Division of Research
Graduate School of Business Administration

October 1986

WHAT DO "THREAT" AND "OPPORTUNITY" MEAN? A COMPLEX ANSWER TO A SIMPLE QUESTION

Working Paper #491

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October, 1986

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Generous support for this research was provided by New York University's Center for Entrepreneurial Studies. The authors thank Ian C. MacMillan, William D. Guth, Michael Simon, James W. Fredrickson and James W. Dean Jr. for their assistance and comments on earlier drafts of this manuscript.

*A previous version of this article was presented at the annual meeting of the Academy of Management, 1986, Chicago.

Abstract

Organization theorists have asserted that the language used by an organization's top decision makers to interpret strategic issues partially determines subsequent organizational actions (Daft and Weick, 1984). To date, evidence supporting this assertion is scarce. In this article, we first examine the meanings executives hold for two salient categories of issues, threats and opportunities. After confirming that a heterogeneous sample of executives has a shared understanding of the meanings of "threat" and "opportunity," we use an experimental design to test hypotheses about how the availability of threat- and opportunity-relevant information affects recommendations for how to respond to strategic issues.

WHAT DO THREAT AND OPPORTUNITY MEAN?

A COMPLEX ANSWER TO A SIMPLE QUESTION

"Everyone knows that the name of the game is what labels you succeed in imposing on the facts." (Cohen, 1971)

That language is an important medium for people's interpretations of events has been well documented by psycholinguists (e.g., Whorf, 1956). Sociolinguists have demonstrated how shared reality is framed, communicated and modified through language use (Berger and Luckman, 1967). Political scientists have demonstrated how astute political actors can use language to intentionally shape meanings in order to achieve desired ends. Consistent with these themes organizational researchers are beginning to study the construction of shared meaning in organizations and its relationship to action (e.g., Bartunek, 1984; Daft and Weick, 1984). The general consensus emerging is that the use of language shapes the reality upon which action is based. Thus, the name of the game is to understand how language or labels affect meaning, and how meaning relates to organizational action.

While organization theorists accept the assumption that top-level organizational decision makers play a role in discovering and interpreting environmental events and trends (Daft and Weick, 1984, Hrebiniak and Joyce, 1985), they differ in their descriptions of this role. Some envision decision makers as passive filters positioned between the environment and the organization. Due to their restricted capacities for processing information, these decision makers attend to selected environmental events and trends while ignoring others (Newall & Simon, 1972). Describing decision makers as information filters highlights the limits of people's cognitive abilities and the heuristics

they use to manage an overabundance of information (Schwenk, 1984; Simon, 1971). As filters, then, decision makers determine what information receives attention in an organization, and therefore, which events initiate organizational action.

A more active view of organization decision makers posits that they not only select what information is used in making strategic decisions but they also construct the meaning of that information. Thus events and trends selected for attention are also interpreted by decision makers (Hambrick & Mason, 1984; Daft & Weick, 1984; Kiesler & Sproull, 1982). Through interpretation, beliefs about the potential consequences of events and trends are constructed; these beliefs are reflected in and crystallized by the labels used to describe the events (Dutton, Fahey, & Narayanan, 1983).

Whether passive or active, decision makers mediate the interpretation of events -- both those external and internal to the organization -- and so determine which fragments of the total environment receive attention. Here we will focus on those events, trends or developments that decision makers interpret as relevant for an organization's ability to achieve its objectives, that is, we will focus on the subset of environmental events that management theorists call strategic issues (Ansoff, 1980; King, 1982).

The processes that affect how strategic issues are identified and interpreted are important to understand because meanings attached to strategic issues may determine the form and content of organizational actions taken in response to these issues (Dutton & Duncan, in press). For example, decision makers in the banking industry face a wide array of issues, ranging from repeal of the McFadden Act, which currently

restricts interstate banking, to the offering of below-cost services for low income families. Differences in the meanings bankers attach to such issues are suggested by the language they use to describe them. Whereas some bankers are likely to see these issues as clear opportunities, others may define them as a definite threats. These simple differences in the labeling and categorization of issues is likely to powerfully affect how different banks respond to the issues (Dutton and Jackson, 1986).

If actions taken vis a vis a strategic issue follow from the meanings attached to it, the categorization of an issue may explain why organizations respond so differently to "the same" event. "Threat" and "opportunity" are two categories frequently used by decision makers to describe strategic issues. In many organizations, these two categories are likely to be crystallized as a consequence their appearance in prescriptive programs designed to aid decision makers in their efforts at environmental scanning and strategic planning. But what does it mean to say "this is a great opportunity" or "that is a real threat"? The two studies we will describe provide some initial answers to this question. Study 1 examines the meanings managers attach to these two issue categories. Study 2 builds upon the results of Study 1 by using an experimental design to test whether we can accurately predict inferences about issue categorization. In addition, Study 2 tests whether threats and opportunities trigger different preferences for how issues should be processed and for resource allocations.

General Theoretical Perspective

Understanding how top level decision makers perform their roles requires examining how information is processed by individuals. Given

that basic research on individual information processing has a long tradition in psychology, one efficient path to improving our understanding of how decisions evolve in organizational settings may be by attempting to extend the findings of basic psychological research.. In this article, we extend a prominent theory of information processing proposed and tested by cognitive psychologists, namely categoriztion theory, to develop several hypotheses about how event interpretations can influence organizational actions.

Categorization theory was originally proposed as a description of how people identify "natural" objects, such as animals and plants (Rosch, 1978; Medin & Smith, 1984). It asserts that cognitive categories facilitate perception of an infinitely complex environment by maximizing cognitive economy (Rosch, 1978). Categorical representations organize information by clustering together non-identical, similar objects. Furthermore, a person's cognitive categories are assumed to represent clusterings of objects that occur naturally in the environment. Consequently, cognitive categories should be similar among a population of individuals; and communication among members of a population is facilitated by the use of shared category labels (Cantor & Mischel, 1979).

The theory asserts that categories are arranged hierarchically, reflecting diffeernces in the abstractness of categories (Rosch, 1978). For our research, we assume that "strategic issues" is a superordinate category (high level of abstraction), encompassing all events, trends and developments that are important to the organization and for which future resolutions are sought. Threats and opportunities are assumed to be basic level categories (intermediate level of abstraction). Basic

level categories are somewhat less general than superordinate categories and are assumed to include as members of the categories events with similar and recognizable attributes (Rosch, Mervis, Gray, Johnson & Boyer-Braem, 1976).

In the language of categorization theory, the term "attribute" is used when referring to the defining characteristics of category members. For example, two attributes we assume to be descriptive of any strategic issue are importance and future-oriented. Threats and opportunities, as two types of strategic issues, should share these attributes. But while they share some common attributes, threats and opportunities are distinctive from one another in terms of other attributes. Distinctive attributes distinguish one basic level category from another and are thought to map how the attributes are correlated "in nature" (Malt & Smith, 1983; Mervis & Rosch, 1981).

A review of several literatures led Dutton and Jackson (1986) to hypothesize that threats are characterized by the distinguishing attributes of negative, loss, and uncontrollable, (Hypothesis 1) and opportunities are characterized by the distinguishing attributes of positive, gain and controllable (Hypothesis 2). Assuming they had accurately identified the shared meanings associated with threat and opportunity, Dutton and Jackson developed numerous hypotheses about the consequences that follow from labeling strategic issues threats or opportunities. For example, they hypothesized (a) that information consistent with an issue's categorization would be selectively attended to and recalled, (b) that ambiguous information would be interpreted as consistent with the issue's categorization, and (c) that organizations' differential responses to "the same issue" can be predicted from

knowledge of whether organizations considered the issue to be a threat or opportunity.

Whether empirical support can be found for Dutton and Jackson's hypotheses regarding strategic decision making processes will depend in part upon whether they have accurately identified the shared meanings held by top level decision makers for the strategic issue categories of threat and opportunity. Study 1, described below, examines the meaning of threat and opportunity using a sample of strategic planners and general managers, who were asked to rate how well various attributes fit their conceptions of threats and opportunities. Based upon these ratings, attributes were identified as confirming, disconfirming, or being irrelevant to whether an issue was a threat or opportunity. Study 2 used the results from Study 1 and an experimental design to test whether the presence of confirming and disconfirming attributes was predictive of issue categorization. Study 2 also tested several hypotheses about the impact issue categorization has on organizational responses.

STUDY 1

Method

Participants

Seventy-eight male general managers and strategic planners attending executive development courses participated in Study 1 by responding to a questionnaire. Responses to questions about their background indicated that these managers were employed in firms varying in size from 7 employees to 722,000 employees (median = 10,000), and from numerous different industries. Most of these firms were organized

according to divisions (46%) or functions (40%), although a few "other" structural forms (14%) were also represented. The managers indicated that their CEOs would describe the responding managers as being in relatively high levels in their organizations: 29% at the executive level; 40% at the top level; 25% at the middle level; 6% at the lower level. About one-third (36%) indicated they were members of their firm's top policy and planning committee.

Procedure

Instructions. Participants completed a 3-part questionnaire as an assignment prior to a discussion of strategic planning. Part I of the questionnaire gave the following instructions:

> We are interested in learning more about how you think about strategic issues. Strategic issues refer to events, trends or developments that have the potential to impact an organization's ability to achieve its objectives. Please take a moment to think about the set of strategic issues you are currently dealing with or will be dealing with in the future.
>
> A. Describe in the space below an example of a strategic issue that you would classify as a THREAT.
>
> B. Now, describe in the space provided below an example of a strategic issue that you would describe as an OPPORTUNITY.

The purpose of Part I was to increase for respondents the accessibility of the threat and opportunity categories by having them think of concrete examples (Srull & Wyer, 1979).

Part II of the questionnaire included two parellel sections. In the first section, managers indicated how well each of 56 attributes fit their conception of a threat (threat ratings). In the second section they repeated the task for an opportunity (opportunity ratings) using the same 56 attributes. Their instructions were:

> In Part I, you told us about the various types of strategic issues you deal with. Now, we want you to think about those strategic issues that represent a THREAT (OPPORTUNITY). Below are listed several possible characteristics of strategic issues. For each characteristic, rate how well the characteristic fits your understanding of a strategic issue that is a THREAT (OPPORTUNITY).

Attribute list. Of the 56 attributes used in Part II, 26 were based upon our review of studies of crises, threats, and situations that were characterized as opportunities (see Dutton & Jackson, in press). The 26 attributes included synonyms for the six attributes predicted to define threats and opportunities, as well as attributes hypothesized to characterize strategic issues in general (importance, time pressure, etc.). Thirty additional attributes were generated by having 40 evening MBA students respond to a short open-ended questionnaire asking them to describe two situations they had personally experienced -- one threat and one opportunity. The attributes referred to in these scenarios were added to our initial list, yielding a total of 56 attributes (see Table 1).

Attribute ratings. Each attribute was rated using a 7-point scale. For the threat rating, 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 opprotunity ratings.

This method for identifying prototypic attributes is similar to methods used by cognitive psychologists (e.g., Cantor & Mischel, 1977). However, the use of a bipolar rather than unipolar scale represents an important extension of past methodology. Research conducted to identify prototypical attributes has emphasized identification of confirming attributes, that is, attributes judged to be related to, or typical of, a category (e.g., Cantor & Mischel, 1977; Cantor, Mischel, & Schwartz, 1982; Rosch, 1978), although in some person perception studies, disconfirming or category-inconsistent attributes have been included (e.g., Hymes, 1986; Snyder & Swann, 1978; Taylor, Crocker, & D'Agostino, 1978). The role of disconfirming attributes in the categorization process is not yet well studied, but it seems likely that, for ambiguous stimuli, disconfirming attributes provide information that may facilitate categorization. Use of bipolar rating scales enable us to explore this possibility.

Results

Table 1 displays for each attribute the means and standard deviations for the ratings given under the "threat" and "opportunity" instructions, the results of paired-t tests comparing the threat and opportunity ratings for the attribute, and the correlation between the threat and opportunity ratings. In Table 1, attributes are clustered into 10 subgroups. These subgroups, described in more detail below, were created by evaluating the extent to which each attribute fit the category of "threat" and the category of "opportunity."

For each category, we differentiated between three levels of fit: The attribute was considered to fit a category relatively well if the mean rating was .50 or greater. Mean ratings of -.50 or lower were interpreted as poor fits. Mean ratings falling between -.50 and .50 were interpreted as providing little information relevant to the threat/opportunity distinction. In Table 1, and throughout the remainder of this article, we refer to attributes characterized by the three levels of fit as confirming (C), disconfirming (D), and irrelevant (I) attributes, respectively.

For economy of expression, we use four-letter abbreviations to denote the classes of attributes. The first two letters (CO, DO, or IO) indicate whether the attribute confirms, disconfirms, or is irrelevant to the opportunity category. The last two letters (CT, DT, or IT) indicate whether the attribute confirms, disconfirms, or is irrelevant to the threat category. By identifying and labelling these attribute classes, we wish to convey that these classes are conceptually useful and are helpful for discussing differences in the ratings received by the 56 attributes. However, the cut-off values used in creating this trichotomy (confirm, disconfirm, irrelevant) are arbitrary, and the trichotomy belies the continuous nature of the data.

Table 1 about here

Attributes Associated with Both Threats and Opportunities

If "threat" and "opportunity" are two subcategories of the more general category of "strategic issue," they should share attributes that reveal their family resemblance (Tversky, 1977); that is, attributes

that reflect our definition of a strategic issue should be rated as fitting with participants' conceptions of both threats and opportunities. Several items (Subgroup I of Table 1) received equally high mean ratings under the threat and opportunity instructions. Both threats and opportunities were associated with major, high priority issues for which there is pressure to act and to act quickly. These issues also involve competition with others and the potential to either lose a great deal or gain a great deal; issue resolution is assumed to be difficult. All of these attributes were rated as fitting both the threat and opportunity categories ($\underline{M}_T$ and $\underline{M}_O \geq 0.5$). Furthermore, each attribute applies equally well to both categories (i.e., for each attribute, a paired-t test revealed the difference between $\underline{M}_T$ and $\underline{M}_O$ was not significant).

Several other attributes were rated as fitting both threats and opportunities but not equally well. That is, for several items $\underline{M}_T$ and $\underline{M}_O$ were both greater than 0.5 but the difference between $\underline{M}_T$ and $\underline{M}_O$ was statistically significant (Subgroup II in Table 1). Both threats and opportunities can be described as urgent, stressful, problematic and conflictual, but such attributes fit the threat category better than the opportunity category. Conversely, both threats and opportunities have implications for the future, are challenging, and success or failure is likely to be visible, but such attributes fit the opportunity category better than the threat category.

Attributes That Confirm Threats and Disconfirm Opportunities

Hypothesis 1 states that three attributes will be associated with threats and not associated with opportunities, namely negative, loss, and uncontrollable. Support for this hypothesis would be shown if items

reflecting these attributes were rated relatively high for threats (M_T > 0.5) and relatively low for opportunities (M_O < -0.5). Subgroup III shows that the respective threat and opportunity ratings for several descriptors support Hypothesis 1. Threats, but not opportunities, are negative issues where loss is likely, perhaps due to the constraining actions of others or to a person's lack of qualifications for dealing with the issue.

Attributes That Confirm Opportunities and Disconfirm Threats

Hypothesis 2 states that three attributes will be associated with opportunities and not associated with threats: positive, gain, and controllable. Support for this hypothesis is shown by ratings on the items listed in Subgroup IV, which indicate that opportunities are positive situations in which a resolution that leads to gain is likely, and for which personal autonomy and competence are both assumed to be relatively high.

Attributes Confirming One Category and Irrelevant to the Other

Subgroups III and IV contain attributes with high information value that powerfully differentiate between threat and opportunity, for the attributes simultaneously confirm one category and disconfirm the other. In contrast, the attributes in Subgroups V and VI contain less information for while they confirm one category they are irrelevant to the other. Attributes in Subgroups VII and VIII may contain still less information; these attributes disconfirm one category but are irrelevant to the other. Attributes in these latter four subgroups are described next.

Four descriptors confirm the presence of a threat but imply nothing about the presence of an opportunity (Subgroup V), namely a crisis, low

probability of resolving the issue, ambiguous priorities, and enduring. Of these four descriptors, three have means very close to the admittedly arbitrary cut-off points used in forming the subgroup. Consequently this subgroup should be interpreted cautiously.

Unlike Subgroup V, which contains only four attributes, Subgroup VI contains numerous descriptors that confirm opportunities but are irrelevant to threats. The content of these items resemble the attributes of positive (e.g., the future will be better with resolutions of the issue), gain (e.g., benefits will come from acting on the issue), and controllable, and so provide further support for Hypothesis 2.

Attributes Disconfirming One Category and Irrelevant to the Other

As formulated by cognitive psychologists, categorization theory assumes that objects are categorized on the basis of whether their attributes match attributes associated with the category, that is, categorization theory assumes that confirming attributes are used in the categorization process. By implication, disconfirming attributes may also affect the categorization process if they provide information that allows an inference to be made about category membership.

Several attributes appear to disconfirm that an issue is a threat but provide little or no direct information about whether the issue is an opportunity. These attributes include having an obvious or easy solution, no pressure to act, temporariness, and lack of crisis (Subgroup VII).

Conversely, two attributes appear to disconfirm that an issue is an opportunity but provide little or no direct information about whether it is a threat. These are: how the issue is resolved will be largely a matter of chance, and there is a personal desire not to be associated with the issue (Subgroup VIII).

Attributes Irrelevant to Both Threats and Opportunities

Despite the fact that our list of 56 descriptors was generated to include attributes relevant to threats and/or opportunities, four attributes were irrelevant to both categories, namely, resolution is initiated by others, the issue is embedded in the past, there is only one correct solution, and there is no choice about whether or not to act (Subgroup IX). These attributes are conceptually uninteresting, as they contain little information about whether an issue is a threat or opportunity. However, as Study 2 will show, this group of attributes is useful for testing how different types of attributes affect inferences about whether an issue is a threat or opportunity.

Attributes That Disconfirm Both Threats and Opportunities

Subgroup X contains those items that were rated as disconfirming both threats and opportunites ($\underline{M}_T$ and $\underline{M}_O < -0.5$). The one common feature shared by these items seems to be that they are grammatically negative. It is important to note that four of these five items received significantly different ratings under the threat and opportunity instruction sets. For example, "not urgent" disconfirms both issue categories, but it disconfirms a threat more than it does an opportunity. Conversely, "the future will be no better with resolution" disconfirms an opportunity more than it does a threat. This asymmetry of ratings for the attributes in Subgroup X indicates that the attributes may have differential value for categorizing issues as threats or opportunities.

Study 1 Summary and Conclusions

Study 1 identified several subsets of attributes that inform us of the meanings managers attach to issues they believe represent threats or opportunities. Table 1 summarizes these results. Close examination of Table 1 leads us to three important conclusions. One conclusion is that "threat" and "opportunity" are not opposite poles of a single continuum. In fact, threats and opportunities share several common attributes. Those attributes rated as fitting both threat and opportunity situations suggest that both types of issues are important, require action, and involve competition with others. Furthermore, if threat and opportunity were simply opposites, the threat and opportunity ratings should be negatively correlated, yet the last column of Table 1 shows this to be true for only a few attributes. A second conclusion is that the distribution of informative attributes is asymmetrical: more attributes confirm an opportunity than confirm a threat and more attributes disconfirm a threat than disconfirm an opportunity.[1]

Assuming that our sample of respondents developed cognitive representations of threats and opportunities that reflect what they encountered in the "real world" (Rosch, 1978), threats and opportunities cannot be treated as simply opposites. To describe an issue as an opportunity suggests that many different attributes are likely to characterize the issue, while describing an issue as a threat suggests the presence of only a few key attributes. Conversely, a wide range of attributes disqualify issues from being threats, while only a few serve as guideposts to disqualify issues from being opportunities. This asymmetry might be expected to develop if managers are biased toward problemistic search (Cyert & March, 1963). If managers are more

sensitive to the presence of threats compared to opportunities, then they may need less information to confirm that a threat exists compared to an opportunity. At the same time, managers have numerous indicators that rule out the presence of a threat, but only a few to rule out the presence of an opportunity.

A third conclusion from Study 1 is that two particular sets of attributes are useful diagnostically. These are the attributes that confirm one type of categorization (threat or opportunity) and disconfirm the other. In the language of categorization theory, these attributes have high cue validity (Rosch, et al., 1976). Three items were rated as definitely fitting a threat and not fitting an opportunity: negative, likely to lose, and likely to suffer a personal loss. Conversely, attributes rated as definitely fitting an opportunity and not a threat were: positive, resolvable, and likely to gain.

Finally, Table 1 shows that although statistical tests of our a priori hypotheses supported all of our predictions concerning the attributes associated with threats and opportunities, the overall pattern of results suggests that threats and opportunities are most differentiated by the attributes of loss/gain and negative/positive. The attribute of control may be less central to differentiating threats from opportunities.

STUDY 2

The empirical evidence generated in Study 1 supports our assertion that "threat" and "opportunity" are two distinct cognitive categories useful for describing strategic issues and it provides an enriched picture of the meanings managers attach to these issue types. However,

Study 1 addressed only the deductive process implied by categorization theory. It showed that when given the labels of threat and opportunity, managers used deductive reasoning that followed our predictions concerning associated attributes.

Study 2 was designed to examine whether managers inductively categorize issues as threats or opportunities based upon attribute information. First, we expected to demonstrate that the presence of threat- or opportunity-confirming attributes leads to categorization of an issue as a threat or opportunity, respectively. Specifically, we predicted:

Hypothesis 1a: A manager is more likely to conclude that an issue is a threat when known attributes fit the threat category well.

Hypothesis 1b: A manager is more likely to conclude that an issue is an opportunity when known attributes fit the opportunity category well.

Hypotheses 1a and 1b are appropriately tested by comparing the strength of inferences made when available information confirms rather than disconfirms a particular category. Support for these two hypotheses would suggest the categorization process can "run in reverse" for the categories of threat and opportunity. That is, if people are given a category they can describe the identifying attributes of category members (Study 1) and when given those attributes they will deduce the category (Hypotheses 1a and 1b, above). Such information processing is typical for natural objects but does not appear to hold for social concept categories (Lingle, Altom, & Medin, 1984).

Another interesting question involves inferences made when little category relevant information is available. For example, if the available information neither confirms nor disconfirms the presence of a threat ("irrelevant to threat" attributes) but does confirm or disconfirm the presence of an opportunity, does the information affect inferences about whether a threat is present? To the extent two categories are mutually exclusive and comprise the total set of basic level categories associated with a superordinate category, a possible chain of inference would be: attributes w and x imply category a, and category a implies not category b; or alternatively, attributes y and z imply not category a, and not category a implies category b. Such reasoning might be appropriate when two categories are symmetrical, mutually exclusive and collectively exhaustive logical opposites. But such reasoning could easily lead to false conclusions when the categories are not opposites, as is the case for threats and opportunity. Because people often make judgments about, and behave towards, an entity based upon its category membership rather than the information that was originally used to categorize it, the consequences of flawed inferences can be quite significant. To examine the role of disconfirming attributes in the categorization process, we tested the following hypotheses:

Hypothesis 2a: When known attributes are irrelevant to the threat category, the conclusion that an issue is a threat is more likely if the known attributes disconfirm the opportunity category.

Hypothesis 2b: When known attributes are irrelevant to the opportunity category, the conclusion that an issue is an opportunity is more likely to the extent known attributes disconfirm the threat category.

Study 1 showed that opportunities are positive and threats are negative. These two attributes reflect evaluative appraisals. Evaluative appraisals are the affective components of cognitions; they are what make cognitions "hot" (Abelson, 1963). Fiske and her colleagues (Fiske & Taylor, 1984) have referred to these evaluative attributes as "affective tags." When the objects of study are people, positive affective tags attract us toward a person and negative affective tags repel us to withdraw from interactions (Fiske, Neuberg, Beattie, & Milberg, 1984). Affective tags may similarly attract people to become involved in opportunities and repel people from becoming involved with threats. That is, threats are aversive, while opportunities bestow status and prestige.

The affective charges associated with issue categories have implications for internal political processes that determine eventual organizational actions (MacMillan, 1978; Pettigrew, 1977). For example, when confronted with threats decision makers constrict control by reducing participation and by centralizing decision making (Staw et.al., 1981). Presumably constriction of control would be fueled by subordinates' desires to be disassociated from threat issues.

On the other hand, if organizational members were eager to accept responsibility for resolving issues labeled opportunities, tasks related to opportunities could be more easily delegated. Consequently, involvement in deciding organizational responses would be more broad-based. This reasoning is supported by Nutt's (1984) study of 78 decision processes. Open search processes (i.e., where subordinates were included in the search process) occurred for opportunity-evoked decisions but not for threat- or crisis-evoked decisions. Similarly, we predicted the following:

Hypothesis 3: When available information suggests an issue is an opportunity, decision making will include members at lower levels of the organization, compared to when available information suggests an issue is a threat.

The labeling of an issue should also be related to the allocation of resources. In fact, researchers who have investigated how decision framing affects investment decisions (e.g., Staw & Ross, 1978; Northcraft & Neale, 1986; Northcraft & Wolf, 1984) have demonstrated the effects of expressing past performance and future options as gains vs. losses on the amount and persistence of future resource investments. Much of this research is based on Kahneman and Tversky's work on decision framing (1979), which shows individuals are risk averse in the face of gains and risk taking in the wake of losses.

The relationship between decision framing and resource allocations provides a foundation for predicting how the labeling of issues as threats or opportunities is likely to affect resource allocations. Knowing that differing assumptions about gains and losses are associated with threats and opportunities, we can predict that threats will induce more risk taking in the form of larger resource allocations compared to opportunities.

The uncontrollability attribute that characterizes threats also should encourage greater resource allocation to threats compared to opportunities. The basis for this hypothesis was discussed by Staw & Ross (1978) in their application of reactance theory (Brehm, 1966) to predicting decision maker's commitment to a decision. Staw and Ross found that negative feedback motivated people to reassert control. Thus, both prospect theory and reactance theory suggest the following hypothesis:

Hypothesis 4: Resource allocations for the resolution of issues will be greater when available information suggests an issue is a threat, compared to when available information suggests an issue is an opportunity.

Method

Participants

Four hundred MBA alumni from a large university were mailed the study materials and asked to participate. These alumni were all members of an association whose members were interested in business policy issues. To encourage participation, the names of people who completed and returned the study booklet became eligible for a lottery drawing. One winner was randomly selected to receive a $100 prize. Eighty-three participants completed and returned the study materials.

In comparison to Study 1 participants, Study 2 participants were at lower levels in their employing organizations: 8% executive level; 11% top level; 42% middle level; 24% lower level; 13% non-management. Ten percent were members of their firm's top policy group.[2]

Study Design

Overview of design. A Greco-Latin squares design with repeated measures was used to present issue attributes to participants. Each participant received a booklet containing descriptions of eight hypothetical scenarios. Each scenario described an issue relevant to the banking industry. Embedded in each scenario were attributes from eight of the subgroups in Table 1.

Scenarios and attributes were crossed to produce a set of 8 (booklet versions), 8 (attributes) x 8 (scenarios) Latin Squares. To

control for possible order effects, each of the eight booklet versions included a unique ordering of both scenario contents and attributes, yielding the Greco-Latin square design (see Winer, 1971). The primary independent variable of interest was "attributes," a within-subjects factor. Of secondary interest was the attributes X booklet version interaction, which indicates whether the effects of attributes is constant across the eight sets of Latin Squares included in this study. Order effects and scenario contents were controlled but could not be independently estimated using this design. Measures on all dependent variables were repeated for each of the eight scenario-plus-attribute combinations.

Instructions to participants. Respondents were asked to imagine they were the new president of Essex Bank. They were given the following instructions:

> Essex Bank is a medium-sized commercial bank in Minnesota. You have just joined Essex Bank as its new President. This is your second week at the job and you have been spending most of your time reviewing documents prepared for you by your staff to facilitate your orientation into the bank. Excerpts from one of these documents are attached. These were prepared by Jack Douglas, your Vice President of Strategic Planning.
>
> Jack has been a key player at Essex for several years. He is considered to be one of the most astute analysts in the industry and is well-respected among your top officers. You are eager to read his summaries of the major issues facing the bank because you know they will provide you with useful insights for formulating Essex's future strategic moves. The descriptions Jack has prepared

reflect his evaluation of the eight strategic issues that will be most consequential for Essex during the next five years.

You are going to read and consider each issue, one by one. For each issue, you will first read the description that Jack has prepared. After you have read and thought about the first issue, you will record your evaluation of the issue. To record your evaluations, you have prepared a short worksheet. Your worksheet appears along with each of the issue descriptions. You will be filling out the worksheet for each issue as you go. That is, you will read Jack's description of the issue, record your evaluations on the worksheet, and then go on to the next issue.

Stimulus Materials. Each issue description was about 120 words long. The eight issues described were: entry of foreign banks into the U.S. market, turnover among personnel, the emergence of life-line accounts for low-income customers, technological developments related to electronic banking, repeal of the McFadden Act, competition from non-bank banks, internationalization of U.S.-based banks, and unionization among employees. The use of eight different issues allowed us to examine whether our results generalize across diverse issue contents.

The eight issues were crossed with eight sets of attributes (described in detail below), yielding 64 scenarios, each containing a unique issue-plus-attribute combination. These 64 scenarios were assembled to create eight different versions of the stimulus booklet.

The eight sets of attributes used in Study 2 were derived from Study 1. Figure 1 shows the item numbers associated with each of the eight clusters of attributes. Items are displayed in a two-dimensional space that depicts the threat and opportunity ratings from Study 1. The

clusters are (starting with the 12 o'clock position and proceeding clockwise): confirms opportunity and irrelevant to threat (COIT); confirms opportunity and confirms threat (COCT); irrelevant to opportunity and confirms threat (IOCT); disconfirms opportunity and confirms threat (DOCT); disconfirms opportunity and irrelevant to threat (DOIT); irrelevant to opportunity and disconfirms threat (IODT); confirms opportunity and disconfirms threat (CODT); and, in the center, irrelevant to opportunity and irrelevant to threat (IOIT).[3]

Figure 1 About Here

The number of attributes embedded in each scenario ranged from 2 to 5. This small variance in attribute set sizes reflects a compromise between the requirements for a perfect experimental design (equal size attribute sets) and the apparent asymmetry of the two cognitive categories being studied. This introduces added error variance but does not bias our study in favor of supporting our hypotheses.

Dependent variables. After reading each scenario, respondents answered eight questions. Items 3 (Does this represent a threat for us?) and 7 (Does this represent an opportunity for us?) were answered using a scale of 1 (definitely no) to 5 (definitely yes) and were used to test Hypotheses 1 and 2. Item 8 was included to test Hypothesis 3. It asked, "Do I want to delegate this to a task force?" Four response alternatives were possible, ranging from "delegate completely; let them make the final decision" to "keep task force involvement to a minimum." The remaining five items were included as fillers and were not analyzed.

Finally, at the end of the booklet, respondents were asked to review the eight scenarios and then (1) rank order the eight issues according to priority, (2) indicate the amount of time they would allot to each issue, and (3) allocate a $100,000 budget across the issues.[4] Responses to these three items were used to test Hypothesis 4. Given this methodology, items measuring the three resource allocations could be expected to be intercorrelated, which they were (mean $\underline{r}$ = .65).

Results

Overview of Analytic Procedure

Responses were analyzed using multivariate and univariate analysis of variance for a repeated measures design with one eight-level within-subjects factor (attributes) and one eight-level between-subjects factor (booklet version) that represents issue-plus-attribute combinations and order effects. Tests of the three hypotheses proceeded as follows. First, we assessed the overall effects of attributes, booklet versions, and the attributes x booklet interaction on the dependent variable(s) of interest. When multiple dependent variables were relevant to a hypothesis (Hypotheses 1, 2, and 4), these three effects were assessed first for the set of dependent variables (multivariate tests) and then for each dependent variable separately (univariate tests). Generally, these analyses, which are summarized in Table 2, revealed significant attribute and attribute X booklet effects on the dependent variables.

The final step of the analysis was to evaluate the pattern of attribute effects by conducting planned contrasts. In presenting the results from the final step of the analysis, we focus on comparisons between the following attributes: (1) confirms opportunity and

disconfirms threat vs. confirms threat and disconfirms opportunity, (2) confirms opportunity and is irrelevant to threat vs. disconfirms opportunity and is irrelevant to threat, and (3) confirms threat and is irrelevant to opportunity vs. disconfirms threat and is irrelevant to opportunity. These comparisons represent the most central tests of the effects of attribute information.

Below, we present the results for each hypothesis in detail.

Hypothesis 1

Table 2 shows that the effect of attributes on the threat and opportunity ratings was significant for both the multivariate and univariate tests. Figure 2 shows that ratings of the extent to which issues represented opportunities were higher when opportunity-confirming attributes were present in the scenarios compared to when opportunity-disconfirming attributes were present (contrasts a and b). Similarly, threat ratings were increased by the presence of threat-confirming attributes rather than threat-disconfirming attributes (contrasts c and d). Table 3 summarizes the statistical results for these contrasts.

Figure 2 About Here

The above results support Hypothesis 1. However, the conclusionn that Hypothesis 1 is supported must be tempered because a significant attributes x booklet interaction indicated that the effect of attribute information was dissimilar across the eight versions of the booklet. Multivariate and univariate analyses were conducted to determine the source of the interaction effect. These analyses indicated the effect

of attributes on opportunity ratings was significant for all 8 booklet versions, and the effect of attributes on threat ratings was significant for 7 of the 8 booklet versions. Planned contrasts within booklet versions were conducted to identify whether the specific comparisons shown in Figure 2 differed across the eight booklet versions. A total of 24 effects were examined. The results of these can be summarized as follows:

(1) For the CODT v. DOCT contrast, the overall effect of attributes on threat ratings and opportunity ratings was significant ($p < .05$) and in the predicted direction for 6 out of the 8 booklets.

(2) For the COIT vs. DOIT contrast, which tests the effect of opportunity information, the effect of attributes on opportunity ratings was significant ($p < .05$) and in the predicted direction for 4 of the 8 booklet versions and marginally significant ($p < .10$) for 2 versions.

(3) For the IODT vs. IOCT contrast, which tests the effect of threat information, the effect of attributes on threat ratings was significant ($p < .05$) and in the predicted direction for 4 of the 8 booklet versions and nonsignificant ($p > .10$) for the other 4 versions.

To summarize, the general hypothesis that category-confirming information affects categorization was well supported by the overall multivariate and univariate tests. However, when specific contrasts were examined for each of the eight booklet versions, opportunity-confirming attributes produced the predicted effect a

bit more consistently than did the threat-confirming attributes, indicating that Hypothesis 1b received stronger support than Hypothesis 1a.

Hypothesis 2

Testing Hypothesis 2 required conducting two additional planned contrasts. To test Hypothesis 2a, threat ratings were compared for scenarios containing threat-irrelevant attributes that confirm an opportunity (COIT) or disconfirm an opportunity (DOIT). We predicted that threat ratings would be higher when the attributes disconfirm rather than confirm an opportunity. As shown in Table 3, a significant effect was found, but, the direction of the effect was opposite our prediction. Thus hypothesis 2a was not supported.

A planned contrast to test Hypothesis 2b compared opportunity ratings for scenarios containing opportunity-irrelevant attributes that confirm a threat (IOCT) or disconfirmed a threat (IODT). This contrast found a significant effect (see Table 3). As predicted, issues were more likely to be seen as opportunities when available information disconfirmed the presence of a threat.

Supplemental Analyses Related to Hypotheses 1 and 2

The design of Study 2 generated a wealth of data about the effects attribute information can have on categorization processes. Above, we reported the results of only the few most relevant contrasts out of many that are possible. Figure 3 summarizes the results of 14 additional contrasts. For this set of contrasts, we compared the condition in which the attributes presented were irrelevant to both opportunities and threats (IOIT) to each of the other seven attribute conditions. These comparisons can be interpreted as comparing the control condition (IOIT) to each of seven experimental conditions.

Two aspects of Figure 3 are worth noting. First, Figure 3 shows that the results for all significant contrasts (10 out of 14) are in the predicted direction. Second, threat ratings were more consistently affected (6 out of 7 contrasts) by the attributes compared to opportunity ratings (4 out of 7).

Figure 3 About Here

Hypothesis 3

As shown in Table 2, only weak support was found for Hypothesis 3 which predicted that use of a participative style would be more likely in opportunity situations. When graphed, the overall means (averaged across booklets) showed that the form of the effect supported our prediction that participative decision making would be greater for opportunities than for threats for 2 out of the 3 comparisons. However, inspection of the effect of attributes within the 8 booklet versions revealed a significant ($p < .05$) effect for only 1 booklet version, a marginal effect ($p < .10$) for 1 booklet version, and no effect for 6 booklet versions. In addition, the planned contrasts showed no significant effects (see Table 3). Therefore, we concluded Hypothesis 3 was not supported.

Hypothesis 4

Hypothesis 4 predicted that more resources would be used in responding to threats compared to opportunities. The multivariate and univariate results summarized in Table 2 show significant main effects of attributes on our three measures of resource allocation. Contrast a in Figure 4 reveals that the direction of the effect is consistent with

our prediction, although the magnitude of the effect is small. The small magnitude of the effect for Contrast a is unexpected because Contrast a compares the two most extreme attribute sets (confirm opportunity and disconfirm threat v. disconfirm opportunity and confirm threat).

Figure 4 About Here

Contrasts b and c suggest an explanation for the weak overall effect shown in contrast a. Contrast b is consistent with our prediction and shows a large magnitude of effect. Contrast c also shows a large magnitude of effect but in the opposite direction we would expect. Taken together, contrasts b and c suggest the interesting conclusion that more resources are allocated when available information confirms rather than disconfirms an issue category, regardless of whether the information confirms the threat or opportunity category.

Before this conclusion can be accepted, the attributes x booklet interaction must be examined. A significant attributes x booklet interaction was present for the three dependent variables as a set as well as for each variable separately (see Table 2). Furthermore, the interaction effect was significant for each of the contrasts. In order to gain insight into the interactions, the effect of attributes within each booklet version was examined for Contrasts b and c, where the main effects of attributes were strong. For each contrast, these analyses showed that the interaction effects were due primarily to the fact that for a few scenarios the effect of attributes was weak or nonsignificant. Figure 5 illustrates these effects for time allocations. Similar

patterns occurred for priority rankings and budget allocations, which were highly correlated with time allocations. Thus, the results for Contrasts b and c support the conclusion that resource allocation is greater when available information confirms rather than disconfirms either the threat or opportunity category either category.

Figure 5 About Here

Study 2 Summary and Conclusions

Study 2 was conducted primarily to answer two specific questions: (1) Do people predictably use the attributes identified in Study 1 to categorize strategic issues as threats and opportunities? and (2) Do the attributes associated with threats versus opportunities have differential implications for actions likely to be taken in response to those issues?

The answer to question (1) above is a definite "yes". Therefore, the combined results of Study 1 and 2 provide a partial answer to the more general question, "What do 'threat' and 'opportunity' mean?" When used in the context of describing issues faced by organizations, threat and opportunity both mean an important issue exists that must be resolved quickly. While both threats and opportunities are important, three dimensions clearly differentiate threats from opportunities: Whereas threats are negative and imply low control and a high probability of loss, opportunities are positive and imply high control and the likelihood of achieving a gain. But considered alone, these distinguishing attributes do not represent adequately the complex

meanings with which threats and opportunities are imbued. The picture of opportunity suggested by the above attributes is especially impoverished, for not included are visions of a better personal future, the feelings of stimulation and wanting to get involved, and the anticipation that the success one has will be visible to others -- all of these are characteristic of opportunities but unrelated to threats.

The answer to question (2) above is a qualified "yes." On the one hand, threats and opportunities seem not to imply differences in how participative the decision making processes used to resolve the issue should be. On the other hand, situations described to be clearly threats and not opportunities were given somewhat higher priority and larger resource allocations than situations described as clearly opportunities and not threats, although these overall differences were not large.

Larger differences in resource allocations occurred between conditions that clearly signaled the appropriateness of one type of categorization (e.g., threat) but provided no relevant information about the appropriateness of another type of categorization (e.g., opportunity). Figure 4 indicates that these large differences occurred because resource allocations were extremely low in the conditions where only disconfirming (and no confirming) attributes were presented. In other words, when managers know only that a situation is not a threat (or is not an opportunity), resource allocation is low relative to when they can confidently assume that a situation is a threat (or is an opportunity). One interpretation of this finding is that uncertainty about the nature of an issue inhibits response to it (cf. Jackson, Schuler, & Vrendenburgh, in press), even if the issue is considered

important. Lack of information is assumed to be a major cause of uncertainty; our findings suggest that particularly valuable may be information that facilitates categorization. This result is particularly interesting because it reminds us of the need to learn more about the dynamics of the categorization process and the importance of not focusing exclusively on the question of category content.

General Discussion

The results of Studies 1 and 2 give researchers and practitioners a deeper understanding of what managers mean when they label an issue a "threat" or an "opportunity." These simple labels do not have simple meanings. The rich sets of attributes attached to these cognitive categories suggest that the simple labels of threat and opportunity represent shorthand addresses for complex assumptions about issues so categorized. Both the symbolic contents and the structural relationship of these two categories have implications for researchers and practitioners interested in how decision makers diagnose strategic issues, and the consequences of their diagnoses.

Researchers interested in how the framing of decisions affects the processes and outcomes of resource allocation decisions (e.g., Fredrickson, 1985; Northcraft & Neale, 1986; Northcraft & Wolf, 1984) often assume that simple verbal labels for decision issues communicate a single meaning to decision makers. For example, Fredrickson (1985) manipulated decision motive by labeling a decision a "problem" in one condition and an "opportunity" in another, coupling to these labels a statement that the expected effect was negative or positive, respectively. Our results suggest that such a manipulation may call up

a myriad of attributes in a decision maker's mind. Some of these attributes are likely to be widely shared. For example, labelling an issue an opportunity that is likely to have positive outcomes probably generates assumptions about gains and level of control in most experienced business people. Each of these attributes may have important but somewhat independent effects. By calling managers' attention to gain versus loss, researchers should expect to induce different risk taking preferences (e.g., Kahneman & Tversky, 1979). By making the controllability of outcomes salient, researchers should expect to affect the potential for reactance to occur (e.g., Brehm, 1966). Without understanding the content of the of the attributes associated with a linguistic label, it is difficult to isolate the underlying process(es) through which the label affects action.

Understanding the complex meanings that underlie the simple labels of threat and opportunity may be important for practitioners as well. Managers' implicit theories about issues may include unexamined assumptions that affect decision makers' interpretations of the issues confronting their organization (Moch & Fields, 1986). A greater understanding of the attributes associated with various issue categories should alert decision makers to the assumptions they make when diagnosing issues (Dutton, Fahey & Narayanan, 1983). When the assumptions buried in the labels "threat" and "opportunity" (which are often crystallized in formal planning processes) are surfaced and tested, decision makers may discover that the attributes implicitly assumed do not truly typify the issues they face. Nevertheless, these assumptions may lead to the screening out of information that disconfirms the initial categorization and/or to biased interpretations of ambiguous information.

Future Directions

We examined here only two categories for classifying strategic issues. Threats and opportunities were chosen due to their frequency of use in the everyday vocabulary of decision makers and their common incorporation into the classification systems used in strategic planning (Dutton & Jackson, in press). However, other issue categories may also prove important and deserve to be considered in future research. For example, Cowan (1986) has explored the different approaches managers take and the different assumptions they make about strategic vs. tactical and human resource vs. technical problems, suggesting several additional categories used by managers to sort types of issues. Wartick (1986) explored whether a strategic issue's life cycle (early, middle or late) and type (social, economic, political or technological) were related to preferences for analyzing the issue, suggesting still another set of categories managers may employ to sort and understand strategic issues. These studies illustrate the range of possible categories decision makers can impose upon the strategic issues they face. To date, almost nothing is known about (a) which categorization schemes are most commonly employed, (b) whether different contexts predictably affect the categories used, or (c) whether the use of particular categorizing schemes is associated with the dynamics of the decision process and/or outcomes.

Finally, we note that top-level decision makers are only one group of organizational members for whom the labeling process is relevant. Presumably, lower level participants also respond differentially to events they categorize as threats versus opportunities. Indeed, everyday experience reveals that the advice "think of it as an

opportunity" is frequently offered as if it were a magical elixir that can cure all the pains associated with organizational changes and uncertainities. Perhaps the power of the advice derives from the visions of success and personal gain it elicits -- visions that might raise motivation levels, improve performance, and facilitate effective coping responses.

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FOOTNOTES

1. The design of our questionnaire was such that this asymmetry cannot be an artifact of our method. For the differentiating attributes presented, a semantic opposite was also included in the questionnaire. The attributes for which no semantic opposites were presented were those that either confirmed both categories or were irrelevant to both categories.

2. Although we did not ask respondents to report their age, Study 2 respondents were probably younger than Study 1 respondents, on the average.

3. Stimulus materials for Study 2 were developed based upon ratings obtained from only a subsample of Study 1 participants ($N = 38$). Because the mean ratings for this subsample were not identical to the means of the total Study 1 sample, three (#s 14, 21, and 50) attributes are classified differently in Table 1 compared to Figure 1. As a consequence, the power of our stimulus materials to induce the predicted categorizations may be dimished somewhat.

4. Complete wordings for these instructions are available from the first author.

TABLE 1
Attribute Ratings Obtained in Study 1

Attribute	Threat		Opportunity			
	M.	S.D.	M	S.D.	t[a]	r[b]
I. Confirms "Opportunity" and "Threat" equally (COCT)						
24. The issue is a major one	1.53	1.32	1.53	1.46	.00	.03
20. The issue is a high priority one	1.58	1.57	1.69	1.41	-.49	.23*
1. There is pressure to act on the issue	1.39	1.53	1.23	1.33	.73	.14
11. Action must be taken quickly to resolve the issue	1.17	1.58	.93	1.39	1.07	.16
38. You are in direct competition with others; if they win, you lose, and if you win," they lose	1.38	1.75	1.32	1.76	-.05	.23*
28. You will either lose a great deal or gain a great deal	1.61	1.38	1.31	1.53	1.46	.28*
6. The issue is difficult to resolve	.96	1.53	1.11	1.37	-.66	.14
II. Confirms "Opportunity" and "Threat" but not equally well						
5. The issue is urgent	1.64	1.50	.97	1.65	2.65*	.01
21. The issue is a stressful one	1.70	1.29	.90	1.48	4.21*	.27*
23. The issue is problematic	1.14	1.23	.64	1.49	2.58*	.21
39. There is conflict surrounding how to resolve the issue	1.11	1.32	.61	1.50	2.34*	.10
15. The issue has implications for the future	.81	1.89	1.86	1.13	-4.75*	.24*

Attribute	Threat		Opportunity			
	M.	S.D.	M	S.D.	t	r
25. The issue is a challenge to resolve	.69	1.73	1.83	1.26	-4.94*	.11
41. Success or failure will be visible	.75	1.62	1.56	1.25	-3.68*	.12
III. Disconfirms "Opportunity" and Confirms "Threat"(DOCT)						
29. You may lose a great deal but are unlikely to gain much	1.51	1.74	-1.34	1.88	8.53*	-.30*
30. Others will constrain you actions	1.13	1.40	-.72	1.44	8.17*	.04
14. The issue is negative	1.07	1.66	-.84	1.93	5.67*	-.33*
51. You will suffer a personal loss from acting on the issue	.73	1.73	-1.64	1.45	8.86*	-.10
32. You are underqualified to resolve the issue	.63	1.77	-.51	1.72	4.11*	.06
IV. Confirms "Opportunity" and Disconfirms "Threat" (CODT)						
17. The issue is positive	-1.37	1.57	1.64	1.22	-11.14*	-.43*
43. You may gain a great deal, but you are unlikely to lose much	-1.38	1.72	1.64	1.66	-10.16*	-.19
13. You have the means to resolve the issue	-.58	1.58	1.25	1.29	-8.48*	.14
18. There is a high probability of resolving the issue	-.89	1.48	1.21	1.46	-8.98*	.04
40. You have autonomy to act as you choose	-.72	1.55	1.10	1.56	-7.22*	-.02
46. You are qualified to resolve the issue	-.82	1.59	.97	1.32	-7.41*	-.08
4. Your have a choice about whether or not to act on the issue	-.86	1.97	.64	1.60	-5.80*	.19

Attribute	Threat M.	Threat S.D.	Opportunity M	Opportunity S.D.	t	r
V. Irrelevant to "Opportunity" and Confirms "Threat" (IOCT)						
22. The issue is a crisis	1.92	1.48	.49	2.09	5.01*	.05
19. There is a low probability of resolving the issue	.89	1.39	-.47	1.69	5.45*	.00
12. The issue is likely to endure	.89	1.56	.07	1.70	3.38*	.19
34. Priorities surrounding the issue are ambiguous	.63	1.36	.05	1.61	2.36*	-.03
VI. Confirms "Opportunity" and Irrelevant to "Threat" (COIT)						
2. Benefits will come from acting on the issue	-.44	2.13	2.31	.93	-10.24*	-.05
9. The future will be better with resolution of the issue	.05	2.06	2.03	1.16	-7.52*	.04
26. The issue is a stimulating one	-.03	1.91	1.77	1.26	-6.83*	-.02
3. You will gain a personal advantage from acting on the issue	-.37	1.72	1.68	1.30	-8.38*	.00
7. There is a personal desire to be associated with the issue	-.13	1.60	1.50	1.33	-6.56*	-.12
37. You have complete responsibility for resolving the issue	-.31	1.70	1.38	1.49	-6.92*	.10
49. The issue is visible	-.14	1.68	1.22	1.33	-6.26*	.21
36. There are many possible solutions	-.14	1.58	1.00	1.43	-4.65*	-.01
33. The issue is unique	.00	1.37	.76	1.74	-3.21*	.13

Attribute	Threat M.	Threat S.D.	Opportunity M	Opportunity S.D.	t	r
VII. Irrelevant to "Opportunity" and Disconfirms "Threat" (IODT)						
48. The issue is easy to resolve	-1.54	1.46	.03	1.70	-6.07*	-.01
44. There is no pressure to act on the issue	-1.53	1.56	-.22	1.61	-5.60*	.18
8. The solution to the issue is obvious	-1.26	1.55	-.03	1.56	-5.31*	.14
53. The issue is not a crisis	-1.03	1.35	.06	1.57	-6.03*	.41*
47. The issue is a temporary one	-1.01	1.35	-.13	1.56	-4.36*	.26*
52. There is agreement about how to resolve the issue	-.64	1.49	.31	1.53	-4.09*	.08
VIII. Disconfirms "Opportunity" and Irrelevant to "Threat" (DOIT)						
42. How the issue is resolved will be largely a matter of chance	.12	1.97	-1.07	1.72	4.78*	.32*
54. There is a personal desire not to be associated with the issue	.17	1.66	-1.14	1.41	5.73*	.16
IX. Irrelevant to "Opportunity" and to "Threat (IOIT)						
10. Resolution of the issue is initiated by others	.20	1.51	-.21	1.41	1.64	-.11
16. The issue is embedded in the past	-.03	1.54	-.31	1.43	1.29	.20
31. There is probably only one correct solution	.11	1.69	-.08	1.70	.78	.26*
27. You have no choice about whether or not to act on the issue	.42	1.46	-.38	1.65	3.82*	.28*

Attribute	Threat		Opportunity			
	M.	S.D.	M	S.D.	t	r
X. Disconfirms Threat and Discomfirms Opportunity						
35. You will not gain much and you will not lose much when the issue is resolved	-1.07	1.62	-.86	1.49	-.98	.27*
45. Acting on the issue will not bring benefits	-.90	1.73	-1.56	1.64	2.63*	.14
50. The issue is not urgent	-1.33	1.42	-.53	1.39	-4.26*	.29*
55. The future will be no better with resolution of the issue	-.69	1.63	-1.37	1.64	3.12*	.31*
56. You have no responsibility for resolving the issue	-.50	1.60	-.87	1.46	1.97	.41*

Note: Attributes are grouped into conceptually distinct classes, as described in the text.

*$p < .05$, 2-tailed test.

[a]Two-tailed paired-t test comparing ratings of the extent to which an attribute fit the threat and opportunity categories, d.f. = 77.

[b]Correlation between threat and opportunity ratings of an attribute.

TABLE 2
Overall Effects of Attribute Content and Booklet Version on Categorization and "Behavioral Intentions"

Dependent Variables[a]	Effects	MULTIVARIATE TESTS[b] Hotellings T^2	d.f.	F_{approx}	UNIVARIATE TESTS[c] Dep. Var. (i) d.f.	SS	F	Dep. Var.(ii) SS	F	Dep. Var.(iii) SS	F
Hypotheses 1 and 2											
(i) Threat Ratings	Attributes (A)	.32	14,1036	11.71**	7,518	100.72	15.14**	52.31	7.68**	-----	-----
(ii) Opportunity	Booklets (B)	.21	14,144	1.10	7,74	5.80	.47	29.03	1.77	-----	-----
Ratings	A x B	1.15	98,1036	6.06**	49,518	281.43	6.04**	283.48	5.94**	-----	-----
Hypothesis 3											
(i) PDM Intention	Attributes	.21	7,66	1.98+	7,504	10.07	2.22*	-----	-----	-----	-----
	Booklets	na	na	na	7,72	9.42	1.13	-----	-----	-----	-----
	A x B	1.04	49,450	1.37+	49,504	48.85	1.54*	-----	-----	-----	-----
Hypothesis 4											
(i) Priority	Attributes	.20	21,1544	4.84**	7,518	315.70	10.79**	2728.93	10.15**	33×10^9	8.93**
(ii)Time Allocation	Booklets	.36	21,212	1.22	7,74	.31	1.18	.27	1.03	408.318	1.61
(iii Budget Allocation	A x B	1.16	147,1544	4.07**	49,518	933.53	4.56**	8146.40	4.34**	22×10^{10}	8.41**

[a]All dependent variables are repeated measures (one rating for each of 8 scenario - plus - attribute combinations).

+$p < .10$

*$p < .05$

**$p < .01$

TABLE 3

MANOVA Results for Selected Contrasts

	CONTRASTS					
	CODT v. DOCT		IODT v. IOCT		COIT v. DOIT	
Dependent Variables	T^2	F	T^2	F	T^2	F
Hypothesis 1						
Threat	.39	3.83***	.92	8.92***	na	na
Opportunity	.72	7.04***	na	na	.60	5.87***
Hypothesis 2						
Threat	na	na	na	na	.28	2.60*
Opportunity	na	na	.44	4.32***	na	na
Hypothesis 3						
PDM	.01	.14	.16	1.55	.11	1.07
Hypothesis 4						
Priority	.25	2.38*	.48	4.68***	.45	4.35***
Time	.32	3.07**	.28	2.71*	.34	3.34**
Budget	.88	8.59***	.69	6.73***	.53	5.15***

d.f. = 7, 68.
*$p < .05$
**$p < .01$
***$p < .001$

Figure 1. Eight Attribute Clusters Used to Create the Experimental Conditions in Study 2

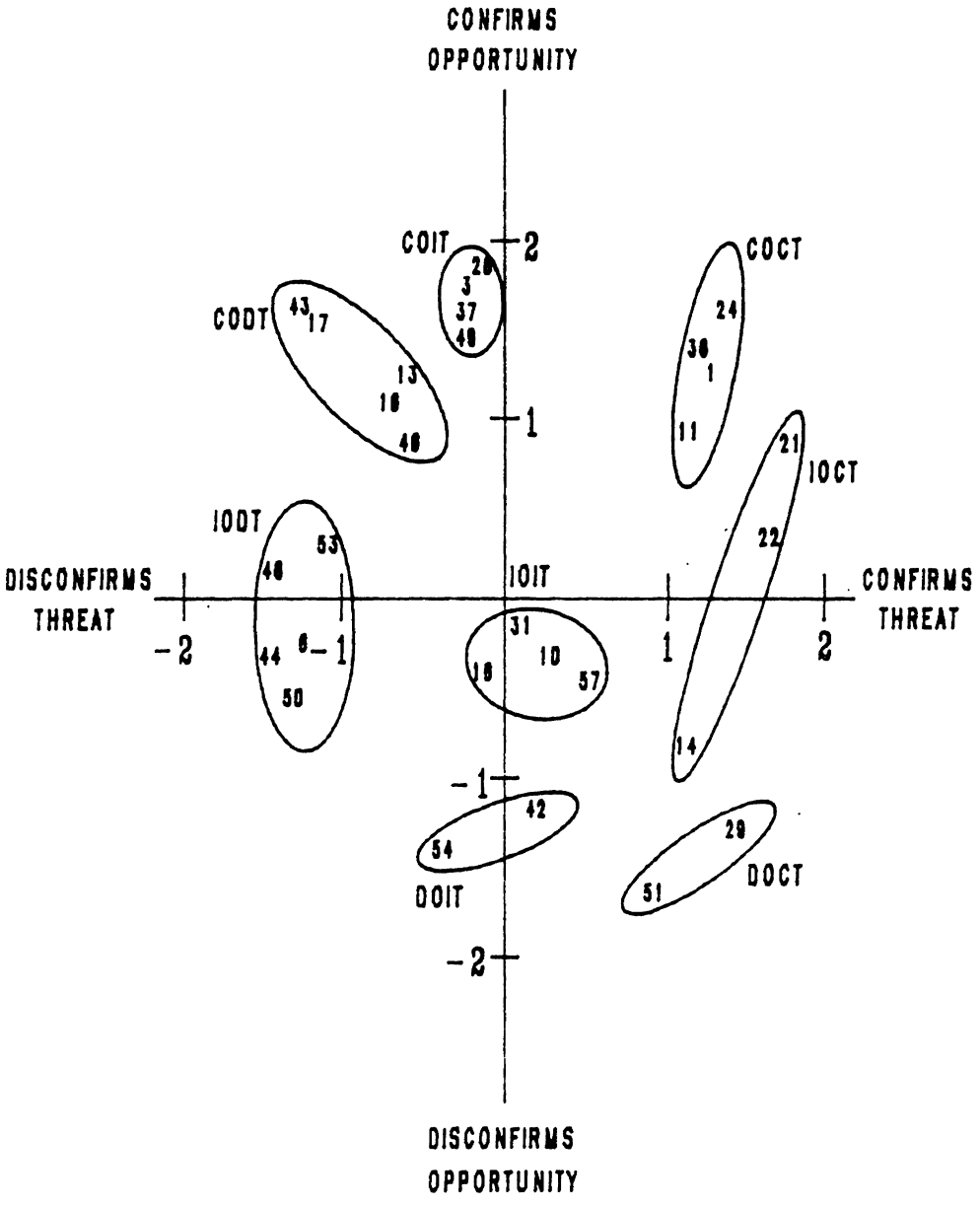


FIGURE 1.

Figure 2. Selected Contrasts Showing the Effects of Confirming and Disconfirming Attributes on Opportunity and Threat Ratings (Hypothesis 1a and 1b)

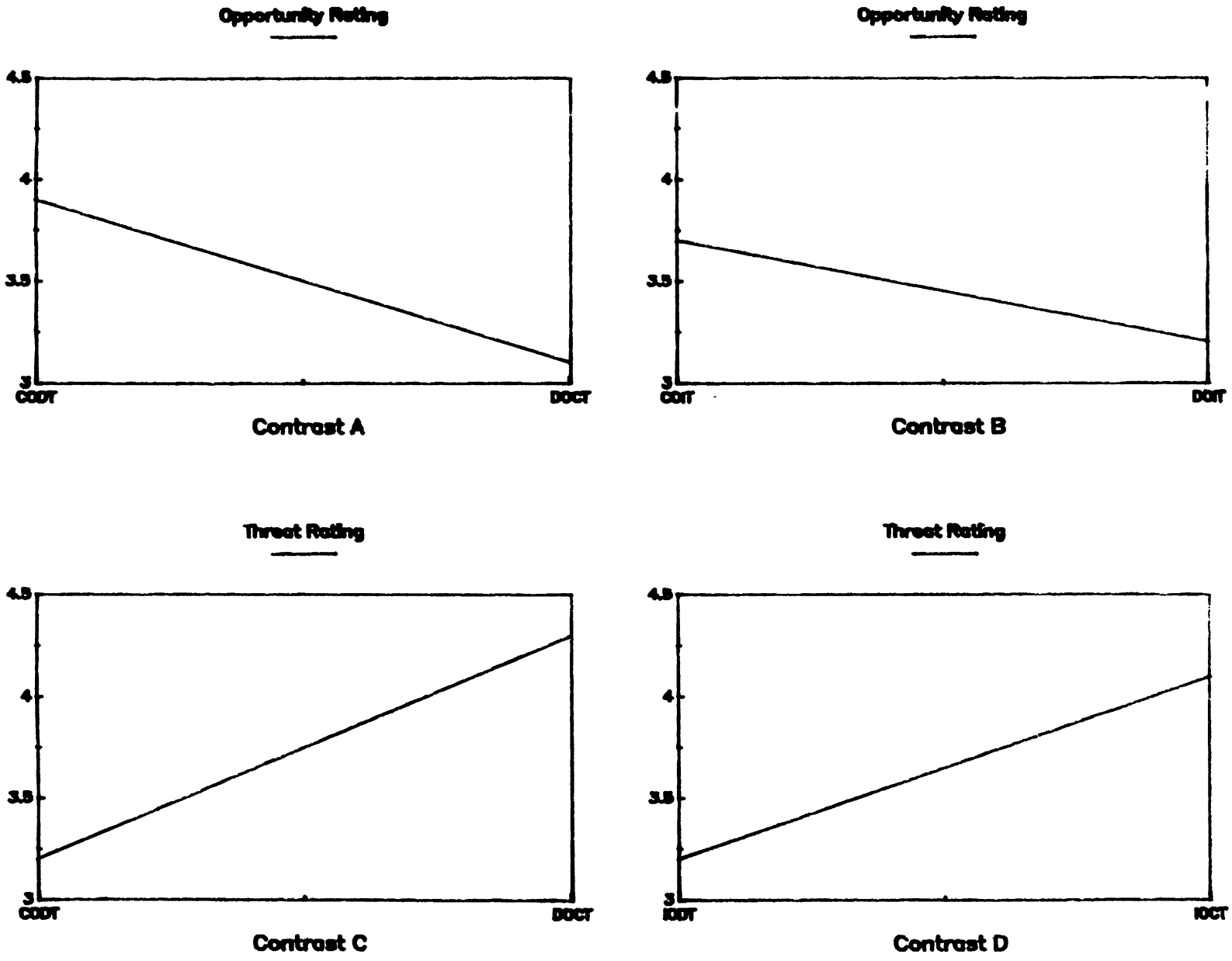
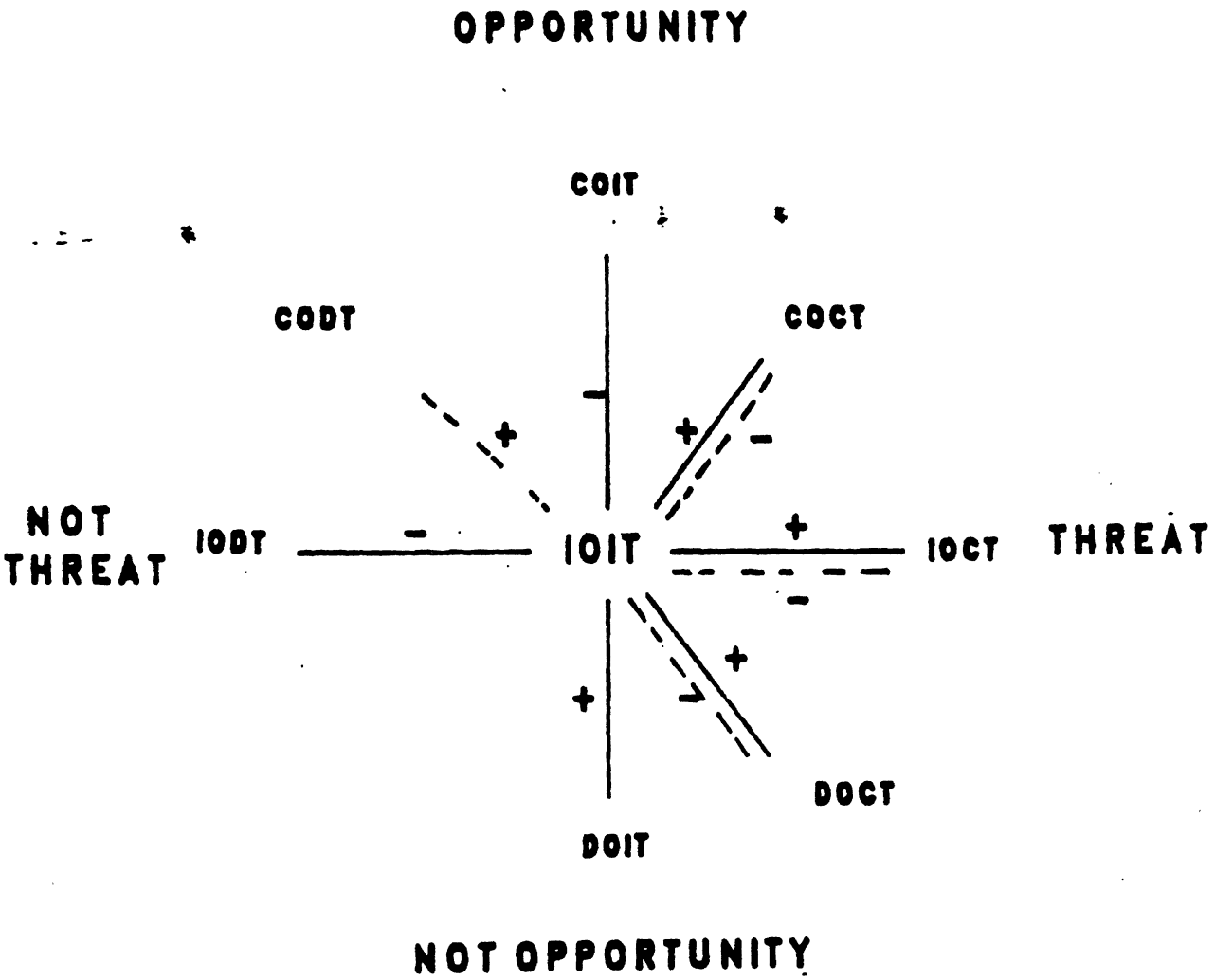


Figure 3. Graphic Summary of Supplemental Contrasts Conducted for Study 1



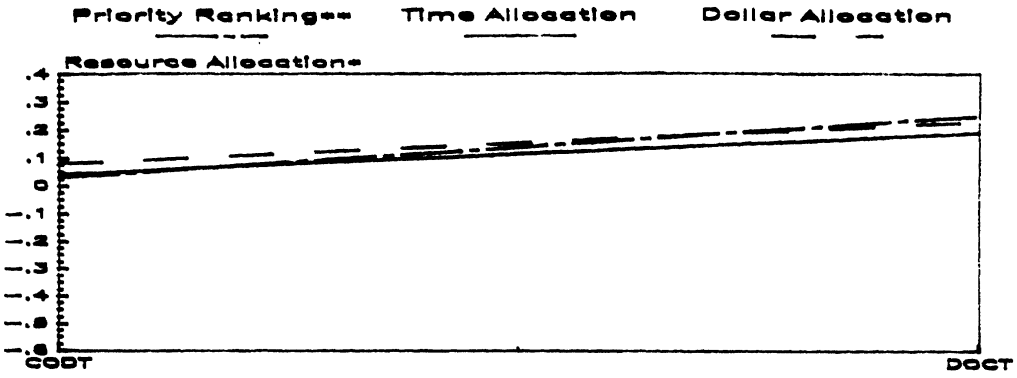
----- Opportunity rating differs significantly between conditions

_____ Threat rating differs significantly between conditions

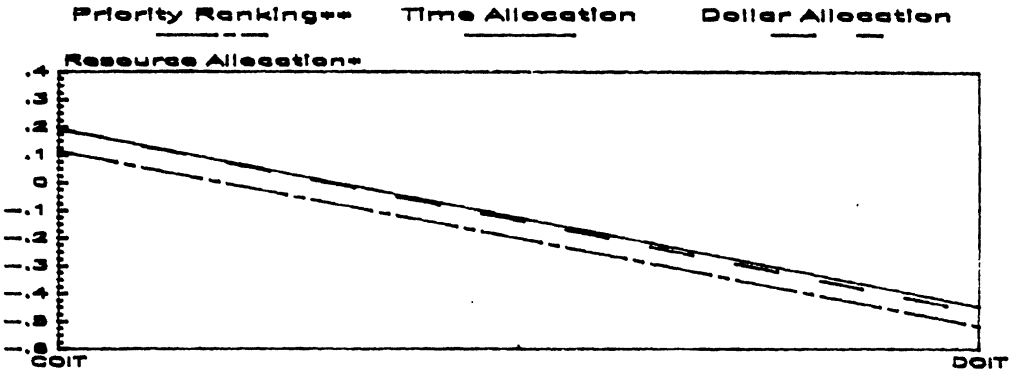
\+ Indicates the condition being compared to IOIT received a higher rating than the IOIT condition

\- Indicates the condition being compared to IOIT received a lower rating than the IOIT condition

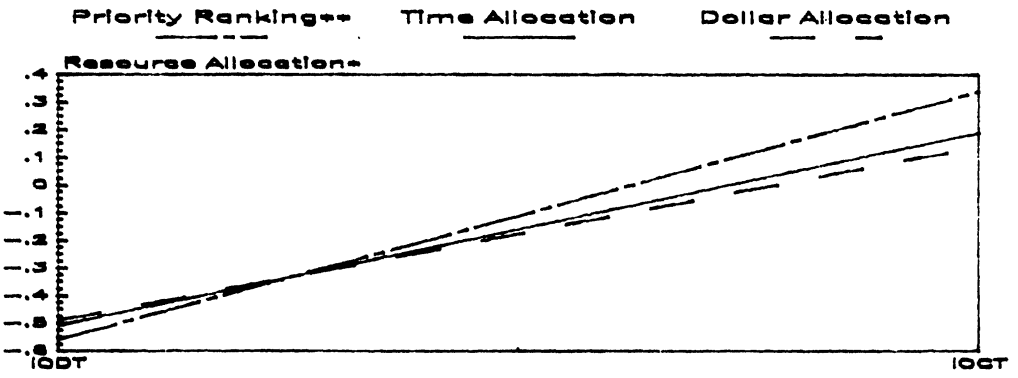
Figure 4. Selected Contrasts Showing the Effects of Attributes on Resource Allocations



Contrast A



Contrast B



Contrast C

*Scores were standardized to facilitate graphing.
**Higher priority is indicated by a higher rank value.

Figure 5. Effect of Attributes on Time Allocations for Eight Scenarios