit" (rated a +3) a category (CONFIRM-O and CONFIRM-T), and by measuring the number of attributes that "definitely do not fit" (rated a -3, DISCONFIRM-O and DISCONFIRM-T) a category. On either of these measures, a higher score represents a more elaborate category structure.

Prototype fit. The collective prototype fit variables measure the level of fit of an individual's category for threats or opportunities with the shared prototypes for threats and opportunities. Based on a previous analysis of these data, Jackson and Dutton (1988) isolated the set of attributes that were maximally discriminating for each category. Maximally discriminating attributes are those that simultaneously confirm one category (CA), while disconfirming the other (DA). A listing of these attributes for threat and opportunity categories appears in Table 2. The prototype fit (PROTOFIT-T and PROTOFIT-O) variables were computed by summing an individuals' ratings for the maximally discriminating attributes by using the following formula:

$$\sum_{i=1}^{j} CA + \sum_{i=1}^{h} (-1)DA$$

The sum was computed in two steps. First an individual's ratings for the category consistent attributes were added together. In the case of threats, this meant adding together the threat ratings for negative, personal loss from acting, lose a great deal but not gain much, constrained by others and underqualified to resolve. Next the opportunity ratings for these same attributes were each multiplied by a -1, and then added together. Thus, if an individual had rated a confirming attribute as "not fitting" a threat, his/her category structure would be different from the threat prototype. This difference would be reflected in a lower

prototype score. Similarly if they had rated a discrepant attribute as "definitely does not fit" the threat category (e.g., in a manner that fits the prototype), the multiplication of a -3 rating by a -1 means that it would add to rather than subtract from the prototype fit score. Thus, individuals who received a high score on this variable rated the confirming and discrepant attributes in the direction and strength that was maximally consistent with the shared prototype for the category.

Insert Table 2 about here

Category confidence. The degree of confidence that individuals displayed in their threat and opportunity categories was measured by summing the absolute value of ratings for the 56 attributes (CONFID-O and CONFID-T). This measurement procedure assumes that an individual's category confidence is evidenced by rating attributes more extremely, either in terms of the attribute definitely fitting or definitely not fitting the category. High scores on this variable indicate that many attributes were judged as fitting or not fitting the category and these attributes were rated more extremely.

Content Measures

Time pressure and resolvability of threat and opportunity categories. Whereas the previous measures were designed to describe differences in individuals' category structure (elaborateness, prototype fit and degree of confidence), the next four measures describe differences in the content of the categories. One difference in content is reflected in the ratings of time pressure attributes. Another concerns attributes related to issue resolvability.

The scales were constructed based on factor analyses (principal factors, varimax rotation) of a subset of the attribute ratings. Only confirming attributes were used (for a justification of this procedure see Jackson & Dutton, 1988). The results of the factor analyses are presented in Table 3. Two parallel factors emerged for threats and opportunities--one that captures time pressure (TIMEPRESS-O and TIMEPRESS-T), and

one that captures resolvability of the issue (RESOLVE-O and IRRESOLVE-T). Note that the resolvability scale for the threat category is actually an indication of how unresolvable this type of issue is perceived to be. To construct the scales, we averaged respondents' ratings for the relevant attributes. The scales for threats and opportunities do not contain exactly the same attributes, reflecting the fact that these categories are not simple opposites of one another (see Jackson & Dutton, 1988). The Cronbach alpha reliabilities indicated that the scales were adequately internally consistent (all alphas > .78).

Insert Table 3 about here

Organizational size: Organizational size was measured as the natural logarithm of the number of employees working full-time at the manager's employing firm.

Level of diversification: Level of diversification was measured using a variant of the Rumelt (1974) typology for firm diversification. Respondent's were asked to classify their employer into one of four groups: (1) Firm is basically committed to a single business area; (2) firm is diversified to some extent but obtains the majority of revenues from a single business area; (3) firm is diversified and more than 70% of diversification has been accomplished by relating new activities to old activities; and (4) firm is diversified and less than 70% of diversification is related to the firm's original skills or strengths. Thus, higher values on this scale indicated a greater extent of diversification in products, in increasingly more unrelated areas.

Level in the firm: A manager's level in the firm was measured on a 4-point scale. Individuals answered the following question: "Would the CEO of the organization in which you are currently employed consider you to be a (1) lower level manager (2) middle level manager (3) top level manager or (4) executive level manager?"

Firm experience. The respondents listed the firms for which they had worked, and from this listing, the number of different firms was computed (NUMFIRMS).

ANALYSIS AND RESULTS

Two types of analysis were conducted to test the hypotheses: simple bivariate correlations and multiple regression analyses, where the independent relationships between the organizational context, level and experience variables could be assessed for the content and structure of threat and opportunity categories.

Table 1 presents the descriptive statistics and pearson product moment correlations between all of the variables used in the analyses.

Insert Table 1 about here

Inspection of the correlations between measures of the dependent variables indicates that several measures of the dependent variables (category content and structure) are highly intercorrelated. For example, elaborateness of a threat category (based on confirming attributes) is highly correlated with elaborateness of an opportunity category (based on disconfirming attributes) (r=.78). This correlation suggests that believing that multiple attributes definitely fit a threat is associated with believing that multiple attributes rule out an opportunity. In addition, level of confidence in opportunity ratings is highly correlated with elaborateness of an opportunity category (based on confirming attributes) (r=.77). This correlation is not surprising given that the category confidence measures combine both the number of attributes considered to confirm or disconfirm a threat and opportunity, as well as the strength of the fit ratings. At the same time, measures of confidence in category meaning were highly correlated for threats and opportunities (r=.78). In fact, this last correlation reflects the observation that measures of category structure were more strongly correlated across threats and opportunities (average r=.51) than measures of category content (average r=.10). However, because the independent variables relate differently to the measuring of category structure and content, we chose to analyze them separately.

While measures of the dependent variables were highly correlated, intercorrelations between the independent variables suggest that multicolinearity is not a problem for these variables. Thus, we look at the results of multiple regression analyses to evaluate support for the eight propositions. The results of these analyses are presented in Table 4.

Insert Table 4 about here

With respect to firm size, the only relationship that is significant suggests that managers in larger firms see opportunities as _less_ rather than more resolvable. Thus, there is no support for propositions 1 or 2. With respect to diversification, managers in more diversified firms exhibit greater confidence in their specification of a threat, although this strategy variable does not relate to any other category content or structure variable. Thus, we observe no support for propositions 3 and 4. Diversity of managerial experience (measured by the number of different firms for which a manager had worked) was marginally related (p<.10) to the degree of threat prototype fit, a perception of less time pressure associated with opportunities, and opportunities that were characterized by resolvability. Thus, there is some support for proposition 5. Finally, a manager's level in the firm was related to the characterization of threats and opportunities in terms of resolvability, providing some support for proposition 8. Managers at higher levels tend to see threats as less resolvable and opportunities as more resolvable. In addition, as managers move up in the organization, their characterization of opportunities more closely resembles the opportunity prototype. However, there was no relationship between level by the firm and category confidence as originally suggested in proposition 6.

Overall, the results from the regression analyses are disappointing in terms of providing convincing support for the propositions as originally stated. As suggested by inspecting the multiple correlation coefficients, these four organizational and role variables were not particularly effective in accounting for variance in the content and structure of

these two issue categories. The only equation with a significant F statistic was the equation that predicted the resolvability of opportunities (F=2.93, df=55).

DISCUSSION

The analyses indicate limited support for the initial propositions that related organizational context, level in the firm, and experience to managers' categories for threats and opportunities. The propositions that did receive support were the ones relating the diversity of a manager's experience across firms to their prototype for threats, and those relating a manager's level in the firm with the view of threats as less resolvable. As managers gain experience across firms, they form a view of threats that matches the shared managerial view of threats, although this does not happen for opportunities. At the same time, as managers move up the hierarchy, they view threats as less resolvable. This difference in category content may be due to either the socialization to a more modest, less efficacious view of what is necessary to resolve threats (a top-down explanation) or exposure to threats that are more intractable (a bottom-up explanation).

Support for one of the hypotheses was in a direction opposite to that originally hypothesized; managers from larger firms saw opportunities as less resolvable. It may be that firms that are larger stifle their managers' sense of efficacy with respect to siezing opportunities either because larger firms are more bureaucratic in structure or because they merely have a climate or shared belief system that is not as supportive of opportunistic behavior. Over time, either one of these conditions could expose managers to opportunities that are in fact less resolvable (a bottom-up view of category formation).

Unexpected Findings

There are several relationships that emerged that were not originally specified in the propositions. With regard to category structure, managers in more diversified firms were

more confident in their characterization of threat issues, and higher level managers had opportunity categories that more closely resembled the opportunity prototype. This first finding, when coupled with finding that managers in more diversified firms have threat categories that resemble the prototype, suggests that exposure to a wide range of issues through either the firm's strategy or one's own career experience translates into a more definite characterization of threats.

Several unexpected relationships appeared between a manager's context and the content of their threat and opportunity categories. Opportunity categories were characterized as more resolvable by managers who had diverse firm experiences and who were at higher levels in the firm. These findings could suggest that individuals who travel across and upward in organizations are exposed to data that lead to inferences about opportunities as more resolvable. If one assumes that movements across organizations or upward in organizations reflect the promotional and reward systems for managers, it may be that managers who define opportunities as resolvable are reinforced more often or more strongly. Alternatively, it could be that having a wide variety of firm experiences or being positioned at higher levels in a firm exposes individuals to opportunities that are, in fact, more resolvable because individuals have gained the experience or position to control and act on them (a bottom-up explanation). Unfortunately, the way that the data were collected limits our ability to address the mechanisms through which these associations form. Thus, we cannot address why managers with more diverse firm experience also saw opportunities as associated with less time pressure. Again, the explanation may be one of exposure, i.e., as they travel across firms, managers learn that opportunities are less urgent. Alternatively, managers who have had experience at many different firms may be put into jobs in which the opportunities have less time pressure associated with them.

CONCLUSION AND IMPLICATIONS

The results from this study--expected and unexpected--do support the idea that managerial issue categories are related to the context in which these managers spend their time. However, we have only begun to isolate the ways that the organizational context influences individuals' cognitions. While the results from this study provide only modest support for the effects of organizational context on cognitions, other studies have been more successful in capturing these linkages. Managers from different organizations display different types of forecasting errors (Bromiley, 1987), describe classes of competitors in predictable ways (Hodgkinson and Johnson, 1987), interpret environmental jolts differently (Meyer, 1982), and see means-ends linkages uniquely (Walker, 1985).

One alternative explanation for the relatively weak findings concerning the effects of organizational context is that other organizational variables may be stronger predictors of strategic issue cognitions than the ones studied here. For example, Thomas and McDaniels, (1988) found that a firm's structure (i.e., its information processing capacity) was strongly related to managers' perceptions of the controllability of strategic problems; whether they saw them as gains or losses; as well as the rules and variables they considered in diagnosing a strategic problem. They conclude from their study of 162 hospital CEOs that:

> "strategic decision units that are characterized by more interaction among
> unit members, more participation and less use of formal decision procedures
> will interpret strategic situations as more controllable and positive"(p.15).

Future research should extend these results to suggest how firm structure relates to both the content and structure of strategic issue categories.

Another possibility is that organizational performance is an important predictor of strategic issue cognitions. Research on the, relationship between organizational performance and mangement of meaning as revealed in annual reports testifies to the importance of this performance-interpretation link (Bettman & Weitz, 1983; Salancik &

Miendl, 1984; Staw, McKenchie and Puffer, 1983). More recent studies demonstrate the effect of organizational performance on perceptions of environmental uncertainty (Milliken, 1990; McCabe & Dutton, 1989). A natural extension of this work would be to see how patterns of organizational performance relate to the structure and content of issue categories.

The results from this study of threats and opportunities suggest that context may be more important for explaining the content as opposed to the structure of strategic issue categories. In this study, five of the eight significant relationships involved the meaning (i.e., content) of the issue categories as opposed to their more abstract structure (e.g., their elaborateness, prototypically). This conclusion stands in stark contrast to a recent study by Walsh (1988) of the relationship between the functional diversity of managers' work experience and the content of their belief structures. Walsh's results do not support the conclusions of Dearborn and Simon (1958) that functional training is strongly related to the content of managers' belief structures and the interpretation of organizational problems. Both studies (Walsh, 1988; Dearborn and Simon, 1958), however, limited their focus to the functional content of knowledge structures. In contrast the study reported here focussed on two different dimensions of knowledge content as reflected in issue categories: time pressure and resolvability. The study reported here and previous work (Dutton, Walton & Abrahamson, 1989), suggest that managers' beliefs about control and the resolvability of issues, as well as issue dimensions such as time pressure, may capture key differences in the way managers interpret strategic issues, and how they consequently respond to them. If a cognitive view of strategy formulation is to progress (Chaffee, 1985), we must expand our studies to include more research on the scope of managers' knowledge content.

An important task for future research is to expand our understanding of what issue categories are important in managers' interpretation of strategic issues. For example,

promising research is being done on the categories on internal and external issues (Dukerich & Milliken, 1987), economic, technical, political and social issues (Wartick & Christy, 1986), as well as human vs technical issues (e.g., Cowan, 1988). The research projects as well as the research on managerial cognition in general (e.g., Anderson & Paine, 1975; Bateman & Ziethaml, 1989; Stubbart, 1988; Walsh, 1989) suggest that we know very little about the content and process of managerial thinking, yet this is a key process in strategic adaptation to environments. At a very basic level, we need to know more about the content of schemas that managers apply in their tactical and strategic work, and their links to strategic issue processing and outcomes.

How managers categorize issues determines, in part, how they respond to them. This paper has provided a logic for how important categories form, with the indirect but consequential implication that this matters for understanding managerial action. For example, if managers must see threats and opportunities as resolvable in order to invest their time and budgetary resources, then managers in smaller organizations, those who have had a diversity of firm experience, and those at higher levels would be expected to allocate greater resources to opportunities. The results also suggest that managers at higher levels will invest fewer resources in threats because they see them as less resolvable. The critical linkage between the content of cognitions and the allocation of resources provides an important bridge for understanding how interpretations link to strategic actions in organizations.

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Figure 1

Links Between Organizational Context, Experience, Level in the Firm, and Managers' Threat and Opportunity Categories

Theory of Category Formation

	ORGANIZATIONAL CONTEXT		ROLE CONTEXT	
	FIRM SIZE	DIVERSIFICATION	EXPERIENCE	LEVEL IN THE FIRM
BOTTOM UP: Exposure to Incidents Builds the Category Structure and Content		P_3: The more diversified the firms, the more elaborate managers' threat and opportunity categories.	P_5: The more firms a manager has worked for, the more their categories for threats and opportunities resemble the prototype.	P_6: Higher level managers are more confident about threat and opportunity categories than lower level managers.
TOP DOWN: Theory in Use Builds the Category Structure and Content	P_1: Managers in larger organizations see threats and opportunities as more resolvable. P_2: Managers in larger firms see less time pressure associated with threats and opportunities.	P_4: The more diversified the firm, the more managers see threats and opportunities as resolvable.		P_7: Higher level managers see more time pressure associated with opportunities. P_8: Higher level managers see threats as less resolvable than lower level managers.

Table 1

Means, Standard Deviations, Ranges and
Pearson Product Moment Correlations for the Variables

	X	S.D.	Range	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) CONFIRM-O	10.0	8.5	6-33															
(2) CONFIRM-T	6.7	5.5	0-25	.31**														
(3) DISCONFIRM-O	5.2	4.9	0-22	.36**	.72**													
(4) DISCONFIRM-T	6.8	7.2	0-38	.43**	.24**	.47**												
(5) PROTOFIT-O	15.2	10.1	-3-42	.23**	-.15	-.11	.49**											
(6) PROTOFIT-T	10.1	7.6	-4-30	-.02	.27**	.21**	.43**	.49**										
(7) CONFID-O	87.0	32.5	17-159	.77**	.37**	.51**	.68**	.24**	-.08									
(8) CONFID-T	83.0	30.2	12-153	.46**	.51**	.54**	.43**	.23**	.16	.78**								
(9) TIMEPRESS-O	6.3	5.7	-14-15	.54**	.21**	.06	.24**	-.17*	.40**	.25*	.08							
(10) TIMEPRESS-T	7.4	6.1	-13-15	-.09	.58**	.16	.12	.10	.05	.40**	.26*	.31**						
(11) RESOLVE-O	7.9	6.1	-18-18	-.52**	.22**	-.18*	.28**	-.17*	.26*	.05	.31**	.04	.18*					
(12) IRRESOLVE-T	5.1	6.1	-13-15	-.02	-.07	-.19*	.19*	.20*	-.18*	-.40**	-.03	.31**	.18*	-.28**				
(13) ORGSIZE (LOG)	2.9	2.5	1.95-13.62	-.00	.01	-.04	.05	-.08	.07	.11	-.05	-.05	.05	-.28**	.17*			
(14) DIVERS	2.1	.9	1-4	.05	.03	.29**	-.02	-.08	-.02	.16	.21*	.01	.18*	.15	-.02	.26**		
(15) LEVEL	2.9	.9	1-4	.11	-.14	.05	.13	-.16	.05	.12	.08	.17*	.01	-.28**	.19**	-.16	-.10	
(16) NUMFIRMS	2.3	1.1	1-6	-.02	-.01	.12	.16	.13	.21**	-.08	.04	-.18*	-.05	-.17*	.13	-.06	-.02	.06

N = 70
*p < .10 (one-tailed test of significance)
**p < .05

TABLE 2

Prototypical Attributes for Threats and Opportunities

Attributes that Confirm a Threat and are Discrepant with Opportunity	Attributes that Confirm an Opportunity and are Discrepant with Threat
1. Negative	1. Positive
2. Personal loss from acting	2. May gain a great deal but not lose much
3. Lose a great deal but not gain much	3. You have a means to resolve
4. Constrained by others	4. High probability of resolution
5. Underqualified	5. You have autonomy
	6. You are qualified to act
	7. You can chose whether to act

[a](Based on analysis from Jackson & Dutton, 1988).

TABLE 3

Results of Factor Analysis (Principal Components, Varimax Rotation) for Attributes Consistent with Threat and Opportunity Scales

1. Opportunities			2. Threats		
Attributes	Factor	Loadings	Attributes	Factor	Loadings

Resolvability

Attributes	Factor	Loadings	Attributes	Factor	Loadings
1. Personal advantage on issue	.59	.26	1. Low probability of of resolution	-.29	.70
2. Personal desire to	.57	.18	2. Lose, not gain	-.04	.70
3. Means to resolve	.63	.19	3. Underqualified to to resolve	-.07	.71
4. Have complete responsibility for issue	.77	.07	4. Direct competition with others	.29	.64
5. Autonomy to act on issue	.73	-.16	5. Suffer personal loss from acting on issue	-.12	.77
6. Qualified to act	.75	-.06			

Time Pressure

Attributes	Factor	Loadings	Attributes	Factor	Loadings
1. Pressure to act	.01	.75	1. Pressure to act	.79	-.10
2. Difficult to resolve	-.07	.69	2. Action must be taken quickly	.91	.04
3. Taken action quickly	.08	.79	3. High priority issue	.90	-.10
4. High priority issue	.20	.82	4. Crisis	.66	.43
5. Major issue	.06	.79	5. Major issue	.71	.03

Eigenvalues:	6.2	2.9		4.7	3.0

TABLE 4

Results of Multiple Regression Analyses

| | ELABORATION | | | | PROTOTYPE FIT | | CATEGORY Confidence | | TIME PRESSURE | | RESOLVABILITY | |
| | Confirm | | Disconfirm | | | | | | | | | |
	Threat	Opportunity	Threat	Opportunity	Threat	Opportunity	Threat	Opportunity	Threat	Opportunity	Threat (IRRESOLVABLE)	Opportunity (RESOLVABLE)
LOGSIZE	-.06[a]	.04	-.11	-.22	.07	-.01	-.17	.09	.02	-.09	-.19	-.23**
DIVERSIFICATION	.18	.11	.21	.03	-.02	-.11	.34***	.20	.05	.08	-.05	.04
EXPERIENCE	-.03	-.02	.14	.15	.22*	.12	-.001	.08	-.06	-.20*	.13	-.21*
LEVEL	-.17	.12	-.06	-.19	.06	.23*	.03	.13	-.04	.18	.22*	.22*
R^2	.05	.04	.07	.12	.05	.08	.05	.07	.009	.08	.09	.15
F	.86	.43	1.12	1.89	.88	1.45	1.9	1.2	.16	1.48	1.56	2.93**

N = 70
***$p < .01$
**$p < .05$
*$p < .10$

a = Standard Regression Coefficients

APPENDIX A

Complete List of Attributes Used to Measure Threat and Opportunity Content and Structure

1. There is pressure to act on the issue.

2. Benefits will come from acting on the issue.

3. You will gain a personal advantage from acting on the issue.

4. You have a choice about whether or not to act on the issue.

5. The issue is urgent.

6. The issue is difficult to resolve.

7. There is a personal desire to be associated with the issue.

8. The solution to the issue is obvious.

9. The future will be better with resolution of the issue.

10. Resolution of the issue is initiated by others.

11. Action must be taken quickly to resolve the issue.

12. The issue is likely to endure.

13. You have the means to resolve the issue.

14. The issue is negative.

15. The issue has implications for the future.

16. The issue is embedded in the past.

17. The issue is positive.

18. There is a high probability of resolving the issue.

19. There is a low probability of resolving the issue.

20. The issue is a high priority one.

21. The issue is a stressful one.

22. The issue is a crisis.

23. The issue is problematic.

24. The issue is a major one.

25. The issue is a challenge to resolve.

26. The issue is a stimulating one.

27. You have no choice about whether or not to act on the issue.

28. You will either lose a great deal or gain a great deal.

29. You may lose a great deal but are unlikely to gain much.

30. Others will constrain your actions.

31. There is probably only one correct solution.

32. You are underqualified to resolve the issue.

33. The issue is unique.

34. Priorities surrounding the issue are ambiguous.

35. You will not gain much and you will not lose much when the issue is resolved.

36. There are many possible solutions.

37. You have complete responsibility for resolving the issue.

38. You are in direct competition with others; if they win, you lose, and if you win, they lose.

39. There is conflict surrounding how to resolve the issue.

40. You have autonomy to act as you chose.

41. Success or failure will be visible.

42. How the issue is resolved will be largely a matter of chance.

43. You may gain a great deal, but you are unlikely to lose much.

44. There is no pressure to act on the issue.

45. Acting on the issue will not bring benefits.

46. You are qualified to resolve the issue.

47. The issue is a temporary one.

48. The issue is easy to resolve.

49. The issue is visible.

50. The issue is not urgent.

51. You will suffer a personal loss from acting on the issue.

52. There is agreement about how to resolve the issue.

53. The issue is not a crisis.

54. There is a personal desire <u>not</u> to be associated with the issue.

55. The future will be no better with resolution of the issue.

56. You have no responsibility for resolving the issue.