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Reviewed work(s):

Source: *Administrative Science Quarterly*, Vol. 33, No. 3 (Sep., 1988), pp. 370-387

Published by: [Sage Publications, Inc.](#) on behalf of the [Johnson Graduate School of Management, Cornell University](#)

Stable URL: <http://www.jstor.org/stable/2392714>

Accessed: 14/10/2012 11:00

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Discerning Threats and Opportunities

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This paper presents the results of two studies designed to investigate the characteristics of the concepts of threat and opportunity used by organizational decision makers to describe and understand issues. The first study identified the issue characteristics that managers associate with the concepts of threat and opportunity, and the second used an experimental design to demonstrate that the characteristics of issues lead to their being perceived as threats or opportunities. The results suggest the presence of a threat bias, which results in managers being more sensitive to issue characteristics associated with threats than to those associated with opportunities. The implications of the results for understanding how threats and opportunities are identified are discussed, and future research directions are indicated.*

As part of their jobs, organizational decision makers routinely evaluate events, developments, and trends in order to identify important issues. Often the issues encountered are ambiguous, so they require interpretation (McCaskey, 1982; Daft and Weick, 1984). How issues are interpreted depends on their perceived characteristics, and the presence of particular issue characteristics affects whether managers interpret issues as threats or opportunities.

The importance of discerning whether issues represent threats or opportunities is clear to both managers and researchers. For managers who use formal models of strategy formulation, identifying threats and opportunities is often a major objective of environmental scanning activities. Thus, managers who implement scanning systems "by the book" institutionalize and legitimate these concepts for interpreting issues.

Several empirical studies have demonstrated predictable differences in how people respond to their environments when they perceive threat versus opportunity. For example, people are likely to cope with threat by engaging in wishful thinking, relying on faith, or resigning their futures to fate (McCrae, 1984). Perceived threat also causes people to restrict the amount of information they attend to and the solutions they consider (Billings, Milburn, and Schaalman, 1980; Staw, Sandelands, and Dutton, 1981). In comparison, perceived opportunity results in more open information searching and in more overt appraisal processes (Nutt, 1984).

Whereas researchers have often examined the consequences of perceived threat and opportunity, they have not directly examined the characteristics of these different issue types. Therefore, we conducted two studies to examine how managers discern threats and opportunities. In the first study, strategic planners were asked to indicate which issue characteristics they associated with the concepts of threat and opportunity. Using the results of the first study, we designed an experiment that systematically varied issue characteristics to determine their effects on managers' inferences.

Assumptions about Issue Identification

In conducting this research, numerous decisions were made regarding how to collect and analyze data. Many of these decisions reflected our assumptions about the cognitive pro-

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0001-8392/88/3303-0370/\$1.00.

• Support for this research was provided by New York University's Center for Entrepreneurial Studies. The authors thank James W. Dean, Jr., Janet Dukerich, William D. Guth, Ian C. MacMillan, Gerald R. Salancik, Charles Stubbart, and three anonymous ASQ reviewers for their valuable assistance and comments.

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cesses involved in issue identification. Here, we briefly describe the general cognitive process that we assume guides the process by which issues come to be interpreted as threats or opportunities.

We assumed that information processing is schema-driven, and that "threat" and "opportunity" represent two schemata that are commonly used by organizational decision makers as they scan their environments and choose how to respond.¹ Research on cognitive processes suggests that people identify things in their environment (e.g., objects, people, and, presumably, strategic issues) by comparing the characteristics of objects to schematically organized clusters of issue characteristics stored in memory. The identification process is assumed to be a probabilistic process of matching what is perceived now to what is stored in memory. Identification of the specific instance under consideration depends on the degree of overlap between the issue characteristics associated with the cognitive schema and the salient characteristics of the specific instance (Tversky, 1977). Thus, we assumed that organizational decision makers who are engaged in environmental scanning identify threats and opportunities by comparing the characteristics of specific issues to their cognitive representations of threat and opportunity. So, in order to understand what leads organizational decision makers to infer that an issue is a threat or an opportunity, we need to identify the issue characteristics that decision makers associate with these two concepts.

This general model of how managers identify issues suggests that issue characteristics can vary according to how well they fit decision makers' conceptions of threat and opportunity. That is, issue characteristics can be relatively consistent, discrepant, or neutral vis à vis each concept. *Consistent* characteristics fit with or match the concept schema. *Discrepant* characteristics disagree with or are at variance with the schema for a concept. Both concept-consistent and concept-discrepant characteristics are useful for describing how managers discern threats and opportunities. In contrast, *neutral* characteristics, which are neither clearly consistent with the schema nor clearly discrepant, are of little value for the identification process.

Characteristics of Issues

Hypotheses about which issue characteristics are consistent with the concepts of threat and opportunity were developed by Dutton and Jackson (1987). Based on the assumption that both threat and opportunity are used to describe strategic issues, they argued that the characteristic of importance should be associated with both concepts (Ansoff, 1980; King, 1982). Based on researchers' conceptualization of crises (Billings, Milburn, and Schaalman, 1980; Milburn, Schuler, and Watman, 1983), threats (e.g., Staw, Sandelands, and Dutton, 1981), and stress (e.g., Averill, 1973; Thompson, 1981), they hypothesized that the issue characteristics of negative, uncontrollable, and potential loss would be threat-consistent and opportunity-discrepant. Finally, based on research on decision making (e.g., Mintzberg, Raisinghani, and Théorét, 1976; Nutt, 1984; Fredrickson, 1985) and stress (e.g., Lazarus and Launier, 1978; McCrae, 1984), they hypothesized that the

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The term schema is used here, following Markus and Zajonc (1985) and Taylor and Crocker (1981), as a general term that describes internal knowledge structures that organize information about objects, people, events, and so on. We chose the term schema rather than alternatives such as category, script, or prototype because the term schema does not require that we make specific assumptions about how the knowledge structures for threat and opportunity are formed or organized.

issue characteristics of positive, controllable, and potential gain would be opportunity-consistent and threat-discrepant.

The first study was designed to examine the extent to which strategic planners associate several different issue attributes, including those listed above, with their concepts of threat and opportunity.

STUDY 1

Method

Sample. Questionnaires were administered to seventy-eight male general managers and strategic planners attending executive development courses. Responses to background questions indicated that these managers were employed in firms varying in size from 7 to 722,000 employees (median = 10,000) and were from numerous industries. These managers indicated that their CEOs would describe them as being at relatively high levels in their organizations: 29 percent at the executive level, 40 percent at the top level, 25 percent at the middle level, 6 percent at the lower level. About one-third (36 percent) indicated they were members of their firm's top policy group.

Instructions. Participants responded to the questionnaire as part of an assignment prior to a discussion of strategic planning. In Part I of the questionnaire respondents were asked to describe one strategic issue that was a threat and one that was an opportunity for their firm. This procedure was used to increase the accessibility of these concepts in memory (Srull and Wyer, 1979). Having each respondent think of specific instances of threats and opportunities also served as a method for obtaining ratings for a diverse sample of specific issues. Assuming that the sample of issues referenced during the rating task was representative of the total population of specific issues encountered by strategic planners, then the mean ratings given to issue characteristics should be stable and generalizable across a wide variety of issues (the variance in ratings is likely to be somewhat large, however).

Part II included two parallel sections: in one section, managers indicated how well 56 issue characteristics fit their conception of a threat (threat ratings); in the other section, managers indicated how well the same 56 characteristics fit their conception of an opportunity (opportunity ratings). The following instructions were given to elicit these judgments:

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).

Items. The list of 56 issue characteristics was developed as follows: We began by listing the attributes identified by Dutton and Jackson (1987). Then, to expand that list, we examined studies of threats, crises, and situations characterized as opportunities to determine which attributes past researchers had associated with threats and opportunities (e.g., Averill, 1973; Mintzberg, Raisinghani, and Théorêt, 1976; Staw, Sandelands, and Dutton, 1981; Thompson, 1981; Milburn, Schuler, and Watman, 1983; Lazarus and Folkman,

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1984; McCrae, 1984; Nutt, 1984; Fredrickson, 1985). Next, additional attributes were generated by having forty evening M.B.A. students write descriptions of threat and opportunity situations they had personally experienced. We examined these descriptions ($N = 80$) in order to identify additional issue characteristics associated with threats and opportunities. Finally, we added antonyms to the list of issue characteristics generated from these sources in order to achieve a list of issue characteristics that was semantically balanced. Thus, the final list of 56 issue characteristics included 28 pairs of attribute antonyms (e.g., easy to resolve–difficult to resolve; positive–negative). Issue characteristics were ordered randomly for the rating task.

Ratings. Participants rated each characteristic on a 7-point scale. For the 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 opportunity rating scale.

Analysis. In analyzing the data from Study 1, our goal was to develop an empirically based understanding of the issue characteristics strategic planners associate with the concepts of threat and opportunity. Our conceptualization suggested that issue characteristics could be mapped along two dimensions, one dimension being the extent to which characteristics fit the concept of threat and the other being the extent to which they fit the concept of opportunity.

We chose not to use factor analysis to analyze our data because we did not conceptualize the organizational environment using a set of abstract dimensions, such as turbulent, uncertain, or hostile. The general model of cognitive processes used here does not assume that there are abstract dimensions along which specific issue characteristics are ordered. Consequently, we made no attempt to develop a list of issue characteristics that would assess perceptions for a set of abstract dimensions and would not expect factor analyses to reveal such dimensions.

Results

Figure 1 shows an empirical map of the respondents' ratings. In the two-dimensional space shown, the horizontal axis represents how well characteristics fit the respondents' concept of threat, and the vertical axis represents how well characteristics fit the respondents' concept of opportunity. Mean ratings were used to plot issue characteristics.

Common characteristics. Threat and opportunity share some common attributes. In Figure 1, the issue characteristics associated with both threat and opportunity are those in the upper-right quadrant. A plus sign marks issue characteristics that are positively and equally associated with both concepts. This subset includes all issue characteristics that received ratings of fit greater than 0 for both the threat and opportunity concept and that in a paired t -test comparing the average ratings for threat and opportunity had fit ratings that were not significantly different ($p > .05$, two-tailed paired t -test).

The results indicate that the following issue characteristics are equally and positively associated with both threat and opportunity: high priority, major, likely to win or lose a great



Figure 1. Map of threat and opportunity ratings for 56 issue attributes.

deal, being in direct competition with others, difficult to resolve, pressure to act, and quick action is needed.

As Figure 1 shows, several additional issue characteristics (e.g., stressful, success or failure will be visible) were rated as being relatively consistent with both threat and opportunity and received high positive ratings for both concepts. These additional issue characteristics are different from those marked with a plus sign in that each is more consistent with one concept than with the other. Thus, although the characteristics of urgent, stressful, problematic, and conflictful all fit both the threat and opportunity concepts, they were rated as fitting the threat concept significantly better than the opportunity concept ($p < .05$, two-tailed paired t -test). Conversely, the issue characteristics of future implications, challenge to resolve, and success or failure will be visible all fit both concepts, but they fit the concept of opportunity significantly better than they fit the threat concept.

The relatively large number of issue characteristics that are consistent with both threat and opportunity indicates that our strategic planners did not think of the concepts of threat and opportunity as simple opposites. Threat and opportunity are similar in the sense of urgency, difficulty, and large stakes associated with each. These characteristics seem to describe strategic issues in general, and they do not differentiate threat from opportunity.

Distinguishing characteristics. In Figure 1 a triangle indicates issue characteristics that are the most important for

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distinguishing between threat and opportunity. Two subsets of distinctive issue characteristics are highlighted: those most clearly associated with threat and those most clearly associated with opportunity.

Threat. Issue characteristics marked with a triangle and appearing in the lower-right quadrant of Figure 1 are clearly associated with threat and *not* associated with opportunity. These include the following: may lose and won't gain, personal loss from acting on the issue is likely, others constrain actions, negative, and feeling underqualified. Issue characteristics in this subset satisfy two criteria: (1) the average fit rating is clearly positive (mean > .50) for threat and clearly negative (mean < -.50) for opportunity, and (2) the difference between the mean threat and mean opportunity ratings was statistically significant ($p < .05$, two-tailed paired *t*-test).

Opportunity. Issue characteristics marked with a triangle and appearing in the upper-left quadrant of Figure 1 are clearly associated with opportunity and *not* associated with threat. These include the following: positive, may gain and won't lose, resolution is likely, have the means to resolve the issue, have autonomy to act, have a choice whether to act, and feeling qualified. Issue characteristics in this subset satisfy the following two criteria: (1) the average fit rating is clearly positive (mean > .50) for opportunity and clearly negative (mean < -.50) for threat, and (2) the difference between the mean threat and opportunity ratings was statistically significant ($p < .05$, two-tailed paired *t*-test).

As is clear in Figure 1, there are several issue characteristics located near those marked with triangles that could be described as being fairly consistent with one concept and fairly discrepant with the other concept. Examples of such issue characteristics are "resolution is unlikely," which is near the subset of threat-consistent and opportunity-discrepant issue characteristics, and "benefits will come from acting," which is near the subset of opportunity-consistent and threat-discrepant issue characteristics. By choosing different values as cut-off scores, we could contract or expand slightly the subsets of issue characteristics that we are calling threat-consistent and opportunity-discrepant or opportunity-consistent and threat-discrepant. However, the consequences of changing the cut-off values would be slight as long as criterion (2), above, is also imposed.²

Discussion

The results of Study 1 supported our hypotheses concerning which issue characteristics managers rely on to discern threats and opportunities. The results also show that several issue characteristics are highly descriptive of both threats and opportunities.

Threats have a clear negative connotation. They involve the likelihood of loss without gain; feelings of control are likely to be low because others constrain the actions of managers; in addition, respondents associated the feeling of being underqualified with the presence of a threat.

Opportunities are positive issues. There is a high potential for gain without loss and successful resolution of such issues is considered likely; feelings of control are likely to be high be-

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A complete summary of the means, standard deviations, and *t*-test results for all 56 characteristics shown in Figure 1 is available from the authors.

cause resources are available for resolving the issue; in addition, respondents associated opportunities with feelings of being qualified, having autonomy to take action, and having the freedom to decide whether to act.

Both threats and opportunities represent important issues for organizations. Both types of issues are major, high-priority issues that are difficult to resolve and involve direct competition with others. Despite the fact that managers feel they have more choice about whether to act when confronting opportunities than when confronting threats, they nevertheless indicated that there is strong pressure to respond quickly in the face of both opportunity and threat.

The results from Study 1 are likely to be quite generalizable. Respondents were employed in organizations of many sizes and types in many different industries. In addition, the procedures we used should have made different specific issues salient for each respondent; respondents' ratings are likely to reflect the variety of issues that are faced in organizations.

There is one possible limitation to the study. Because the procedure used in Study 1 asked respondents first to think of specific instances of threats and opportunities and then to rate how well issue characteristics fit their general concepts of threat and opportunity, it is possible that we induced two different types of response modes in our respondents. Whereas some respondents may have rated issue characteristics with reference to the specific instances of each concept that had become salient to them, others may have rated issue characteristics with reference to the general concepts (as instructed). If respondents were making slightly different types of judgments as they completed the task, we can feel more confident that our results are not an artifact of the particular method of collecting ratings.

Study 1 was a first step toward improving our understanding of how managers identify threats and opportunities. It showed which issue characteristics are most clearly and consistently associated with each concept. However, Study 1 did not demonstrate that we can use issue characteristics to predict a priori the inferences that managers will make regarding the presence of threats and opportunities. Therefore, Study 2 was designed as an experimental test of how issue characteristics affect inferences about threat and opportunity.

STUDY 2

Study 2 tests the general proposition that managers will come to different conclusions about whether a particular strategic issue represents a threat or an opportunity as a consequence of which characteristics are used to describe the issue. Assuming managers identify issues as threats and opportunities by matching issue characteristics to the attributes stored in their cognitive representations of each concept, it follows that issue characteristics that are consistent with one concept and discrepant from an alternative concept should have high diagnostic value. Such characteristics are distinctive (Tversky, 1977) and should lead to strong inferences.

When issue characteristics are nondistinctive, managers should be unwilling to draw conclusions about whether an issue is a threat or an opportunity. As the results shown in

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Figure 1 illustrate, there are at least two types of nondistinctive issue characteristics when considering threat and opportunity. Some nondistinctive characteristics are ambiguous; these are consistent with both concepts and discrepant from neither. Other nondistinctive characteristics are neutral; these are neither consistent nor inconsistent with either concept. Strong inferences should not be expected when issue characteristics are either ambiguous or neutral. Furthermore, ambiguous and neutral characteristics may not have identical effects on inferences about threat and opportunity. Because ambiguous characteristics are consistent with both concepts, they are likely to increase managers' confidence that an issue is either a threat or an opportunity. Knowing that an issue is a major one that has high priority is consistent with both interpretations, so both types of inferences may be heightened somewhat in comparison to the situations in which issue characteristics are neutral.

Hypotheses. Study 2 compares threat and opportunity inferences in four conditions: (1) known issue characteristics are opportunity-distinctive—consistent with opportunity and discrepant from threat, (2) known issue characteristics are threat-distinctive—consistent with threat and discrepant from opportunity, (3) known issue characteristics are ambiguous—nondistinctive because they are consistent with both threat and opportunity, and (4) known issue characteristics are neutral in that they are neither clearly consistent with nor clearly discrepant from either concept. We developed both general and specific hypotheses about how inferences will vary across these four conditions and made predictions for threat and opportunity inferences in particular:

Hypothesis 1: Inferences will be stronger when available information is distinctive of threat or opportunity rather than neutral.

Hypothesis 1a: Issues are more likely to be perceived as threats when characteristics associated with them are threat-distinctive than when characteristics are neutral.

Hypothesis 1b: Issues are more likely to be perceived as opportunities when characteristics associated with them are opportunity-distinctive than when characteristics are neutral.

Hypothesis 2: Inferences will be stronger when available information is distinctive of threat or opportunity rather than ambiguously consistent with both.

Hypothesis 2a: Issues are more likely to be perceived as threats when characteristics associated with them are threat-distinctive than when characteristics are ambiguous.

Hypothesis 2b: Issues are more likely to be perceived as opportunities when characteristics associated with them are opportunity-distinctive than when characteristics are ambiguous.

Hypothesis 3: Inferences will be stronger when information is ambiguous rather than neutral.

Hypothesis 3a: Issues are more likely to be perceived as threats when characteristics associated with them are consistent with both opportunity and threat than when characteristics are neutral.

Hypothesis 3b: Issues are more likely to be perceived as opportunities when characteristics associated with them are consistent with both opportunity and threat than when characteristics are neutral.

Hypothesis 4: The presence of information that is at variance with a concept will have a negative effect on relevant inferences.

Hypothesis 4a: Issues are less likely to be perceived as threats when characteristics associated with them are opportunity-distinctive than when characteristics are neutral.

Hypothesis 4b: Issues are less likely to be perceived as opportunities when issue characteristics associated with them are threat-distinctive than when characteristics are neutral.

Method

Sample. Four hundred M.B.A. alumni from a large university were mailed stimulus materials and asked to participate. These alumni were all members of an association whose members were interested in business policy issues. To encourage participation, people who completed the study became eligible for a lottery drawing. One winner was randomly selected to receive a \$100 prize. Eighty-three alumni completed and returned the study materials. In comparison to Study 1 participants, Study 2 participants were at lower levels in their employing organizations: 8 percent executive level, 11 percent top level, 42 percent middle level, 24 percent lower level, 13 percent nonmanagement. Ten percent were members of their firms' top policy group.

Study design. A Latin-squares design with repeated measures was used to examine the inferences people would make when presented with eight different sets of information. Each of the alumni received a booklet describing eight hypothetical scenarios relevant to the banking industry.

A subset of issue characteristics was embedded in each scenario. Each subset was developed by selecting a few characteristics from a distinct area of the map shown in Figure 1. A total of eight different subsets was used, creating an eight-level information factor. We focused on the following four information conditions defined above for the purpose of testing our hypotheses: (1) information that is threat distinctive; (2) information that is opportunity distinctive; (3) information that is ambiguous; and (4) information that is neutral.

Issue characteristics from Study 1 were used to manipulate available information. Characteristics for the threat-distinctive, opportunity-distinctive, and ambiguous conditions were highlighted in Figure 1 and have been described in detail above. The neutral issue characteristics were defined by the following two criteria (1) the issue characteristics were rated near zero ($-.50 < \text{mean} < .50$) for both threat and opportunity, and (2) the threat and opportunity ratings for these issue characteristics were not significantly different from each other ($p > .05$, two-tailed paired *t*-test). These issue characteristics appear near the center of Figure 1. They are as follows: issue is embedded in the past, probably only one correct solution, and others initiated issue resolution.

Characteristics included in the four conditions not discussed in detail here were drawn from four other distinct areas of Figure 1, namely, the areas near the ends of the axes. Conceptually, these subsets represent characteristics that are neutral for one concept (threat or opportunity) and either consistent with or discrepant from the other concept. Detailed descriptions of these characteristics as well as the results related to these four conditions can be obtained from the authors.

All study participants were exposed to all information conditions, making the information variable an eight-level, within-

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subjects factor. Because information was a within-subjects factor, we wished to rule out the possibility that the order in which participants encountered different types of information could contaminate the results. Therefore, we designed the study to ensure that each information condition appeared in each of the eight order positions. That is, information conditions were balanced with respect to order of presentation, making presentation order an eight-level between-subjects factor.

Finally, we wished to ensure the generalizability of the conclusions about how information affects inferences about threats and opportunities to a variety of strategic issues. Therefore, we embedded the eight types of information within descriptions of eight different issues. All participants made inferences about these eight issues, making issue content an eight-level within-subjects factor. The eight issues were presented in the same order for all participants.

The two dependent variables of interest are (1) inferences about the presence of a threat and (2) inferences about the presence of an opportunity. Each study participant provided data for each type of inference under each of the eight information conditions. A schematic representation of this design is shown in Table 1. The term "booklet" was used to denote each of the eight unique sets of stimulus materials created in this study. All booklets contain all eight scenarios and all eight

Table 1

Combinations and Orderings of Scenarios and Attributes for Each Booklet Version

	Booklet version							
	A	B	C	D	E	F	G	H
Order of presentation within booklet	a + 3*	a + 7	a + 6	a + 2	a + 4	a + 5	a + 1	a + 8
	b + 8	b + 3	b + 7	b + 6	b + 2	b + 4	b + 5	b + 1
	c + 1	c + 8	c + 3	c + 7	c + 6	c + 2	c + 4	c + 5
	d + 5	d + 1	d + 8	d + 3	d + 7	d + 6	d + 2	d + 4
	e + 4	e + 5	e + 1	e + 8	e + 3	e + 7	e + 6	e + 2
	f + 2	f + 4	f + 5	f + 1	f + 8	f + 3	f + 7	f + 6
	g + 6	g + 2	g + 4	g + 5	g + 1	g + 8	g + 3	g + 7
	h + 7	h + 6	h + 2	h + 4	h + 5	h + 1	h + 8	h + 3

* Numbers refer to attribute sets, lower-case letters to scenario contents.

information sets, but each booklet pairs different information conditions with different scenarios and the information conditions appear in different positions. Each participant received one booklet.

Because we had less than a 100 percent response rate, we could not control precisely the number of respondents who completed each version of our stimulus material. That is, we have unequal *N*'s for our between-subjects booklet conditions. As Keppel (1973) pointed out, unequal sample sizes do not introduce bias when they are due to random attrition and are not due to differential psychological reactions to the treatment conditions. Since there is very little reason to believe that the booklet conditions caused differential response rates in some way, we assume that our unequal sample sizes are due to reasons independent of the experimental treatment and, so, do not introduce bias. Furthermore, it is worth noting

that because the independent variable of theoretical interest to us (i.e., attribute information) was varied within subjects, the sample sizes are equal for all treatment conditions of primary concern.

It is important to clarify what this design does and does not accomplish. Latin-squares designs are efficient experimental designs that permit researchers to control for the effects of variables that could contaminate or restrict the conclusions drawn about the effects of an independent variable of interest. However, experimental control is achieved without conducting a full-factorial experiment. The efficiency of such designs is bought at a price, of course, namely, such designs do not permit researchers to test for the effects of all the independent variables that are controlled (see Winer, 1971).

This study was designed to enable us to test for the effects of only one independent variable—information. Our design ensured that all eight information conditions were paired with each of eight strategic issues. It also ensured that all eight information conditions appeared in each of eight different order positions. These controls improve our confidence that any results reflect robust effects of information and are not artifacts of particular scenario contents or order effects.

The price paid for design efficiency in this study is that we could test for the effects of the information conditions only; when we tested for the effects of information, we could control for the effects of two other variables, but we could not directly test the independent effects of the two control variables (scenario content and order), nor could we assess interactions between these variables and the main variable of interest (information). This is because the control variables are confounded in the design, as Table 1 shows. In order to test for the effects of all of these variables, we would have needed to use an 8 (information conditions) \times 8 (scenario contents) \times 8 (order of information) \times 8 (order of scenario) experimental design.

Our decision to use a Latin-squares design rather than a full factorial design reflects our judgment of the relative costs and benefits related to each design. We judged order effects, scenario effects, and related interactions to be important to control for, but we considered the added benefit of being able to estimate these effects precisely as too costly.

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 acute 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 evaluations of the eight strategic issues that will be most consequential for Essex during the next five years.

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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 evaluations 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 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.

Scenario descriptions. Each scenario was about 120 words long. The eight issues described were, in order of presentation: (1) entry of foreign banks into the U.S. market, (2) the new breed of competitors appearing in response to deregulation, (3) turnover among personnel, (4) the emergence of life-line accounts for low-income customers, (5) technological developments related to electronic banking, (6) repeal of the McFadden Act, (7) competition from nonbank banks, and (8) unionization among employees. As an example, the scenario about the McFadden Act read as follows:

The potential repeal of the McFadden Act, which currently limits the degree and type of interstate banking that is possible, is an issue that will affect our future. The McFadden Act was originally conceived to protect banks from excessive competition, at that time thought to be harmful to the stability of our industry. However, as the shackles that once constricted banking options are removed through deregulation, the possibility of full-continent domestic banking is becoming a reality. The outlook is pretty *positive* for us on this issue. There is a *high probability of resolving the issue* with you on board, Morris—you *have the qualifications and you have the means*. Essex *may be able to make some real gains here, but in any case, we are unlikely to lose much*.

Words in italics in the above example indicate the embedded issue characteristics, which in this case are opportunity-consistent and threat-discrepant. Issue characteristics were not italicized, however, in the scenarios read by study participants.

Dependent variables. After reading each scenario, respondents answered eight questions. The two questions used to test our hypotheses were "Does this represent a threat for us?" (question #3) and "Does this represent an opportunity for us?" (question #7). They were answered using a scale of 1 (definitely no) to 5 (definitely yes). The other questions were included to add face validity to the task and to minimize participants' sensitivity to our research questions.

Analyses. The analyses examined the effects of the different types of information on threat and opportunity inferences. First, the overall effects of the information conditions were tested. Then planned comparisons between the specific means of interest, as identified in the hypotheses, were used to determine whether the specific hypotheses were supported.

Results

Overall effects. To test for overall effects, multivariate and univariate analyses were conducted for a repeated-measures design with one eight-level within-subjects factor (information) and one eight-level between-subjects factor (booklet, with the combined scenario and order effects). As already noted, these two effects are controlled for but cannot be independently estimated. We first assessed the effects of information, controlling for booklet version and the information

× booklet interaction, using multivariate analysis of variance. In the multivariate analysis, threat and opportunity ratings were treated as a set of dependent variables. This analysis revealed a significant information effect on perceptions of threat and opportunity [$F(14, 1036) = 11.71, p < .001$].

Next, we examined the results of the univariate analyses for each dependent variable to confirm that information had a significant effect on both perceptions of threat and perceptions of opportunity, testing for each effect separately. These analyses indicated that information had a significant effect on both perceived threat [$F(7, 518) = 15.14, p < .001$] and perceived opportunity [$F(7, 518) = 7.68, p < .001$]. Thus both the multivariate and univariate analyses showed a significant effect of information on inferences about threat and opportunity.

No significant main effects of booklet version were found in either the multivariate or univariate analyses. Both the multivariate and univariate analyses revealed a significant interaction between attribute information and booklet condition. This result indicates that the effects of information were not exactly parallel across the eight versions of the stimulus booklet. To determine whether any versions of the stimulus material failed to produce significant overall attribute effects, attribute effects were tested for each booklet version. These analyses confirmed that significant ($p < .01$) effects of information occurred for all eight versions of the stimulus materials.

Planned comparisons. The means and standard deviations for threat and opportunity ratings for the four information conditions of interest are shown in Table 2. To test hypotheses 1 through 4, we conducted planned comparisons (Keppel, 1973), which enabled us to determine more specifically how the four information conditions affected participants' perceptions of threat and opportunity. To ensure that our results reflected only the unique effects of information, the booklet version and booklet × information effects were extracted (using hierarchical analysis) before testing for the

Table 2

Means and Standard Deviations for Perceived Threat and Opportunity in Four Information Conditions

Information condition	Opportunity ratings		Threat ratings	
	Mean	S.D.	Mean	S.D.
Neutral	3.8	1.1	3.7	1.2
Ambiguous	3.5	1.3	4.1	1.0
Opportunity-distinctive	4.1	1.2	3.6	1.3
Threat-distinctive	3.1	1.2	4.3	.9

significance of comparisons between conditions. The results of these analyses are presented below.

Threat ratings. In general, the results supported the hypotheses. Perceived threat was higher ($F = 17.09, p < .05$) when issue characteristics were threat-distinctive rather than neutral. Perceived threat was higher ($F = 3.45, p < .05$) when issue characteristics were threat-distinctive rather than ambiguous, although the magnitude of this difference was small.

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Perceived threat was also higher ($F = 14.32, p < .05$) when issue characteristics were ambiguous rather than neutral.

However, contrary to hypothesis 4a, perceived threat was not significantly lower ($F = 1.98, p > .05$) when issue characteristics were opportunity-distinctive rather than neutral.

These results suggest that the respondents were more sensitive to threat-consistent issue characteristics than to threat-discrepant issue characteristics. Threat-consistent information bolstered their confidence that a threat was present, but threat-discrepant information did not convince them that a threat was absent.

Opportunity ratings. The ratings of perceived opportunity show a different pattern of effects. As hypothesized, perceived opportunity was higher ($F = 4.26, p < .05$) when issue characteristics were opportunity-distinctive rather than neutral; perceived opportunity was higher ($F = 12.34, p < .05$) when issue characteristics were opportunity-distinctive rather than ambiguous; and perceived opportunity was lower ($F = 15.10, p < .05$) when issue characteristics were threat-distinctive rather than neutral. However, contrary to hypothesis 3b, perceived opportunity was not higher when issue characteristics were ambiguous rather than neutral. Instead, perceived opportunity was significantly lower in the ambiguous condition ($F = 6.15, p < .05$).

Discussion

These results indicate that threat and opportunity inferences do not follow the same cognitive rules: The respondents were more sensitive to threat-consistent information than to opportunity-consistent information. Conversely, they were less sensitive to threat-discrepant information than to opportunity-discrepant information. Respondents were thus quick to acknowledge the presence of threats but reluctant to disavow them, and they were quick to disavow the presence of opportunities and reluctant to acknowledge their presence. These results suggest that these respondents were biased toward making threat inferences.

It is worth noting that mean ratings of perceptions of threat and opportunity in the neutral condition were nearly identical. Therefore, the fact that respondents were more sensitive to threat-consistent cues cannot be attributed to a general tendency to interpret the scenarios we used in this study as representing clear threats. Participants indicated that both threat and opportunity inferences were equally appropriate to the scenarios when only neutral issue characteristics were embedded in them.

One final comment is necessary on the interaction between attribute condition and booklet condition. Because the booklet variable used in the analysis represents the combined effects of scenario content and information order (which, as we described above, are confounded in the study design), the interaction cannot be interpreted precisely; it may indicate an interaction between information and order of presentation and/or an interaction between information and scenario content. Either type of interaction could be interesting to examine further, but because our design does not permit us to determine which type(s) of interaction is present, we will not speculate about the implications of this interaction. New research is needed before such speculations are appropriate.

DISCUSSION

Taken together, Studies 1 and 2 provide a more complete picture of managers' concepts of threat and opportunity. The results from Study 1 provided support for the hypothesized differences between issue characteristics associated with threat and opportunity. Threat is distinct from opportunity in that threat has a negative connotation, and it is associated with lack of control and the expectation of loss. Opportunity, on the other hand, has a positive connotation, and it is associated with a feeling of control and the expectation of gain.

Study 1 also provides insights into what underlies the sense of control related to opportunity and the feeling of low control associated with threat. For opportunity, feelings of control seem to derive from perceived autonomy about how to respond and freedom to choose whether to respond, access to resources or means for resolving the issue, and feelings of personal competence. For threat, feelings of low control seem to derive from the perception that one's actions will be constrained by others and feelings of low personal competence. Clearly, threat and opportunity are not benign abstract concepts used to summarize objective estimates about the probability of loss or gain.

Threat and opportunity thus have personal implications. Threats are personally aversive, while opportunities are attractive. This difference is likely to have implications for the process by which the two types of issues are resolved. In general, we would expect managers to avoid becoming involved in dealing with threats when it is feasible to do so, for while managers would recognize the importance of responding to threats, they presumably would prefer to let others suffer the fallout. Conversely, we would expect managers to seek involvement in developing responses to opportunities. At an organizational level, these differences in individuals' responses to threat and opportunity issues should be reflected in greater participation in the resolution of opportunities as compared to threats (Dutton and Jackson, 1987).

Identifying Threats and Opportunities

In Study 2, the hypotheses we tested were developed from the simple assumption that the presence of issue characteristics that were consistent with threat (or opportunity) would strengthen threat (or opportunity) inferences, while the presence of issue characteristics that were discrepant with threat (or opportunity) would weaken such inferences. The specific predictions in hypotheses 1 through 4 were straightforward extensions of this assumption. Had all hypotheses been supported, we could have concluded that managers follow simple logical rules of information processing to discern threats and opportunities.

The results suggest, however, that threat and opportunity inferences cannot be accurately predicted from such a simple model of information processing. Instead, they indicate that managers are more sensitive to information that suggests the presence of a threat than they are to information that suggests the presence of an opportunity: They conclude threat (and not opportunity) is present when available information is ambiguous, and they do not conclude that threat is absent

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even when available information is clearly contrary to the presence of threat. In contrast, when available information is clearly contrary to the inference that opportunity is present, perceived opportunity decreases accordingly.

One interpretation of these results is that managers tend to view strategic issues as threats unless there is strong evidence to do otherwise. Thus the folk wisdom that all issues should be viewed as opportunities (particularly by "proactive" managers) may be easier given than followed. Managers must be convinced of the presence of opportunities. One way to convince them would be to highlight issue characteristics that are distinctive to opportunities (e.g., there is a potential for gain; successful resolution is likely; those involved will have autonomy and be given the freedom to act as needed). Unless characteristics such as these are associated with an issue, managers are likely to perceive it as a threat.

The finding of a threat bias among managers fits with several other descriptions of decision processes in organizations. For example, it is consistent with the view that managers operate on the basis of problemistic search (Cyert and March, 1963). It is also consistent with the finding that managers find themselves responding to issues they describe as "problems" more often than to issues they describe as "opportunities" (Nutt, 1984)—problems are likely to outnumber opportunities if all ambiguous issues are interpreted as threats.

A threat bias may seem inconsistent with research showing that people often fail to recognize threats, often with disastrous consequences (e.g., Wohlstetter, 1962; Turner, 1976; Starbuck, Greve, and Hedberg, 1978). However, there is a critical difference between these studies and our research. In our research, issues were identified for managers, who then judged the extent to which the issues represented threats and opportunities, so the inference processes we studied occurred after issue recognition. The findings from this study can be reconciled with previous research by positing that threat cues have a difficult time initially penetrating into the awareness of managers. As a result, by the time threats are recognized, they may in fact be relatively serious. Managers learn this over time and consequently adopt a threat bias for interpreting ambiguous issues in order to compensate for their tendency not to notice threats initially. Thus, threats tend to be underrecognized and overinterpreted.

A threat bias may be encouraged by the incentive and reward systems in organizations. Over time, managers may learn that, although becoming involved in confronting threats is personally risky, if they are successful they will be rewarded more for preventing the occurrence of loss in the face of threat than for achieving gain in the face of opportunity. This would be consistent with research showing that people generally value loss prevention over gain (Kahneman and Tversky, 1979). The combination of the high value placed on loss prevention and the perception that loss is almost certain in the face of threat sets the stage for high accolades going to the few managers who successfully handle threats. If the rewards are greater for handling threats than for responding to opportunities, it becomes advantageous for managers to de-

scribe the ambiguous issues they must tackle as threats or problems.

Future Research

The results of these studies shed new light on how available information is used to identify each type of issue, thereby suggesting new directions for future research. We examined here only two alternative concepts useful for interpreting strategic issues. Threats and opportunities were chosen due to frequency of their use in the everyday vocabulary of decision makers and their common incorporation into the classification systems used in strategic planning. However, other issue categories may also prove important and deserve to be considered in future research. To date, almost nothing is known about which concepts are most commonly used for describing and differentiating among classes of strategic issues.

Research might also fruitfully examine whether different industry contexts predictably affect the perceptions of threat and opportunity. For example, in the present study, respondents may have adopted a threat bias in part because they were asked to assume the role of a company president in a traditionally conservative industry. Might an opportunity bias be more likely in industries in which companies thrive on entrepreneurial leadership? Do the competitive strategies being pursued by firms within the same industry influence issue interpretation?

Although we did not focus on individual differences, the variance in ratings obtained in both studies described here shows clearly that such differences are substantial. Industry effects may account for some of the variance. Personality differences in locus of control and tolerance for ambiguity may also account for a small portion of the variance. Other sources of variation worth examining include the amount, type, and diversity of experiences managers have had.

Finally, another path for future research is to explore the process of issue interpretation among organizational members at lower levels. Presumably, lower-level participants also respond differentially to events they identify as threats or opportunities. Everyday experience reveals that the advice "think of it as an opportunity" is frequently offered as if it were a magical elixir for curing all the pains associated with organizational changes and uncertainties. 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. Indeed, generating such visions may be the secret to effective, charismatic leadership.

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