1994

Strategic Issue Interpretation and Response in the Restaurant Industry.

Scott David Julian
Louisiana State University and Agricultural & Mechanical College

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Strategic issue interpretation and response in the restaurant industry

Julian, Scott David, Ph.D.
The Louisiana State University and Agricultural and Mechanical Col., 1994
STRATEGIC ISSUE INTERPRETATION AND RESPONSE
IN THE RESTAURANT INDUSTRY

A Dissertation
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in
Interdepartmental Program in Business Administration

by
Scott D. Julian
B.S.B.A., University of Central Florida, 1986
August 1994
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Abstract

This dissertation presents a model of strategic issue management that focuses on the mediational role that interpretation has between monitoring and scanning the environment and organizational response. Hypotheses concerning the relationships between several dimensions of issue interpretation and several dimensions of organizational issue response are posited. The strategic issue of consumer nutrition awareness within the restaurant industry is targeted, and a research methodology constructed for testing the hypotheses. Urgency, Understanding, and Capability all had significant relationships with the response variables of Magnitude, Locus, and Activeness, with Understanding's relationship tending to be curvilinear. No variables had a significant effect on Immediacy, though this was probably due to methodology constraints. The potential contributions and implications of these findings for theory and managerial practice are presented and discussed, as are ideas for future research.
Chapter 1 - Introduction

An emerging topic of concern in the strategic management literature involves how organizations respond to unexpected or newly emerging situations, be they strategic issues, social issues or competitor moves (i.e., Dutton & Jackson, 1987; Wartick & Cochran, 1985; Smith, Grimm, Gannon, & Chen, 1991). This is an important arena of inquiry since a frequent question in these separate streams of literature concerns the factors that influence organizational response.

Strategic control concerns scanning the environment in order to detect and respond to emerging issues that might endanger the strategic course of action and threaten performance, or that may represent opportunities that could be exploited (Schendel & Hofer, 1979; Lorange, Scott-Morton, & Ghoshal, 1986; Schreyogg & Steinmann, 1987). In general, it is preferable to detect such issues as early as possible, when signals are still "weak" (Ansoff, 1975), to allow for longer response times. Since the interpretation of a particular environmental issue as, for example, an opportunity or a threat, to a significant extent can determine what the response of the organization will be (Ford & Baucus, 1987; Dutton & Jackson, 1987), to understand the interpretation process is to gain understanding of not only strategic control, but organizational strategy and strategic change, as well. Thus, the way in which organizations interpret strategic issues and the factors that influence this interpretation process emerge as topics of considerable importance (Daft & Weick, 1984).

Role of Issue Management

Issue management involves monitoring the internal and external environments in order to detect and formulate responses to emerging developments that may impact the organization. Issue management can be
found in the strategic management, strategic control, and corporate social responsibility literatures. A brief review of the concept of issue management in each of these areas serves to demonstrate the theoretical ubiquity, and by extension, importance, of issue management.

Strategic management. The relationship of issue management with the strategic management literature can be examined by considering its similarity within three schools of strategic management thought: the traditional "design" school; the "learning" school; and the "positioning" school (Mintzberg, 1990).

In more traditional views of strategic management, scanning was often viewed as a single step in a formal, synoptic process whereby organizational strategies were rationally formulated (for a review of some of these see Digman, 1986). Organizations scanned their environments in an attempt to identify opportunities and threats that would be used as a partial basis for the organization's strategy (Andrews, Learned, Christensen, & Guth, 1965; Andrews, 1971). While not explicitly identifying issue management as a critical part of the process, included in this deliberate, design-oriented view was a recognition of the need to assess and respond to certain factors in the environment.

Other approaches have been taken to strategic management, such as the idea that strategies can emerge on their own as organizations learn (Mintzberg, 1990; Mintzberg & Waters, 1985). In this framework, strategies can sprout up unintendently, like "weeds in a garden" as organizations face and respond to new situations (Mintzberg & McHugh, 1985). The process of issue management is almost synonymous with that of strategy formation in this perspective, although this has not been made explicit. Issue
management could thus be viewed as one way strategies emerge and change over time as the organization faces and responds to different issues.

Also, increasing attention has been paid to competitive rivalry and the responses of organizations to the actions of their competitors as part of what Mintzberg (1990) termed the positioning school (Porter, 1980, 1985). Here, issues are represented by the competitive moves of a rival organization and the research in this area has focused on the factors that influence what the response will be (Chen, Smith, & Grimm, 1992; Smith, et. al., 1991). While the stress in the design approach is on scanning, and that of the learning approach is on strategy emergence over time, the positioning approach focuses on responding to discrete and easily identifiable events and has yielded some explicit findings that will be reviewed later.

It should be stressed that in all three of these examples of different schools of thought in strategic management, issue management is present at least implicitly, and in some cases very explicitly.

Strategic control. Within the area of strategic management, the topic of strategic control relates even more strongly to issue management than the literature on strategy formation. Although a relatively neglected topic in the past (Shrivistava, 1987), strategic control has been the center of increasing attention (Schreyogg & Steinmann, 1987; Lorange, 1988; Goold & Quinn, 1990; Preble, 1992). The concept of strategic control has been refined since Schendel and Hofer (1979) identified it as an important area in strategic management.

Strategic control is pictured at three levels: implementation control, where the implementation of the strategy is monitored; premise control, where critical success factors are monitored; and strategic surveillance, which is the broad-based monitoring of the environment for significant
developments (Schreyogg & Steinmann, 1987; Preble, 1992). The strategic surveillance component is essentially synonymous with issue management, since it involves scanning for developments that may have a significant impact on the organization's strategy (Schreyogg & Steinmann, 1987). Implementation and premise control are conceptualized as narrowing the focus of the organization and strategic surveillance, i.e., issue management, is required so that an organization will not be blind-sided by an unanticipated development (Preble, 1992).

The literature on strategic control is still primarily prescriptive and lacking in theoretical development (Schreyogg & Steinmann, 1987). Given its overlap with strategic control, empirical research on issue management represents one avenue toward strengthening this area.

**Corporate social responsibility.** Issue management has represented an important component of corporate social responsibility models for some time (Carroll, 1979; Wartick & Cochran, 1985; Wood, 1991a, 1991b). Issue management is pictured as one of the processes an organization can engage in to be socially responsive (Ackerman, 1975; Wood, 1991b). The issues that the organization should manage in this case emanate from the social environment, and the manner and immediacy of the organization's response has been viewed as a litmus test on the organization's social responsiveness (Carroll, 1979).

Issue management has also been influenced by the area of public relations, where much of the early research on issue management occurred (Chase, 1977). The actual practice of issue management, as well as its conceptual development, has reached its fullest expression in the area of public affairs and public relations (Chase, 1984; Heath & Nelson, 1986). This is to be expected since public affairs is concerned with gathering

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intelligence on the social (i.e. non commercial) environment and the development of action plans directed toward this environment (Nagelschmidt, 1982). While public relations is primarily concerned with the use of communication to maintain a corporation's image, and public affairs tends to focus on governmental activity, issue management was pictured as a way to combine social policy with business policy (Heath & Nelson, 1986; Wood, 1991b).

It is also possible to include work in the institutional tradition (Meyer & Rowan, 1977; Dimaggio & Powell, 1983; Zucker, 1977), or at least an extension of it, in the area of issue management in social responsibility. Oliver (1991) demonstrates how organizations in different circumstances respond to institutional pressures by combining institutional thought with ideas from the resource dependence school (Pfeffer & Salancik, 1978). Oliver provides an elaborate list of institutional antecedents and the impact that each of these may have on the types of responses an organization might make, ranging from acquiescence to manipulation (1991).

Issue management has been cited as one area in corporate social responsibility needing further research (Wood, 1991b). Thus, given that issue management relates to strategic management, strategic control, and corporate social responsibility, research in the area of strategic issue management has potential relevance in a wide range of areas.

Attention now turns to the focus of this dissertation, strategic issue management. Strategic issue management (SIM), while having similar roots to some of the areas above, has a slightly divergent path of development. This will be demonstrated by tracing the academic and conceptual development of strategic issue management, and by giving evidence of the
commonality of SIM with the other types of issue management discussed above through a brief discussion of its use in practice.

**Development and Roots of Strategic Issue Management**

*Academic management.* Managing strategic issues was first discussed within the context of how to avoid strategic surprises (Ansoff, 1975). This could be accomplished by scanning for "weak signals" in the external environment and responding to them while there was still time to be proactive. Ansoff suggested that at first the response should be small in scale, in keeping with the equivocality of a weak signal. As the signal strengthened, however, the organization's response should grow in magnitude. Ansoff (1980) offered a more robust conceptualization of SIM by examining its strong signal and weak signal forms and included a graphic model of the relationship between forecast horizon and response time. He also stressed the superiority of SIM over periodic strategic management systems. A similar approach appeared in King (1982) where a process model of strategic issue analysis was explicated.

An important conceptual advance was made in Dutton, Fahey, and Narayanan (1983). Their focus was on a part of SIM, strategic issue diagnosis, whereby stimuli are ordered into issues and interpretation occurs. They presented a three-stage, recursive model containing inputs, processes, and outputs. The recognition that interpretation plays a part in SIM was a significant contribution, and much of the literature on SIM has included interpretation as an important component. Also significant was the suggestion that inputs other than characteristics of the issue itself would be important, for example cognitive maps and political interests.

Dutton and her associates continued to make contributions in the area of SIM. The overall SIM system was the focus of Dutton and Ottensmeyer
Relating the strategic issue literature to that from public affairs and relations and building on the interpretational model of Daft and Weick (1984), Dutton and Ottensmeyer developed a typology of SIM systems according to the source of the issue (internal versus external) and the activity scope (active versus passive). The symbolic, as opposed to instrumental, aspects of SIM systems were explored, as well. SIM systems were pictured as helping organizations better adapt to their environments, and so Dutton and Ottensmeyer also included propositions concerning the effect of the environment on SIM.

Dutton and Duncan (1987) continued the previous focus on strategic issue diagnosis by exploring how certain organizational factors influence issue interpretation and on how the kinds of issue interpretations made influence the momentum for change. Issues are diagnosed and interpreted according to their urgency and the feasibility of making a response to them. As an issue is seen to be more urgent or a response to it more feasible, the momentum for change is greater.

Dutton and Jackson (1987) examined the categorization of issues into opportunities or threats and explored the factors that would lead to either interpretation. Issues that are controllable, positive or represent a potential gain are likely to be viewed as opportunities, for example. Propositions concerning the effects of certain process characteristics on interpretation were forwarded, and the impact of interpretation on issue response explored. The last two articles represented a turn of attention away from the overall system and toward the interpretational/diagnostic aspects of SIM. This focus has been continued in other work.

For example, Dutton, Walton, and Abrahamson (1989) empirically investigated the dimensions that decision makers use to sort strategic issues
and found that those dimensions proposed by theory were not necessarily the ones used in practice. Jackson and Dutton (1988) studied the types of factors that were associated with the labels of opportunity and threat and found that decision makers were more sensitive to issues labeled "threats" as opposed to issues labeled "opportunities." Thomas and McDaniel (1990) examined the effect that strategy and information processing characteristics have on issue interpretation and found significant relationships with both. Sallivan and Nonaka (1988) looked for and found a relationship between national culture and issue interpretation.

Some recent empirical work in the SIM area has examined the impact of interpretation on response, as well. Dutton, Stumpf, and Wagner (1990) investigated the effect of issue interpretation on the allocation of resources and found some significant relationships. Support was also found for some of the propositions for change posited in Dutton and Duncan (1987) related to urgency, feasibility, and momentum. The impact of national culture on both interpretation and issue response was found to be significant in Schneider and de Meyer (1991). These researchers also developed a multi-level model of other contextual influences on interpretation as well as response. Finally, in what represented a significant empirical advance in the SIM area, Dutton and Dukerich (1991) outlined how the organizational context influenced the development and interpretation of an actual strategic issue. Previous empirical work had used case studies while this research used a qualitative approach and an examination of how a single organization reacted to a developing strategic issue over time.

From a process or stage-related approach in its infancy, the SIM literature began to examine particular parts of the SIM process. For example, the diagnosis and interpretation of strategic issues as well as the
organization's response to those issues is now the current focus of the academic SIM field. This dissertation will make its contribution along these lines by examining the interpretations and responses of organizations within an industry to an emergent strategic issue.

Practice. The development of SIM within academia has been relatively isolated from other streams of inquiry, except strategic management. This has not been the case in the practice of SIM, however, which has been very closely involved with public affairs (Dutton & Ottensmeyer, 1987). The origins of public issue management go back to the turn of the century (Heath & Nelson, 1986). Organizations from time to time were forced to deal with issues emerging from the social sector of their business environment and responded to them through various means, ranging from some very defensive-reactionary (Carroll, 1979) responses to what could be called "proactive" attempts to sway public opinion (Heath & Nelson, 1986: 55-59). These early responses involved advance agents, lobbyists, press agents, and publicity bureaus (Ewing, 1982).

The situation was to continue in this mode for some time, even through the turbulent 1960s and 1970s. It was during this time that organizational legitimacy was widely questioned due to various significant public issues such as pollution, product and worker safety, corporate power and discrimination (Steiner & Steiner, 1988). By the mid-1970s, after years of dealing with an increasingly harsh social environment, issue management emerged at the overlap of the two separate functions of public relations and strategic planning (Ewing, 1982). It was pictured as the relating of the public policy area to the business policy one, as the taking of a more proactive stance toward issues that often were viewed only as problems and never as opportunities (Chase, 1984). It has been said, however, that the new
"issue management" was really nothing more than a new phrase for what had been going on in public relations for some time (Ehling & Hesse, 1982).

The precipitation of interest in issue management during the 1970s was largely due to Howard Chase, who coined the phrase, was active in promoting this "new" idea, and formed the Issues Management Association in 1982, which had over 400 members by the mid-1980s (Dutton & Ottensmeyer, 1987). The increased exposure of this idea has led to increased corporate interest to implement issue management systems. In the form they are usually discussed, these systems are synonymous with SIM systems, in that they identify emerging trends likely to affect the organization and develop a wider and more positive range of responses to them (Coates, Coates, Jarratt, & Heinz, 1986). Some recent trends in practice have been the willingness of higher-level executives to get involved with managing issues instead of leaving it to issue managers, and the tendency of different organizations to cooperate on a collective response to public issues (Littlejohn, 1986).

Thus, SIM and public issues management are quite similar in practice and can be thought of as synonymous. The primary difference is that SIM is somewhat broader in conception, and can be thought of as the general model of which public issues management is a special case.

Summary

Issue management was presented as having influence on several areas of management theory. It has either a direct or indirect impact on strategic management, strategic control, and corporate social responsibility. It was argued that strategic issue management is an area worthy of further study since the potential findings related to it can affect several different streams of literature simultaneously. Then the conceptual roots and development of SIM were traced, starting with Ansoff's seminal works on the subject. This
review demonstrated a shifting focus from the overall system, to response
times, to the importance of interpretation and diagnosis, and finally, to the
impact of interpretation on response. This last area was identified as the
subject of this dissertation. Then it was demonstrated that while the
conceptual development of SIM was relatively autonomous of other areas of
issue management, in practice it is difficult to differentiate SIM from public
issue management. It was suggested that SIM could be viewed as a general
model of issue management, while public issue management would appear as
a special case, given its focus on the social sector of the environment.

Organization of Remaining Chapters

Chapter 1 established issue management as an important area. In
Chapter 2, a more thorough review of the literature is made related to SIM
models, the importance of interpretation, and the literature on
organizational responses to different kinds of events. This chapter concludes
with a model of issue interpretation and response. In Chapter 3, specific
hypotheses describing the relationship between interpretation and response
are posited. Chapter 4 contains the methodological design for testing them.
Data analysis and results are presented in Chapter 5, and Chapter 6
summarizes the significance of the findings and explores their implications
for practice, theory, and future research.
Chapter 2 - Strategic Issue Management
Models and Related Literature

This chapter begins with a review of models of the strategic issue management process, with particular focus on the stages of interpretation and response. The important role that interpretation plays in the process is then discussed and a review of the different streams of literature that address organizational responses included. Then, a model of issue interpretation and response is presented. A brief summary of the relationship between issue interpretation and response closes the chapter.

Strategic Issue Management Models

Strategic issue management is the interpretational process whereby organizations identify, analyze, and respond to strategic issues. Strategic issues are emerging developments that can have a major impact on the organization's strategy (Daft & Weick, 1984; Ansoff, 1980; Dutton & Ottensmeyer, 1987). (This definition, as well as others relevant to this dissertation, are listed in Appendix A.) Various models of issue management and SIM have been suggested over the years, most of them containing the three stages of identification, analysis, and response suggested above. Table 1 contains a summary of the following review.

To highlight the interpretational nature of SIM activity, Daft and Weick (1984) are included in Table 1 first. They presented organizations as interpretation systems and modeled the behavior of organizations as following a three-step process: scanning, where data are collected; interpretation, where data are given meaning; and learning, where action is taken. These three steps line up with the three SIM steps of identification, analysis, and response. Although other models have used different terminology, it is possible to demonstrate the correspondence of most of the
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Note: Model components are placed under the stage where they most appropriately fit. A hyphen before a word indicates that construct is a dimension of identification, analysis, or response.
following models with this three-stage interpretation process. Frequent consultation of Table 1 through the reading of this section will support this assertion.

Ansoff (1980) pictured SIM as beginning with monitoring. Trends in the external and internal environments, as well as performance trends, are tracked continuously. The SWOT framework (Andrews, 1971; Ansoff, 1965; Hofer & Schendel, 1978) is applied to data from these sources to identify strategic issues. Based on an assessment as to the issues' potential impact and urgency, an issue assignment is made, where management makes a decision on what action to take. The responses in Ansoff's model are taking no action at all, continuing to monitor the issue, taking delayed action, and taking immediate action.

King (1982) narrowed the focus somewhat in that he did not explicitly include a response step. Starting with identification of the issue, a formal statement of the issue is developed, followed by the development of a model describing the issue and its potential impact and development. This issue model, representing the output of strategic issue analysis, is then used in the regular planning process of the organization. This model seems to place SIM in an overly-subservient role in relation to the periodic planning process, a role that Ansoff would probably dispute (1975, 1980).

An alternative view of issue management was presented in Coates, et. al. (1986). Here the process begins with issue identification followed by continued scanning, monitoring, and tracking. The information is then analyzed and priorities are set as to which issues are most important. Based on these priorities, the issues are assigned to either a policy or strategic implementation path, depending on the lead-time of the response. Here
again SIM is viewed as subservient to planning, with the output of the process being a priority ranking.

Chase (1984) presented a view of SIM as relatively autonomous, in keeping with his stress of the importance of this "new" function. The process begins with issue identification, the consideration of trends that lead to issues. In the second step, issue analysis, the issues are researched and various theories are forwarded to account for them. The third step, issue change strategy options, is where priorities are set and response plans are selected. Steps two and three fit within analysis and interpretation in Table 1. The fourth stage represents the development of the issue action program to support the selected issue responses. Periodic planning in this model is viewed as supportive of SIM.

Much of the later work on SIM models has built on Ansoff's (1980) model. In these later models, SIM as autonomous from periodic planning and the existence of an interpretation-like stage have been taken as given. If anything, the focus has narrowed somewhat, centering on issue interpretation and the impact it has on issue response.

Dutton, et. al. set the stage for much of the work to follow by presenting a model of strategic issue diagnosis (SID), the process whereby data and stimuli are translated into issues and these issues are interpreted (1983: 307-8). This is an extension of Ansoff's (1980) impact and urgency assessment step.

After demonstrating that diagnosis has been considered an important step in strategic management, not to mention SIM, Dutton, et. al. presented a three-stage model. The inputs of SID are cognitive maps, political interests, and issue characteristics, and these are weighed in a process varying according to its recursiveness, retroductivity, and heterarchy. Based on the
interplay between these two sets of factors, outputs of assumptions, cause-effect relationships, predictive judgments, and labels emerge. Although the outputs are viewed as affecting the inputs, SID can be linked with SIM at this point by realizing that the outputs of diagnosis influence the kind of response the organization makes, and thus "outputs" is placed under the response column in Table 1. The emphasis in this model is on the complexity of the environment and the difficulty that managers have in making sense of it. Strategic issue diagnosis was presented as one way this sense-making occurs.

Variation and further development of strategic issue diagnosis were presented in Dutton and Duncan (1987). Again, a three-stage model was posited, consisting of an activation stage, followed by issue assessment, leading to a diagnosis outcome. A strategic issue diagnosis episode is triggered either through gap analysis or stakeholder demands. This leads to two assessments being made in the second stage. The urgency assessment concerns how important it is for the organization to act on this issue and the feasibility assessment relates to how likely it is that the organization can implement an effective issue response. These assessments in turn affect the momentum for change that will determine the magnitude of the response, either radical or incremental. This model emphasized even more than Ansoff (1980) the types of assessments made during issue diagnosis and interpretation.

This model was in turn, further developed and modified in Dutton, et. al. (1990). In a model directed toward the response end of the SIM process, issue perceptions were seen to influence issue assessment, which in turn influences the investment of managerial and organizational resources to deal with an issue. Perceptions of the issue's expected duration, the locus of
responsibility for the issue, and the issue's visibility affect the urgency assessment. Perceptions of the level of understanding the organization has of an issue and the capability of the organization to respond were argued to affect the feasibility assessment. These assessments influence the allocation of money, time, and the priority an issue receives.

Some more recent models have included contextual influences on SIM. For example, Thomas and McDaniel (1990) presented a cross-level model of strategic issue interpretation. Organization-level phenomena independent of the strategic issue impact an individual's (in this case the CEO's) issue interpretation that influences strategic action at the organization level. The organizational context and the cognitive processes of the CEO will influence the kinds of interpretations the CEO makes. Similarly, Milliken (1990) posited that different organizational characteristics will affect the interpretation process.

Following in this new trend of including contextual influences, Schneider and de Meyer (1991) presented an elaborate model of the determinants of strategic issue interpretation and response. Here context influences interpretation and interpretation then influences response. Individual, group, organizational, and environmental factors affect issue interpretation. In turn, issue interpretation influences issue response, which may also be directly affected by the contextual factors.

The trend in SIM models has been away from mere chronological relationships (i.e., first step one occurs followed by step two, and so on) and toward more causal ones, which are more amenable to empirical testing. Two areas of considerable interest emerge from this review of the SIM literature. The context surrounding the SIM process is presented as being important, and many relationships between different contextual factors and
interpretation are possible. Some hypotheses related to context have been tested, for example Milliken (1990) and Thomas and McDaniel (1990). These researchers did find significant relationships between some aspects of context and interpretation.

The second area of interest is the relationship between interpretation and response. Asked another way: What kinds of interpretations lead to what kinds of responses? Dutton and Jackson (1987) posited ten hypotheses concerning the links between issue interpretation and organizational action. For example, if an issue is seen as a threat, the organization is likely to enact a revolutionary, internal-directed response. Issues perceived as opportunities, however, would lead to incremental, external-directed responses. Dutton, et. al. (1990) indirectly tested some of these ideas, finding that issue interpretation affected the commitment of time to an issue and the issue's priority. Their study did not use actual issues or organizations, but two behavioral simulations of organizations. Dutton and Dukerich (1991) used a longitudinal, case-study methodology to study an organization's responses to a strategic issue. They found that the issue's affect on the organization's image and identity were crucial factors in determining the organization's response.

No study has specifically examined the impact of issue interpretation on response to an actual strategic issue in a field setting using more than one organization. For example, Dutton and Webster (1988) examined the impact of interpretation on response but used an artificial, organizational in-basket, setting. Milliken (1990) examined interpretation of an actual strategic issue using a sample of many organizations but did not investigate any links with response. Dutton and Dukerich (1991) examined how interpretation of an actual strategic issue affected responses to it, but only at a single
organization. Thomas, Clark, and Gioia (1993) examined interpretation and response in a multi-organization sample but used interpretations of artificial case studies rather than an actual strategic issue. Consequently, the subsequent actions these organizations took were not necessarily in response to the issues identified in the case studies. The effects found in this study were more closely related to how interpretational tendencies influenced subsequent strategic actions and not how interpretations of an actual strategic issue influenced response to that issue.

Research conducted in artificial settings or consisting of single-case studies may lack external validity, and hence, not be applicable beyond the artificial environment or the single organization that was the subject of study (Cook & Campbell, 1979; Eisenhardt, 1989, 1990). This dissertation fills a gap in the literature by testing relationships between interpretation and response to an actual strategic issue using data from executives in a single-industry. As such, it tests a portion of some of the models outlined above which include an interpretation-response link. It will also yield information on the nature of the relationships between issue interpretation and response. This research is prescriptive in nature, rather than normative, given that performance outcomes are not measured. Next, a review of the literature on interpretation and organizational responses is made. Then the model of SIM that will be used in this dissertation is presented. A brief summary then concludes Chapter 2.

**Issue Interpretation**

Three views of the environment -- (1) objective, (2) subjective, and (3) enacted -- are based on different assumptions about the environment (Smircich & Stubbart, 1985). The objective environment and the perceived environment viewpoints are simply variations on the same theme. In them,
the environment is real, imposing constraints and demands to which the organization must adapt. The objective view assumes that decision makers can know all they need to know to design appropriate strategies, while the perceived view assumes boundedly-rational organizational actors (Lord & Maher, 1990). The third view pictures organizations and environments being created together through social interaction processes (Weick, 1979) and asserts that separate, objective environments, as such, do not exist. While drawing on literature based on the enacted environment view, this research is firmly grounded in the perceived environment perspective.

Organizations act on their perceptions of the environment since this represents essential reality to them. The order that does exist in an organization's environment may be quite subtle, and organizational attempts to model such order are inhibited by the limited and intended rationality of decision makers involved in these efforts (March & Simon, 1958; Cyert & March, 1963). The organization must attempt to impose some order on the seemingly unordered experiences it faces in the environment (Weick & Daft, 1983).

Organizations tend to package these experiences into strategic "issues" to organize attention and interpretation (Dutton, et. al., 1983). Though the identification of strategic issues has been viewed as a sense-making or order-imposing mechanism, implying that each organization's conceptualization of an issue will be unique, the set of stimuli that generate a strategic issue diagnosis episode (Dutton & Duncan, 1987) would be common to all organizations facing it. Thus, the actual confluence of events can be thought of as a "real" strategic issue that exists independent of any observer's attempts to identify or define it, as implied in Ansoff (1975, 1980). The existence of environments and issues independent of observers fits with the
perceived environment view (Smircich & Stubbart, 1985; Downey & Slocum, 1975; 1982).

Daft and Weick (1984) discussed the importance of interpretation in understanding macro-organizational behavior. They pictured interpretation as a mediational stage between data collection and action taking where the data are analyzed, or given meaning. Ford and Baucus (1987) also recognized the importance of interpretation. They modeled interpretation as affecting the kinds of responses that an organization would make to a performance downturn, an event that could easily be considered a strategic issue (Ansoff, 1980), though in this case an idiosyncratic one. They went further to argue that it is impossible to design an organization that is free of interpretation (Ford & Baucus, 1987: 376) since it is central to organizational activity.

The importance of interpretational activity has also been stressed in Nottenburg and Fedor (1983), where it is seen as mediating between scarcity in the environment and organizational responses to it. Interpretations are not rigid and unchanging, but pliable and evolving, and usually do not stop changing until well after an event has unfolded (Isabella, 1990). Both Thomas and McDaniel (1990) and Schneider and de Meyer (1991) examine interpretations made of strategic issues and argue that these interpretations influence the response an organization makes. This survey of the literature indicates a consensus concerning the necessity of a mediational step between data collection and organizational response.

By reviewing the literature on interpretation, the importance of a mediating, data-analysis type step in the SIM process has been established. Next, the literature on organizational responses to different events and the factors that influence them will be reviewed.
Organizational Responses

The literature on organizational responses to emerging developments can be divided into three streams: responses to strategic issues; responses to social issues; and responses to competitor activities. Each will be reviewed in turn.

Responses to strategic issues. Dutton and Jackson (1987) hypothesized that interpretation would affect organizational responses. They posited that categorizing an issue as a threat would lead to internal-directed responses and responses of large magnitude. Opportunities, on the other hand, lead to external-directed responses and responses of small magnitude. These hypotheses have not been tested as stated, although some studies (Dutton & Duncan, 1987; Dutton & Webster, 1988; Dutton, et. al., 1990; Schneider & de Meyer, 1991; Dutton & Dukerich, 1991) do have some bearing on them.

Assessments as to an issue's feasibility of resolution and urgency are also seen as affecting organizational responses (Dutton & Duncan 1987). The greater the urgency of an issue and the greater the feasibility to resolve an issue the greater the momentum for change, which leads to responses that are relatively large in magnitude. These propositions have not been directly tested either.

As for empirical research, five studies have bearing on organizational responses to strategic issues. Dutton and Webster (1988) found that managerial interest in issues was correlated positively with the feasibility of resolving them. This can be viewed as supportive of Dutton and Duncan (1987). Dutton, et. al. (1990) found that an issue's urgency and interdependence with other issues predicted manager's allocation of time to that issue and how much of a priority an issue was considered to be. This
result is also broadly supportive of Dutton and Duncan's (1987) framework. The methodology employed was an organizational in-basket simulation.

Although Schneider and de Meyer (1991) did not explicitly consider the relationship between interpretation and response, their results indirectly suggest that such a relationship may exist, though the two variables would be spuriously related to national culture. This is because they focused on the effect of culture on both interpretation and response, rather than the link between them. Latin Europeans were more likely to interpret an issue as a crisis or threat and were also more likely to recommend more proactive responses. The methodology employed was respondent analysis of a case study.

Along somewhat different lines, Dutton and Dukerich (1991) found that organizational identity and image influenced an organization's responses to the issue of homelessness. Image and identity were found to influence issue interpretations and motivations for responding to the issue. The effect was not concurrent, but issue interpretation and motivation to respond evolved over time within limits set by identity and image. Interpretation and motivation also influenced the responses taken. The methodology employed was an in-depth case study of a single organization.

Thomas, et. al. (1993) came closest to testing the impact of interpretation on response in a large-sample field setting. Using case studies to simulate realistic strategic issues, they hypothesized that interpretational labels of positive-gain and controllable would be positively related to subsequent product and service changes in hospitals. Only the hypothesis for controllability was supported. Although very methodologically sound, their use of case studies in lieu of an actual strategic issue makes interpreting their findings somewhat problematic. Subsequent changes may
not have been in response to the issues the case studies highlighted. There was no way of knowing whether or not a product or service change was in response to the issues interpreted in the case studies or in response to something else. Their findings actually relate more closely to interpretational tendencies (revealed in the analysis of artificial case studies) influencing subsequent organizational activity, and not a direct interpretation-response link.

While relationships between issue interpretation and response have been suggested, as has been demonstrated, a direct test has not yet been made. This represents an area where further empirical research is needed.

Responses to social issues. The literature on responses to social issues is related to public affairs (Arrington & Sawaya, 1984), public relations (Cheney & Vibbert, 1987), and social responsibility (Wartick & Cochran, 1985). There are articles within these traditions that relate to issue management and response and these will be the focus of this review.

Though concerns with what could be termed "social responsiveness" go back for decades (see Cheney & Vibbert, 1987; Heath & Nelson, 1986) it was during the mid- to late-1970s that this concern began to coalesce around managing issues. This was due to the myriad of social issues that businesses had to face for the first time that arose in the late 1960s to early 1970s (Wartick & Cochran, 1985). Much of the literature addresses responses to social and public issues in a pragmatic or case-study manner (for examples see Marx, 1986; Littlejohn, 1986; Wartick & Rude, 1986). Several articles, however, did address organizational responses to social and public issues and these will be examined more closely.

A conceptual framework for evaluating response patterns of businesses was developed in Sethi (1979). These patterns can be
characterized as social obligation (do what is required by law), social responsibility (mitigate the negative impacts of an issue), and social responsiveness (promote positive change). Using the infant formula foods controversy as the issue of interest, Sethi traces how different companies progressed along the three patterns as the issue developed. Initially, all five companies exhibited a social obligation response pattern. As time passed, however, the companies diverged in the types of patterns they exhibited. By the end of the analysis period, one company was still in a social obligation pattern, three were classified as social responsibility, and one had progressed to social responsiveness. The reason the response patterns for different companies diverged over time was not explored systematically, and the question was left unaddressed.

Social demands arising in society were recognized as potential strategic issues in Arcelus and Schaefer (1982). After breaking down the life cycle of social demands into various stages, the authors suggest that it is advantageous for organizations to respond as early in the life cycle as possible because social demands can have a strategic-level impact. Their discussion of why early responses would be preferred represents one explanation why different firms respond differently. Early response ought to make the development of an efficient response more likely, enable an organization to gain a competitive edge, allow the organization to participate in the political-social decision-making process, and to avoid the unfavorable pressure that various groups can bring to bear on a slow-to-respond organization (Arcelus & Schaefer, 1982: 351-352). It is likely that perceptions of these advantages may differ across firms. These perceptual differences would explain the different response patterns noted by Sethi (1979). Not
addressed were the factors that might lead to these perceptual differences, however.

Social issues management was identified as an important component of corporate social performance in Wartick and Cochran (1985). They recognized the different areas of issue management: strategic, public, and social issues (Wartick & Cochran, 1985: 766) and that they were essentially the same thing, but did not integrate the different literatures into a single framework. Issues management is pictured as a way to implement corporate social performance policies and represents the third leg of their social performance model.

Another comparative study of the responses of different companies to a social issue was made in Paul and Duffy (1988), where the actions of four large investors in South Africa taken in response to pressures to disinvest are traced. While the different patterns of response of each company were noted, no systematic attempt was made to account for these differences.

The greatest conceptual advance concerning issue response in this area was made by Oliver (1991). Although not investigating responses to issues (her work was grounded in institutional theory), her research led to a list of institutional antecedents to strategic responses. The thorough list she generated included the cause of the institutional pressure (social or economic), the identity of the constituents exercising the pressure, the nature of the constraints being imposed, the means through which the pressure is being exerted, and the environmental context within which the pressures are being exerted (Oliver, 1991: 160). Organizations are theorized to respond along a continuum of strategies ranging from outright acquiescence to the pressures to attempts to manipulate the institutional processes involved (Oliver, 1991: 152). This framework represents a rigorous
explanation of what leads to differential response patterns on the parts of
different businesses, something lacking until then.

Goodstein (1994) tested Oliver's model using employer involvement in
work-family issues and found that organizational size, the percentage of
female employees, and the diffusion of norms of dealing with such issues in
the same industry and country were all positively related to responsiveness.
These findings were taken as supportive of Oliver's institutional model.

Wood (1991a, 1991b) identified issues management as an important
component of corporate social performance. Issues management was argued
to be a process of social responsiveness, placing the emphasis, as it most
often has been in the area of social issues management, on the act of
responding (Wood, 1991b). Most of the research done in this area, however,
has not focused on the response stage, but on those activities leading to it

A review of the conceptual and empirical literature in the area of
social and public issues response reveals something of a gap. While progress
has been made in addressing this topic, little rigorous conceptual
development has occurred that would advance our understanding about what
types of antecedents lead to what kinds of responses but for Oliver (1991).
The ideas that have been forwarded have not been thoroughly tested. This
dissertation will make its contribution to this stream of literature on this
point.

Responses to competitor's moves. Most of the empirical work on
organizational responses has occurred not in the issues management area,
but in the literature on responses to competitive moves. What follows is a
review of this literature indicating its relevance to responses to strategic
issues.
MacMillan, McCaffery, and Wijk (1985) studied the reaction of banks to commercial banking product introductions. They examined the impact of several different factors on lagtime, or the time it took for a bank to respond to a new product offered by a competitor. It was found that banks responded more quickly when the product launch was visible to other banks, the extent to which the product was not radically different from existing products; the easier it was to offer a similar product, the degree to which the new product would fit well with existing products, and the extent to which the new product attacked a strategically important customer group.

Operating within an interpretation framework, Smith and Grimm (1991) produced a list of hypotheses relating response timing to a host of contextual factors. Some of the factors that influence the timing of competitive responses relate to information contained in the competitive action, characteristics of the initiating firm, and the competitive action itself. The competitive environment, as well as organizational and demographic characteristics, is also hypothesized to be important.

Some of these ideas were empirically tested in Smith, et. al. (1991). Corporate responses to strategic actions were characterized into four attributes: the degree to which the response imitated the initiating action, the likelihood that a firm would respond, the lag of the response, and how fast the firm responded relative to its competitors. They found that contextual factors such as the orientation of the firm, structure, slack, and demographic characteristics of management affected competitive response in some fashion. They also concluded that the manner in which a firm interprets and processes information has an impact on response, but the impact of specific types of interpretations was not assessed.
Chen, Smith, and Grimm (1992) studied competitive responses to the actions of rival firms. The following relationships obtained. The importance of the market under attack is positively related to the number of responses and, unexpectedly, negatively to the timing of the response. Also, the greater the effort required to implement the initial action, the fewer the number of responses and the longer the time taken to respond. Initial actions viewed as strategic, as opposed to tactical, also had the same effect on responses. Their findings were taken to mean that the more difficult an action would be to respond to, the lower in magnitude and the slower in timing the response would be.

Though not directly addressing issue management, studies from the literature on competitive responses are quite relevant to studies of responses to strategic issues. Most of the studies listed above recognize the importance of interpretation and reference the strategic issue management literature. This dissertation has the potential to make a contribution to understanding responses to different kinds of competitive actions, an area of the strategic management literature that has been relatively unresearched until recently (Smith & Grimm, 1991).

To summarize, the study of organizational responses to strategic issues can be informed from various literatures and has the potential to provide useful information to them, in turn. This indicates the importance of this dissertation and provides a framework for better understanding the implications of the results.

Model of Issue Interpretation and Response

A model of issue interpretation and response appears in Figure 1. The characteristics of the issue and the context in which interpretation occurs affect interpretation. Although these links will not be examined in this
dissertation, they are included for the sake of conceptual completeness. Issue interpretation, in turn, affects issue response.

![Figure 1 - Model of Issue Interpretation and Response](image)

The following example demonstrates the different components of this model. Several years ago the Food and Drug Administration decided to hold hearings on the idea of requiring more extensive nutritional labeling on food. Nutrition labeling clearly represented a strategic issue for packaged food companies. How would they respond?

Referencing Figure 1, both the characteristics of the issue itself and the context will influence the kinds of interpretations an organization would make. Some of the issue characteristics might be: the sector of the environment in which the issue originated (in this case, the legal-governmental one); the manner in which the issue becomes known (a public announcement); and identity of the stakeholder groups that were involved during the issue's beginning (consumer advocacy groups, the federal government). These factors have an impact on how an organization views an emerging strategic issue. Some contextual factors could be: the kind of scanning and monitoring system the organization has (formal or informal);
the organization's perceptions of its task environment (perhaps non
munificent); and the particular strategy the organization is following
(prospector or defender). These would have filtering effects on the data
about the issue coming into the organization (Boyd, Dess, & Rasheed, 1993).

Each organization would then make an assessment as to the degree of
urgency, understanding, and capability that exists with the issue of labeling
regulations. An interpretation of high urgency could indicate that the
organization believes that it must take some kind of action soon in response
to this issue. An interpretation of high understanding might mean that the
organization believes it comprehends the regulatory situation in Washington
and knows of several alternatives that it could implement in response. An
interpretation of high capability could mean that the organization believes it
has the resources necessary to respond to this issue. The types of
interpretations made would affect the kind of response the organization will
make.

Responses vary in magnitude, immediacy, locus, and activeness. A
response of large magnitude could be a total overhaul of labeling procedures
in a company, for example. An immediate response would be one taken soon
after the announcement of hearings was made. This would be regardless of
what kind of response it is, perhaps nothing but a press release. A response
that has an external locus would be lobbying Congress to delay labeling
regulations, while an internal response would be to study the cost of
different labeling options. An active response would be a company directly
responding to the issue, perhaps by altering its strategy or engaging in
advocacy advertising, while a passive response would be a committee meeting
called to rationalize doing nothing.
While this is not a definitive example, it should give some idea about what each of these components means in practice. Next, a brief discussion of the first two model components is made and then followed by an in-depth description of the last two.

**Issue characteristics and interpretation context.** The model has identified two different sets of forces having convergent and divergent influences, respectively, on organizational responses. In other words, the relationship between issue characteristics and interpretation indicates that since organizations are interpreting the same sets of stimuli, they will tend to respond in a convergent manner: their responses will be similar. The relationship between interpretation context and interpretation, however, would lead us to expect organizational responses to be very different from each other, since organizational contexts would be expected to differ.

Whether issue characteristics or interpretation context will have the more powerful influence is an empirical question beyond the scope of this dissertation. Suffice it to say that the issue interpretation and response model is organizational-level, rather than issue-level, and it is anticipated that interpretations, and hence, responses, will measurably differ between organizations.

The rest of the section discusses in some detail the two components of Figure 1 to be empirically tested.

**Issue interpretation and response assets.** Issue interpretation relates to the array of assets an organization needs to respond to a strategic issue. The process of strategic issue management involves scanning, data interpretation, and response (Daft & Weick, 1984) and it is with a view toward formulating and implementing a response that SIM occurs at all (Ansoff, 1975). If the organization did not have to respond to a strategic issue, then
issue interpretation would be merely an academic endeavor consisting of exploring possible interpretations of an issue for the sake of knowledge alone. Since a strategic issue presses upon an organization, however, and demands by its potential effect on its operations, systems, and strategy that the organization react in some way, the interpretation of a strategic issue is likely to be made with an eye on what type of action is necessary.

The importance of responding to a strategic issue would affect issue interpretation by relating the issue to the types of assets required to respond to it. These "response assets" are time, information, and resources.

Time is an important consideration for organizations (Harrigan, 1985; Bluedorn & Denhardt, 1988; Smith & Grimm, 1991) and the importance of time as a response asset is stressed in Ansoff (1975, 1980). Understanding a strategic issue, formulating a response to it, and then gathering the resources necessary to implement the response can be a time-consuming process. An organization needs to know how much time it has to do these things so it can respond quickly or slowly, depending on the circumstances.

Information is another critical response asset. In order for an effective response to be made to a strategic issue, an organization needs information on the state of the issue itself, what effect the issue might have on the organization, and what response options may be appropriate (Milliken, 1987, 1990). Armed with this knowledge the organization can confidently allocate resources to its issue response, while if it lacks this knowledge it needs to proceed cautiously since the risk of implementing an ineffective response is high.

The third response asset is resources, and these may represent financial resources, physical resources, managerial resources, and goodwill. These are the factors that will be manipulated in implementing the issue
response. When high levels of these resources exist, it opens a much broader range of response options for the organization, while if they are lacking, then the organization's options will be constrained.

**Stock assessments.** These response assets are critical to the response stage of SIM. Organizations, therefore, will assess the stock of these assets. The urgency assessment estimates the stock of time available, the understanding assessment estimates the stock of information available, and the capability assessment estimates the stock of resources available.

The urgency assessment is the perceived cost of doing nothing in response to an issue (Miller, 1982). The higher the level of urgency, the more important it is for the organization to respond quickly because there is less time to respond (Dutton & Jackson, 1987). The urgency assessment is the result of assessments and attributions relating to various issue dimensions (Dutton, et. al., 1990). The urgency assessment is influenced by deadlines, anticipated issue duration (degree of stability), publicity, and locus of responsibility, or causality (Dutton & Duncan, 1987: 283-4). If the urgency assessment is low, then the organization thinks it has enough time to formulate and implement a response and it does not need to act immediately. If the urgency assessment is high, then the organization thinks there is an insufficient amount of time to review options, discuss alternatives, and compare the possible impact of different responses and the organization must act quickly, even at the risk of taking a faulty course of action.

The understanding assessment represents the degree of issue certainty that exists (Milliken, 1990). This assessment is essentially a composite of three types of issue certainty: state, effect, and response (Milliken, 1987). State certainty concerns the issue itself, what it entails, and what course it might take. Effect certainty concerns what effect the issue might have on
the organization. Response certainty concerns what alternative actions the organization can take and the effectiveness of each of the alternatives. Where these three types of certainty are high, the understanding assessment will be high, as well, and the organization thinks it has an adequate amount of information to respond to an issue. When any or all of these three types of certainty are low, however, the understanding assessment will be low. In this case it will be believed that the organization does not have a sufficient amount of information to locate and implement an effective response.

The capability assessment concerns whether sufficient resources exist for the organization to be able to respond effectively (Dutton & Duncan, 1987). This involves a variety of resources. Physical resources, such as plant and equipment; financial resources, such as cash or unused debt capacity; managerial resources, representing the systems of the organization and the competencies and skills of its managers; market resources, such as distribution systems in place, and reputation; and human resources and the skills resident within them all represent resource areas that might be involved in an organization's response. These resources also relate to the idea of distinctive competence and strengths in the different value chain functions (Selznick, 1957; Porter, 1980). The stock assessment of these different resources is made concerning a strategic issue. That is, the capability assessment of one issue might be high because the organization has adequate stocks of the resources needed to respond to that particular issue, but it may be low for another issue because the organization has low stocks of resources needed to respond to the second issue. When the resources relating to a particular issue are in abundance, the capability assessment will be high, implying that the organization thinks it will have great latitude in which response alternative it decides to implement. When
there is a low stock of these resources, however, the capability assessment will be low and this indicates that the organization thinks it will be restricted in the kinds of responses it can make, perhaps to the degree that the more effective responses are outside its capability.

These three stock assessments, urgency, understanding, and capability are all made about specific strategic issues in separately triggered strategic issue diagnosis episodes (Dutton, et. al., 1983; Dutton & Duncan, 1987). In other words, each individual strategic issue is assessed as to urgency, understanding, and capability. These stock assessments are affected by the actual stock levels pertaining to each, but are also influenced by issue characteristics and the interpretation context, as illustrated in Figure 1.

**Issue response.** The type of interpretations made about a strategic issue will affect the kind of response that the organization will make. While there are many ways to classify organizational responses (see Milburn, Schuler, & Watman [1983] for one such scheme; Fink, Beak, & Taddeo [1971] for a more process-oriented approach), of particular interest to this study are magnitude, immediacy, locus, and activeness. Response magnitude refers to the extent and permanence of the response. Response immediacy refers to how quickly the response is implemented. Response locus refers to the area that the response targets for change and can vary between internal and external. Response activeness refers to whether the organization attempts to deal directly with the strategic issue or fails to address it by using various avoidance or coping mechanisms. These response dimensions are closely and logically related to the stock assessments, as will be shown below.

These four response dimensions also figure prominently in the interpretationist literature on organizational response. Ford (1985) dichotomized response strategies as either external or internal (the locus
measure here). Ford and Baucus (1987) addressed the dimensions of activeness and locus in their model of adaptation to performance downturn. Dutton and Jackson (1987) pictured responses to strategic issues as varying along target (internal or external) and magnitude. Dutton and Duncan (1987) presented the idea of strategic momentum, and how greater amounts of momentum drive larger and quicker responses. The dimensions of magnitude and immediacy are also of interest in the literature on responses to competitive moves (Smith & Grimm, 1991; Smith, et. al., 1991; Chen, et. al., 1992).

Response magnitude captures the extent to which organizational changes might be classified as revolutionary (Pettigrew, 1987; Miller & Friesen, 1982, 1983; Meyer, Brooks, & Goes, 1990). Responses that could be considered of large magnitude are those involving changes in many organizational components, changes in the interpretation system itself, or changes that are of a permanent, rather than a temporary, nature (Dutton, & Jackson, 1987). Large-magnitude responses are likely to be more costly in resources than small-magnitude responses.

Responses can also vary along the dimension of immediacy, or the amount of time elapsed between issue interpretation and the initiation of a response (Ansoff 1975, 1980; Smith & Grimm, 1991; Chen, et. al., 1992). Immediacy is lower the greater the amount of elapsed time.

Responses can also be measured along the dimension of locus, whether the response is internal or external (Miles, 1980; Milburn, et. al., 1983). Internal responses focus on altering administrative arrangements to adjust to the issue, such as altering organization design, changing the interpretation system, and instituting new programs. (Ford, 1985; Ford & Baucus, 1987). External responses, on the other hand, can take the form of
domain offense, domain defense, domain creation, or domain abandonment (Ford, 1985; Miles, 1982; Zammuto & Cameron, 1985).

The fourth dimension along which organizational responses to emerging strategic issues can be measured is activeness. Active responses are those undertaken to deal directly with the emerging issue (Ford & Baucus, 1987) and they consist of the internal and external responses listed above. Passive responses, on the other hand, do not attempt to deal with the issue and may include anger, denial, alterations of the importance of the issue, and resignation (Ford & Baucus, 1987). Fink, et. al. (1971) characterize the first two phases of organizational crisis as shock and defensive retreat, and the actions (or inactions) of organizational decision makers during these stages, such as avoidance, wishful thinking, helplessness, resistance to change, or indifference are characteristic of passive responses.

Summary

Chapter Two started with a review of various types of issue management models appearing in the literature. These models tend to follow a three-step sequence of identification, analysis, and response. More recent models have tended to focus more on the link between analysis and response, however, as well as emphasizing the importance of context. The focus of the review then shifted to issue interpretation itself. While the language of the interpretational approach to understanding organizational environments will often be used, this research is firmly grounded in the perceived environments perspective. In their attempts to understand complex external environments, organizational actors respond to various issues emanating primarily from the external environment. Three perspectives on responding to such issues were reviewed; responding to strategic issues, social issues, and competitor's moves.
The chapter ended with an in-depth discussion of a model of issue interpretation and response that is used as the framework for this dissertation. Issue interpretation is influenced by the interpretational context and the characteristics of the issue itself. Interpretations are made concerning the urgency of the issue, the degree of understanding the organization has concerning the issue, and the capability that the organization has to effectively respond to the issue. These interpretations are related to three critical response assets, time, information, and resources, that are necessary for an organization to formulate and implement an issue response. Interpretation effects issue response and these responses can vary along magnitude, immediacy, locus, and activeness.

The interpretation-response model forms the framework from which the hypotheses for this dissertation are drawn, concentrating, as has been the case in much of the recent literature, on the link between interpretation and response.
Chapter 3 - Hypotheses

This chapter begins with a brief review of the assessments made during the interpretation stage, then each of the response dimensions is discussed in turn, where the stock assessments are related to each response dimension.

Relationship Between Issue Interpretation and Response

It was demonstrated that three assessments are made during the issue interpretation stage of the SIM process. These relate to the stock of various response assets, assets that will be needed to formulate and implement a response to a strategic issue. The urgency assessment relates to the asset of time, the understanding assessment relates to the asset of information, and the capability assessment relates to the asset of resources. These assessments mean more than simply measurement of a response asset and have implications for the kinds of responses that are needed and feasible. The specific relationships between interpretational assessments and response dimensions are included in Figure 2.

For example, a lack of time indicates an urgent situation, implying that a response needs to be made sooner than later. A lack of information indicates a low level of understanding. This means the organization will have a low degree of certainty as to which response is best. Further, a lack of resources indicates low organizational capability, meaning that the organization will face constraints in the kinds of responses that are feasible. These assessments have implications for the organization's response, and how the response dimensions are influenced by them is discussed next.

Response magnitude. The assessment of issue capability influences response magnitude. If decision makers within an organization do not perceive that adequate resources are on hand, then the array of
All Hypothesized relationships are positive.

Figure 2 - Relationships between the Stock Assessments and Issue Response

possible response options will be constrained (Dutton & Duncan, 1987) and the magnitude of the response the organization does manage to enact will be correspondingly small. On the other hand, if capability is high, the organization thinks resources do exist for a response of large magnitude and they are more likely to be expended. Chen, et. al. (1992) found that the degree of difficulty (lack of capability) of responding to an issue was negatively related to the magnitude of reaction, measured by the number of responses, a finding broadly supportive of the argument made here. This positive relationship is pictured in Figure 2.

Response magnitude is also influenced by the understanding assessment. When the stock of information is low, an organization is not likely to perceive that a large-scale change is feasible due to the uncertainty
involved (Ansoff, 1980; Dutton & Duncan, 1987). In this case the response the organization implements will be of smaller magnitude, suggesting a positive relationship between the understanding assessment and response magnitude. This is pictured in Figure 2.

Thus,

H1a - Capability has a significant, positive affect on Response Magnitude. Stock assessments of high capability lead to large magnitude responses, and stock assessments of low capability lead to small magnitude responses.

H1b - Understanding has a significant, positive affect on Response Magnitude. Stock assessments of high understanding lead to large magnitude responses, and stock assessments of low understanding lead to small magnitude responses.

Response immediacy. When the assessment of urgency is low, an organization believes that it is not necessary to formulate a response quickly and the response, in whatever form it takes, is likely to be delayed (Dutton & Duncan, 1987; Webb & Weick, 1979). When the urgency assessment is high, however, the response will be more immediate (Ansoff, 1980). Time pressure and the existence of deadlines strongly influence the urgency assessment, and research has shown the presence of deadlines to motivate those under them to higher levels of exertion the closer the deadline nears (Webb & Weick, 1979). Hence, more urgent issues lead to more immediate responses. Also, MacMillan, et. al. (1985) found that banks responded more quickly to visible competitor product introductions than to less visible ones. Issue visibility influences the urgency assessment (Dutton & Duncan, 1987), and
this finding is supportive of the positive relationship suggested here. This is pictured in Figure 2.

The understanding assessment also has a positive influence on response immediacy. When an organization has a high level of understanding related to an issue, it will require less time to obtain the information necessary to respond appropriately since it thinks it already has most of what it needs. MacMillan, et. al. (1985) found that banks responded more quickly to competitor product introductions that were similar to their present products since, in that case, their level of understanding about the competitor's product was high. This positive relationship is pictured in Figure 2.

Response immediacy is also influenced by the capability assessment for much the same reason. When an organization believes it has the capability to respond to an issue then it is possible for it to enact a response sooner, other things being equal, than when it believes it does not have the capability. When capability is high, this implies that the organization does not need to spend any additional time acquiring more resources since it already believes it has them. Some empirical research tends to support this assertion. MacMillan, et. al. (1985) found that the ease of duplication of a competitor's new product introduction is positively correlated with the immediacy of response. Chen, et. al., (1992) found that the difficulty of responding was negatively correlated with the immediacy of that response. While alternative interpretations for these results are possible, it is reasonable to think that organizations would tend to have a high estimate of issue capability in situations where ease of duplication was high, and a low estimate of capability where a response would be difficult. The positive
relationship between issue capability and immediacy is also pictured in Figure 2.

Thus,

**H2a - Urgency has a significant, positive effect on Response Immediacy.** Stock assessments of high urgency lead to quicker, more immediate responses, and stock assessments of low urgency lead to slower, less immediate responses.

**H2b - Understanding has a significant, positive effect on Response Immediacy.** Stock assessments of high understanding lead to quicker, more immediate responses, and stock assessments of low understanding lead to slower, less immediate responses.

**H2c - Capability has a significant, positive effect on Response Immediacy.** Stock assessments of high capability lead to quicker, more immediate responses, and stock assessments of low capability lead to slower, less immediate responses.

**Response locus.** The understanding assessment influences response locus. When understanding is low organizations are more likely to gravitate toward responses in areas where they have greater control (Jauch & Kraft, 1986). It can be expected that the degree of control an organization has over its internal operations far exceeds the control it has over its external environment. Although organizations may, through various means, gain some control of their external environment (Pfeffer & Salancik, 1978), control can be exercised internally by management directive. Indeed, this directive role for management is at the heart of the very idea of "organization" (Coase, 1937). It follows, then, that when the assessment of
understanding is low, organizations will be attracted toward internal responses. When there is a high perceived level of understanding, however, organizations are less likely to feel constrained by a lack of control and will implement external responses with greater frequency. Figure 2 illustrates this positive relationship.

The issue capability assessment is likely to have an impact on response locus. This is based on the assumption, mentioned above, that internal responses are subject to a greater level of control than external responses. Because of the inherent lack of control over external responses, organizations may face unexpected contingencies in their implementation, contingencies that require the expenditure of additional resources to assure the successful resolution of the strategic issue. Internal responses, being more under the control of the organization, will not be as susceptible to unexpected complications in their implementation and would thus not require the expenditure of additional resources. Low levels of capability indicate that the organization thinks resources for a response are lacking, and so organizations will prefer to implement responses where there is a higher degree of control. Thus, internal responses are more likely to be selected when the issue capability assessment is low. Where the issue capability assessment is high, however, the organization does not feel constrained by a low level of resources and so is more likely to consider implementing external responses. Figure 2 captures this positive relationship.

Thus,

\[ H3a - \text{Understanding has a significant, positive effect on Response Locus. Stock assessments of high understanding} \]
lead to external responses, and stock assessments of low understanding lead to internal responses.

H3b - Capability has a significant, positive effect on Response Locus. Stock assessments of high capability lead to external responses, and stock assessments of low capability lead to internal responses.

Response activeness. What kinds of interpretations lead to passive responses? Passive responses can be expected when the level of stress is either very low or very high (Ford & Baucus, 1987). Where stress is very low, as in a case of a very slight threat or a slight to moderate opportunity, organizations are likely to dismiss the issue as being not important or to deny that it has any relevance. This type of response can appear very functional when the organization believes that the issue may be temporary (Weitzel & Jonsson, 1989).

In response to very threatening issues, where the assessment of urgency is high and assessments of capability and understanding are low, although active responses are definitely required, organizations are again likely to respond passively, relying more on coping behaviors than problem-solving responses (Anderson, 1976). This passive response is somewhat similar to a deer staring at the headlights of an onrushing automobile and has been called the threat-rigidity effect (Staw, Sandelands & Dutton, 1981). In such situations, organizations tend to restrict the flow of information and continue in the previous course of action. Often, organizations will escalate their level of commitment when such challenges to the present course of action exist by justifying past actions (Dutton & Duncan, 1987), making an active response even less likely than before, since organizations will expend effort justifying the lack of change (Staw, 1981; Whyte, 1986).
In terms of the stock assessments, when understanding is low, for example, higher levels of capability would not have as great of an impact on response activeness as when understanding is higher. In an uncertain situation the amount of resources would matter less to an organization than when understanding is high. Capability would have the same impact on understanding. High levels of urgency, however, would reduce the impact of both the understanding and capability stock assessments. These interaction effects would all be consistent with the threat-rigidity hypothesis. Since urgency has an opposite influence in interaction than that of understanding or capability, it will be reverse-scored for these interaction tests.

Alternatively, active responses are likely when a high level of issue urgency or issue knowledge exists or when an organization perceives that there are sufficient resources to respond. Dutton and Webster (1988) found that when an issue was perceived as feasible (high in both capability and understanding) managers tended to direct more attention to it. When issue understanding or issue capability is high, then, a more active response stance will obtain. Also, issues assessed as low in urgency are more appropriately dealt with through passive responses, allowing organizations to focus attention on more pressing concerns (Weitzel & Jonsson, 1989). The individual, positive effects of the urgency, understanding and capability assessments are illustrated in Figure 2.

Thus,

\( H_{4a} - \) Urgency has a significant, positive effect on Response Activeness. Stock assessments of high urgency lead to active, direct responses, and stock assessments of low urgency lead to passive, indirect responses.
H4b - Understanding has a significant, positive effect on Response Activeness. Stock assessments of high understanding lead to active, direct responses, and stock assessments of low understanding lead to passive, indirect responses.

H4c - Capability has a significant, positive effect on Response Activeness. Stock assessments of high capability lead to active, direct responses, and stock assessments of low capability lead to passive, indirect responses.

H4d - The interaction of Understanding and Capability has a significant, positive effect on Response Activeness. Stock assessments of high understanding strengthen the effect of capability on response activeness, and stock assessments of low understanding weaken the effect of capability on response activeness. Capability affects the relationship between understanding and response activeness in the same manner.

H4e - The interaction of reverse-scored Urgency and Understanding has a significant, positive effect on Response Activeness. Stock assessments of high urgency weaken the effect of understanding on response activeness, and stock assessments of low urgency strengthen the effect of understanding on response activeness. Understanding affects the relationship between urgency and response activeness in the same manner.

H4f - The interaction of reverse-scored Urgency and Capability has a significant, positive effect on Response
Activeness. *Stock assessments of high urgency weaken the effect of capability on response activeness, and stock assessments of low urgency strengthen the effect of capability on response activeness. Capability affects the relationship between urgency and response activeness in the same manner.*

Summary

Chapter 3 contained the hypotheses tested in this dissertation. The effects that the three stock assessments have on the four response dimensions were delineated. Generally, when Urgency, Understanding, and Capability are high then Magnitude, Immediacy, Locus, and Activeness are hypothesized to be high, as well. This is reasonable because the three interpretation variables represent assessments of the amount of response assets the organization has. The higher these are, the more likely it is that organizations will believe that larger, faster, more external, and more direct responses are both possible and necessary.

Chapter 4 presents the research methodology used to test these hypotheses.
Chapter 4 - Design and Procedure

This chapter begins with an explanation of the industry, issue, and sample. The measures used in this dissertation are then discussed, as is the use of retrospective accounts, their pitfalls, and the means used to minimize these drawbacks. Next, the data collection procedures are discussed and the chapter concludes with a brief description of the analytic procedures used.

Industry, Issue, and Sample

Milliken (1990) concluded that studying the interpretation of specific environmental changes was a useful way to learn about the factors that influence the issue interpretation process. She examined how college and university administrators interpreted the decrease in the number of 18-to-22 year olds, an age group from which these institutions draw most of their students. The best way to test the hypotheses posited here would be to follow a similar approach. Thus, a specific change for one industry will be used to test the hypotheses. Also, by examining one issue in one industry, the influence of these two areas on the independent and dependent variables will be held constant.

The industry. The population selected for study here is the restaurant industry (SIC 5812). Although some definitional ambiguity exists concerning the types of establishments that populate this industry, "(F)ast food' generally means food served to a patron at a self-service counter or through a drive-in window. . . [either] prepared in advance . . . or cooked to order . . ." (Emerson, 1990: 17). The view taken here is somewhat broader, including franchise restaurants that feature sit-down eating and service. Consisting of 160,000 individual restaurants that serve about 46 million Americans every day who buy an average of $250 worth of food a year (Jacobsen & Fritschner, 1991), the fast-food industry has a major impact on American food
consumption. Forty percent of the average American family's food budget goes toward eating out and most of this money is spent on fast food, which has increasingly come under attack for its poor nutritional value (Clark, 1991; Breo, 1990). The economic impact of the industry is significant, with sales of $74 billion a year (Clark, 1991). McDonald's alone, the largest company in the industry, had 1990 sales of almost $19 billion in its nearly 12,000 outlets worldwide. It has been estimated that 1 out of 15 Americans initially entered the work force through employment at McDonald's (Love, 1986) and this one fast-food company has a larger job-training program than the U.S. Army through which a broad range of work skills are taught (Clark, 1991; Wildavsky, 1989). The restaurant industry includes numerous segments, such as hamburgers, chicken, pizza, Mexican, seafood, and budget steak houses (Emerson, 1990).

The impact of this industry on American culture has also been profound as it has come to represent to many the acme of American throw-away society (Monninger, 1988). This high-visibility industry has, in turn, been affected by changing social attitudes in a variety of ways and has been the focus of various criticisms in recent years. Companies within this industry have been influenced by societal concerns about nutrition, the environment, and meaningful work, not to mention other strategic issues concerning demographic shifts and increasing levels of industry price rivalry (Clark, 1991). The presence of numerous such strategic issues in restaurants in recent years makes this industry a fertile area for the study of organizational interpretation of such issues.

The issue. The issue of the increased level of interest in nutrition is best suited to this research. This is for several reasons: its potential impact in relation to the other issues; a readily identifiable history; and a time frame
recent enough for respondents to be able to recall critical information, yet
long enough ago for organizations to have had time to interpret and respond
to it. After a brief history of the issue of increased nutrition awareness,
these reasons will be discussed in greater depth.

The issue's development began in the late 1960s when a White House
conference on nutrition and health drew attention to widespread
malnutrition (Clark, 1991). Such concerns lay dormant for some time.
Americans became more health conscious in the early 1980s, however,
demonstrating this concern through both increased physical fitness and
better eating habits. Americans became increasingly aware of the
deleterious effects of dietary fat and were concerned about reducing their
intake of it (Piscatella, 1991). Since fast-food is quite high in fat, a few
companies during this time introduced some healthier items, mainly salads
and salad bars (Clark, 1991), but most made no changes at all. What remained
to bring this latent issue to the forefront was an awareness of the connection
between fat and fast food.

Phil Sokolof made this connection in the minds of the American
public. In the spring of 1990, he ran a series of hard-hitting advertisements
that accused fast-food companies of having too much fat in their fare (Breo,
1990). Sokolof was a successful executive who suffered a heart attack while
still relatively young and who blamed his once high-fat diet for his poor
health. In a matter of weeks, several large firms changed the way they
prepared french fries, although there were denials that it had anything to do
with the ads (Clark, 1991). Before 1990 was out, McDonald's began test
marketing a low-fat hamburger, the McLean Deluxe, and since then other
firms have followed with lower-fat selections of their own (Hume, 1990;
This issue has affected other areas of concern for the industry, such as minority relations and governmental regulation. Fast-food companies began to be criticized for their part in the poor nutrition of those living in the inner city and the issue has put them on a more defensive stance in the long-running battle with the Food and Drug Administration to require labeling of fast food products (Clark, 1991). The issue has also opened a niche for establishments offering a lower-fat menu to enter the restaurant industry, thus increasing competition (Whittemore, 1991). Fast food menus and organizations are likely to continue to evolve in the future in response to nutritional concerns, but the initial responses have been implemented and the industry seems to be closer to finding an equilibrium related to this issue.

The issue of increased nutritional concerns is particularly relevant to the fast-food portion of the restaurant industry because its food is high in such unhealthy food categories as saturated fat, cholesterol, and salt that are associated with various physical maladies such as high blood pressure, some forms of cancer, and heart disease (Clark, 1991). This issue, thus, strikes at the legitimacy of the industry in ways that public concern over excessive trash or low-paying, dead-end jobs do not. The potential threat to legitimacy increases the likelihood that companies in the industry will believe themselves affected by it in some way and makes it the preferred issue to study.

The issue of nutritional concerns related to health food is preferred because it also has a readily identifiable history. The issue was latent for much of the decade of the 1980s but erupted suddenly and noticeably in the spring of 1990 when Phil Sokolof ran his very pointed and aggressive advertisements. The issue has not gone away since, but has been sustained by further inquiry into the nutritional value of fast foods, including doubt.
concerning the value of newer, "healthier" items (Roberts, 1991; "Fast Food," 1991). Thus it is easy to anchor a data-collection instrument around specific incidents and time periods that should serve to increase the equivalence of data between organizations.

The time frame also makes this issue suitable for study. The issue came to the forefront about three years ago, recent enough that it would be possible for respondents to recall crucial information, but long enough ago for the organization to have formulated and implemented a thorough issue response. This last requirement is quite important, since for the response dimension of immediacy to have any meaning a certain period of time must have elapsed. Also, responses of large magnitude and that are active might require more time to implement and thus would be missed if the strategic issue studied occurred too recently.

Thus, by focusing on how restaurant firms interpreted and responded to the strategic issue of increased nutrition awareness it is possible to test the hypotheses posited previously. A discussion of specific measures used in this study follows.

**Measures**

**Interpretation variables.** The data interpretation stage of the SIM model contains the stock assessments, involving the level of response assets needed to formulate and implement a response to a strategic issue. The three stock assessments are urgency, understanding, and capability. These involve assessments of the levels of time, information, and resources, respectively. The stock assessments were measured with Likert-scale items drawn from various sources. Appendix B contains a list of these scales.

Issue urgency was measured using eight items corresponding to the salient dimensions of an issue that lead to an assessment of urgency.
mentioned in Dutton and Duncan (1987) and Dutton, et. al. (1990). These items are listed in Appendix B and concern organizational responsibility, anticipated issue duration, time pressure, issue importance, and issue visibility. These eight items were summed to represent the perceived urgency of the issue and the reliability assessed.

Issue understanding was measured with a seven-item response certainty Likert-scale drawn from Milliken (1990) and, based on initial pre-test comments, simplified for use in this study. These items appear in Appendix B. The reliability of this scale when used in Milliken's study was alpha = .75, which she considered acceptable. Response certainty represents a measure of the stock of the response asset of information an organization has and is equivalent to the understanding assessment.

Issue capability was measured two ways: globally and by its components. The global measure was a seven-item Likert-scale that assessed the overall impression of whether the organization had adequate resources to respond effectively to the issue of consumer nutrition awareness. These items are also listed in Appendix B.

Following Hofer and Schendel's (1978) and Barney's (1991) discussion of firm resources, the items of the component capability scale measured four different areas: financial resources, organizational resources, human resources, and technological resources. These areas are also included in other lists of organizational resources found in Digman (1986), Thompson and Strickland (1983) and Porter (1980). These scales are presented in Appendix B. Each of the subscales has four items, except the organizational one, which has five.

**Response variables.** Four dimensions of organizational response were discussed: magnitude, locus, activeness, and immediacy. Data for these
variables were collected through the following procedure. First, a list of alternative responses to the strategic issue of increased nutrition awareness was generated. This list, as well as the whole questionnaire, appears in Appendix C. The appropriateness of the list as well as its breadth of coverage was assessed by having several experts familiar with the fast-food industry examine it.

A panel of experts familiar with the fast-food industry then rated each alternative response as to its magnitude, locus, and activeness along three separate four-point Likert-scales. A description of response magnitude, locus, and activeness was provided to each expert along with the list of responses. A Delphi panel approach was used to elicit two rounds of responses (Dalkey & Helmer, 1963; Helmer, 1966). The median response scores for each variable from the second round represent the expert-assigned ratings. This list of possible responses was included in the mail-out questionnaire and respondents were asked to identify the responses their particular organization implemented and the approximate date of each response.

The scores for each organization along response magnitude, locus, and activeness were calculated as follows. Table 2 contains the operationalization of the dependent variables. Magnitude was operationalized in three different ways: the number of responses implemented from the list (MAGNUMBR), the sum of the magnitude ratings for all responses implemented (MAGRATIN), and the ratio large responses to small responses (LAR/SMA). Locus was operationalized in two ways: the ratio of external responses implemented to internal responses implemented (EXT/INT) and the number of external responses implemented (EXTNUMBR). Activeness was also operationalized in two ways: the ratio of active responses implemented to passive responses.
implemented (ACT/PAS) and the number of active responses implemented (ACTNUMBR). In cases where more than one respondent replied for an organization, the scores from different respondents were averaged to obtain the final variable values.

Table 2 - Operationalization of the Dependent Variables

**Magnitude**

MAGNUMBR - the number of implemented responses

MAGRATIN - the sum of the magnitude ratings of the implemented responses

LAR/SMA - the ratio of large implemented responses to small implemented responses

**Immediacy**

IMMYEAR - the year of the initial implemented responses minus 1990

**Locus**

EXT/INT - the ratio of external implemented responses to internal implemented responses

EXTNUMBR - the number of external implemented responses

**Activeness**

ACT/PAS - the ratio of active implemented responses to passive implemented responses

ACTNUMBR - the number of active implemented responses

These multiple operationalizations were used due to the various ways of defining each one. This approach increases confidence in the content validity of these measures. This multidimensional approach can also indicate how robust are the results. Furthermore, since these dimensions have not often been operationalized in the past, there is very little previous research.
to indicate which specific measure would be the best to use. How the multidimensional nature of these constructs was captured is discussed next.

**Response variable operationalization.** Each of the three magnitude measures captures a slightly different aspect of this construct. An organization might respond to a response in a large way by implementing more responses to a strategic issue as opposed to fewer. This view of magnitude is captured by counting the number of responses (MAGNUMBR). Alternatively, an organization that implemented a few large responses instead of numerous small responses could be said to have responded in a large manner. Summing the magnitude ratings for all responses implemented captures this aspect (MAGRATIN). Finally, if many of the responses implemented were of significant magnitude, the organization could be said to have had a large response set. Measuring the ratio of large responses to small captures this aspect (LAR/SMA).

Response locus also has various dimensions, two of which are addressed in the measures used here. The ratio of external responses to internal ones (EXT/INT) indicates the tendency of an organization to focus its attention outside itself in dealing with a strategic issue. If an organization implements only two responses, however, and one is external, but another organization implements ten responses, three of which are external, EXT/INT does not adequately capture the fact that the second organization implemented three times the number of external responses. This aspect of locus is captured by measuring the absolute number of external responses (EXTNUMBR).

Similar logic applies to the activeness measures. The ratio of active to passive responses (ACT/PAS) indicates the tendency of an organization to implement responses that directly addressed the strategic issue. It is
necessary to measure the absolute number of active responses (ACTNUMBR), as well, to take into account cases where an organization implemented many responses, only a few of which are active, as opposed to another organization that only implemented one response, which was active. ACT/PAS would rate the latter firm as having a more active set of responses while ACTNUMBR would rate the first firm as more active.

It is necessary to consider the organization's responses as a whole due to the organizational level of analysis. This means that multiple responses, while perhaps being discrete events, all form part of the response-set an organization puts in place vis-a-vis a strategic issue. The measures above reflect this consideration.

Response immediacy was measured in two ways: (1) the year of the first response the company took minus 1990 (IMMYEAR), and (2) IMMYEAR multiplied by twelve plus the month (1 for January, 2 for February, etc.) (IMMONTH). The first measure is the number of years between 1990 and the date of the first response, while the second is the number of months between January 1990 and the month of the first response mentioned. IMMYEAR is somewhat coarse-grained while IMMONTH is more fine-grained. The first measure was necessary because, while almost all the respondents could recall the year that a response was taken, not all of them could recall the month. In the cases of companies with multiple respondents, the earliest date mentioned by any of the respondents is the one used. These measures indicate how quickly it took the organization to initially respond.

Use of retrospective accounts. The use of retrospective accounts as data sources in strategy research has been the subject of investigation (Golden, 1992; Schwenk, 1985; Huber & Power, 1985). The consensus of this research is that while there can be limitations with such data, there are
instances where it must be used and it can be collected in such a way as to minimize problems with it.

This research relies on such data heavily. Sources other than retrospective accounts may contain information on some of the variables to be included in this research, but the interpretational variables are perceptual in nature and can only be measured by asking organizational participants as to their recollections. Thus, retrospective accounts must be used.

There are various biases involved in the use retrospective accounts such as hindsight bias, attribution errors, cognitive limitations, and social desirability (Huber & Power, 1985; Schwenk, 1985). Golden (1992) found that CEOs were not able to reliably recall organizational strategy after a two-year interval when compared with how they had assessed that strategy two years earlier. While this result may have been due to the nature of the collection instrument (single-item measures of strategy have been criticized on reliability grounds [Zahra & Pearce, 1990]), it does indicate that such data should be collected with care and used with caution. These authors have, however, recommended ways to minimize these problems. A brief discussion follows of seven of those techniques used here.

(1) Including explanations of questionnaire sub-scales that legitimate responses of either extreme can be one way to motivate respondents to provide accurate information and can reduce social desirability bias in some instances (Golden, 1992; Sheatsley, 1983). Such an explanation was included at the beginning of the independent variable subsection where social desirability might be a problem.

(2) Organizational respondents are also more likely to provide information if, to the extent possible, confidentiality and anonymity are
maintained (Huber & Power, 1985). The cover letter that was mailed with each questionnaire assured the respondent of the confidentiality of the data. Appendix D contains a copy of the letter that was used.

(3) Executive-level people are less likely to fill out questionnaires that require a significant time commitment (Huber & Power, 1985), and researchers are encouraged to be frank about this. A reliable time estimate was made during the pre-test (twenty minutes) and included in the cover letter (in Appendix D).

(4) Executives are more likely to show interest in providing information if doing so can be viewed in a useful light (Kincaid & Bright, 1957). Following Huber and Power (1985), the cover letter stressed the usefulness and importance of this research.

(5) Retrospective accounts of perceptions are particularly prone to bias when compared to recollections of facts (Golden, 1992). One way to assist respondents in accessing subjective information correctly is to ask several factual questions related to the period the questionnaire involves. This can increase the salience of that period for the respondent (Boeker, 1989). Several questions involving such information were included at the beginning of the respondent questionnaire, page one of which appears in Appendix E.

(6) Since different individuals are likely to recall events differently, it is advisable to ask multiple respondents familiar with a single situation (Schwenk, 1985). Perceptions of organizational phenomena are likely to differ between individuals for all kinds of reasons (Hambrick & Mason, 1984), and responses from one person may tend to offset the recollection biases of another. Multiple questionnaires were sent to different individuals in each organization in an attempt to obtain multiple responses.
(7) Finally, many respondents do not prefer a structured format like the respondent questionnaire followed. Huber and Power (1985) recommend encouraging respondents to comment or elaborate on their answers to the Likert-format questions. Instructions telling respondents to feel free to do this were included in the questionnaire.

These techniques will not eliminate all the problems with data derived from retrospective accounts, but should serve to attenuate some of them.

Collection Procedures

Pre-test. The organizational informant questionnaire was pre-tested twice. The initial test was by distribution to MBA students and recent MBA graduates of a small, deep-south, private college. The institution offers an MBA in executive leadership, and has attracted students with extensive experience in business and the public sector. A brief case study about one fast-food restaurant's response to the issue of nutrition was included with the questionnaire (n = 20). Comments were requested concerning the understandability of the instructions and of the questionnaire items.

Of the twenty respondents, thirteen provided information on the amount of their past work experience. On average, these thirteen respondents had 14 years of work experience. Five of the thirteen had managerial experience, as well. These five averaged almost 13 years of experience as a manager. Their backgrounds were wide-ranging, including engineering, business administration, information systems, accounting, finance, and government relations. None of them appeared to have experience in the restaurant industry, however, and so, after the questionnaire was altered, a second pre-test using a sample of restaurant managers and executives was performed.
The scales for the variables Urgency, Understanding, and Capability (global) all had alphas of greater than .64, and after some item trimming (Carmines & Zeller, 1979) the reliabilities ranged from .69 to .78. This was considered to be very good, since two of these scales were developed for this research. Nevertheless, some of the trimmed items were re-worded, and items were added to the Urgency and Capability (global) scales to improve future reliability.

The reliability of the subscales of the Capability (component) variable was also assessed, and three of them, Financial, Human, and Organizational had good reliabilities ranging from .72 to .87. The Technological subscale only had a reliability of .36 and so was changed by keeping the two items that had the highest inter-correlation and rewording the other two.

A second pre-test was then conducted using the modified questionnaire. Questionnaires were distributed to top management personnel of restaurants in a moderately large, southern city (twelve usable responses were received). Results from this second pre-test indicated the favorable impact of the previously discussed changes.

The alphas for the Urgency, Understanding, and Capability (global) scales ranged from .72 to .88. Ironically, the two new scales, Urgency and Capability (alphas = .88 & .86 respectively), performed better than did the Understanding scale (alpha = .72), which was based on Milliken (1990). The Understanding scale's reliability was still considered adequate, however.

The Capability (component) subscales performed even better, with alphas ranging from .79 (for Human) to .97 (for Financial). The Organizational subscale had an alpha of .89, while the Technology subscale had an alpha of .90, which was much improved. These reliabilities were
higher than expected, since each of these subscales had been developed for this research.

No changes were made because these results were very good. The generally higher reliabilities were due to the changes made based on the first pre-test, as well as the use of actual restaurant managers who were more intimately familiar with the issues in question than the MBA students were.

The expert panel questionnaire was pre-tested on a set of four individuals, two who were familiar with the restaurant industry through work experience, and two others who had academic qualifications in the management area, as well as extensive work experience. Changes were made to the expert panel questionnaire based on their recommendations and on the recommendations of faculty colleagues who examined it. Some comments indicated that the definitions for magnitude, activeness, and locus were too brief, and these were lengthened and examples added. Also, the terms "activeness" and "locus" were changed on the questionnaire to "responsiveness" and "focus" to make these constructs easier to comprehend. (The original wording will be used in this paper, however.)

**Population and sample.** The population of interest is restaurants listed in the SIC code of 5812 -- Eating Places, that were in existence for at least a year before the spring of 1990 when Phil Sokolof ran his attention-grabbing advertisements and forced the issue of nutrition to the forefront. Organizations started after the spring of 1990 were not in existence to have been able to respond to this issue (although their existence may have been a response to the issue). Although the one-year time limit is somewhat arbitrary, organizations that were not in existence for at least a year before the issue strongly emerged were still going through the difficulties of start-
up quite unconnected to the issue of nutrition and would provide very noisy data.

The sample was drawn from several sources. The basic criterion for including a company in the sample was whether information could be found listing the names and positions of executives of the firms in question. Initially, a list of franchise restaurants was collected from the January 1993 issue of *Entrepreneur* magazine, which publishes a list of franchise organizations every January. The 1993 *Entrepreneur* list includes 216 different establishments under its "fast-food" category and 65 under its "restaurant" category, yielding a total of 281 potential respondent firms. This list was supplemented by *The Franchise Source Book* (Bond & Bond, 1993) which contained information on restaurant firms.

These companies were sent a letter requesting a copy of their UFOC (Uniform Franchise Offering Circular). The UFOC is a document that companies selling franchises are required to supply to prospective franchisees. It is generally a very lengthy document, which contains information on all aspects of the company, including a listing of the top managers along with their job titles and work experience. Sixty-one companies responded by sending their UFOCs, a low response rate explained by the size of these documents: it can be expensive to mail to everyone requesting a copy. For this reason, many of these companies only send UFOCs to individuals or companies that can demonstrate a significant interest in buying a franchise.

Since this list of companies was clearly inadequate in size, and since it only contained companies that franchise, alternative sources were consulted. Two reference works, *The Directory of Corporate Affiliations: Who Owns Who*, and *Standard & Poor's Register of Corporations, Directors, and Executives*,...
were consulted. These contain information on the identity and background of corporate executives and officers of both publicly traded and privately held companies or their subsidiaries. *Standard & Poor's Register* also contains information on executive tenure and so is useful in determining which executives were employed by the company at the time in question.

Next, executive-level individuals were identified who were with the company at the beginning of 1990 and who were also involved with the SIM system or the nutrition awareness issue in some fashion. Although in many cases the list of executives limited the amount of choice that was possible, the relevant job titles were public affairs, planning, market research or market communications (Lenz & Engledow, 1986). To this list of positions involved with the SIM system can be added those with overall responsibility, such as president, chief executive officer, chief operating officer, and chief information officer. Corporate officers were also considered to be possible informants, due to their awareness of the strategic decisions and responses made by the firm. These individuals ought to be familiar with the nutrition issue and the responses that their organization implemented. One thousand six hundred eighteen names were collected from 461 different restaurant companies.

**Data collection.** Once the list of names and addresses of the organizational informants was collected, a copy of the pre-tested questionnaire, a cover letter explaining the research and requesting cooperation, and a self-addressed stamped envelope were mailed to each individual. Questionnaires were mailed to several individuals in each organization, increasing the likelihood that at least one response would be obtained from each company. This procedure was necessary since
individuals may be less likely to return questionnaires addressing issues several years old.

The ideal would be to have several respondents from each organization. Data from "single-respondent" organizations, however, should still have adequate reliability because of the shared meanings, understandings and belief systems present in organizations, particularly at higher levels (Smircich, 1983; Walsh & Fahey, 1986; Ginsberg, 1990). Also, those who were interested enough in the nutrition issue to complete and return a questionnaire would probably have had intimate involvement with the organization's interpretation of it or response to it and should have been knowledgeable as to the particulars of their company's activities.

The data for the response measures (the dependent variables) were collected from the expert panel. This panel had two individuals familiar with business management in the restaurant industry, and two individuals familiar with business management through academic experience. (These were different individuals than those used in the pre-test.) The expert-assigned ratings were used to determine the degree of magnitude, locus, and activeness present in each organization's set of responses.

**Analysis Procedures**

Multiple regression analysis is the appropriate technique for testing the hypotheses. Regression is appropriate when the dependent variable is quantitative and the independent variables are either quantitative or categorical (Neter, Wasserman, & Kutner, 1985). For example, response locus (dependent variable) is associated with more than one predictor variable, these being issue capability and understanding. In this case, the partial regression coefficient of issue capability reflects the partial effect of capability on response locus while the effect of the other independent
variable held constant (Neter, et. al., 1985: 229). The dependent variables are the issue response dimensions (Magnitude, Locus, Activeness, and Immediacy) and the independent variables are the stock assessments (Urgency, Understanding, Capability).

Hypotheses 4d through 4f were tested by examining interaction terms between the different independent variables (for example, Urgency X Understanding). In this case, the three independent variables would be entered together, followed by the square terms of the variables in the interaction terms (following Venkatraman [1989] and Cortina [1993]), with the interaction terms being entered last. In this hierarchical regression procedure (Cohen & Cohen, 1983) the interaction term is only considered to be significant if it can explain a statistically significant amount of variance in the dependent variable beyond that explained by the variables entered in the previous two steps.

Summary

Chapter 4 included the methodology used in this dissertation. The restaurant industry was selected due to its ubiquity in American life and its consequent visibility and susceptibility to various strategic issues. The strategic issue of consumer nutrition awareness was selected for study because of its readily identifiable history, timing, and salience to the restaurant industry. The measures used in this study was then presented. Data for the independent, interpretation, variables were collected by questionnaires mailed to executives at restaurants. Response Capability was measured two ways, globally and by its components. Data for the dependent, response, variables were collected from these executives, as well, but calculated using information from an expert panel that rated each response along three of the four response dimensions. Due to the various ways of
conceptualizing the response variables, each of them was measured in various ways.

Due to the nature of the topic under investigation, retrospective data was collected. While there are difficulties with using this kind of data, the problems with it can be minimized through certain methodological techniques which were discussed. The questionnaire was pre-tested twice, and the measures were found to have acceptable levels of reliability. The steps taken to collect the names of executives were then identified. Multiple regression was used to test the hypotheses, it being the appropriate analytic technique for the kind of data collected.

Chapter 5 addresses the analysis of the results.
Chapter 5 - Analysis and Results

This chapter begins with discussions of the variable measures and the response rate and statistical power of the tests. Then, the results of the regression equations are presented. This chapter concludes by briefly reviewing the findings and determining to what degree the hypotheses were supported.

Research Variables

Independent variables. Questionnaires were mailed to executive-level managers in 461 companies in the eating places (SIC 5812) industry. One hundred nine usable responses were received from eighty-eight companies for an organization-level response rate of almost 19%. This is somewhat low compared to the response rates of 38.5% in Thomas, et. al. (1993) and of 27% in Greening and Gray (1994), both of which addressed similar issues and used mail-out questionnaires. This may be due to the retrospective nature of the questionnaire. Questionnaires involving events in the past are less likely to be returned and given this, 19% is a reasonably good response rate (D. J. Power, personal communication, May 9, 1994). Never the less, this raises the issue of respondent bias, and this is addressed in a section below.

The job titles (level in the hierarchy) and functional areas of the respondents are listed in Table 3. Given the small size of many restaurant organizations, some of the job titles (supervisor, director of . . . , etc.) are at high positions in the organizational hierarchy even though they may not sound like it. The large proportion of respondents in the areas closely related to responding to the nutrition issue (Operations, Marketing, Food & Beverage, Research & Development) indicates that the majority of responses were received from individuals closely involved with the day-to-day operation of their organizations.
Table 3 - Respondents' Level in the Hierarchy and Functional Area

<table>
<thead>
<tr>
<th>Level In Hierarchy (by Title)</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman, Board Member</td>
<td>5</td>
</tr>
<tr>
<td>President</td>
<td>14</td>
</tr>
<tr>
<td>Chief Executive Officer</td>
<td>14</td>
</tr>
<tr>
<td>Chief Officer</td>
<td>4</td>
</tr>
<tr>
<td>Senior Vice President</td>
<td>7</td>
</tr>
<tr>
<td>Executive Vice President</td>
<td>6</td>
</tr>
<tr>
<td>Vice President</td>
<td>22</td>
</tr>
<tr>
<td>Director of ...</td>
<td>23</td>
</tr>
<tr>
<td>Manager/Supervisor</td>
<td>14</td>
</tr>
<tr>
<td>Staff</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Level (General)</td>
<td>21</td>
</tr>
<tr>
<td>Operations</td>
<td>18</td>
</tr>
<tr>
<td>Marketing</td>
<td>13</td>
</tr>
<tr>
<td>Franchising</td>
<td>9</td>
</tr>
<tr>
<td>Food &amp; Beverage</td>
<td>8</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>8</td>
</tr>
<tr>
<td>Finance</td>
<td>6</td>
</tr>
<tr>
<td>Purchasing/Distribution</td>
<td>5</td>
</tr>
<tr>
<td>Human Resources</td>
<td>4</td>
</tr>
<tr>
<td>Law</td>
<td>1</td>
</tr>
</tbody>
</table>

Note - Totals do not sum to 109 because of missing data on some questionnaires.

activities of their respective firms and would be familiar with their responses to the nutrition issue.

The questionnaire was divided into four sections. The first section contained general questions designed to help the respondents recall events of several years ago. The second section contained items for the independent variable scales: Urgency, Understanding, and Capability. These variables were operationalized by summing the items for each respective scale. The third section contained items designed to measure capability by assessing its
components. The components assessed were human resources, organizational resources, financial resources, and technological resources. These variables were operationalized by summing the items in their respective scales, as well. The fourth section was designed to gather data on the dependent variables and is discussed below.

**Reliability and scale assessment.** The inter-item reliability of the issue assessment scales in the organizational informant questionnaire was assessed by Cronbach's alpha (Cronbach, 1951) as recommended by Venkatraman and Grant (1986). Alpha coefficients much below alpha = .7 indicate a possible problem with a scale, that being the standard cutoff for adequate reliability in exploratory settings, while alpha = .8 is suggested for theory testing (Nunnally, 1978). Given the newness of the scales employed, the lower hurdle is deemed to be the more appropriate one. Table 4 contains the reliability coefficients for the independent variables.

As can be readily seen, the reliability coefficients for all the scales except Understanding meet or exceed the alpha = .70 guidelines suggested by Nunnally (1978) (and Understanding is close), and thus exhibited good psychometric properties. Initially, the Understanding scale had 7 items, but one item had negative, although slight, correlations with two other scale items. For this reason, the item was dropped to reduce the noise in the measure (Carmines & Zeller, 1979). Trimming this item improved the scale's reliability marginally. Understanding was close enough to the alpha = .70 hurdle that it was still included in this study but since this scale did not meet the alpha = .70 hurdle, the results obtained by using it should be interpreted with caution. This scale also exhibited lower reliability than the others in the pre-tests.
**Dependent variables.** A panel of six experts, four individuals familiar with the restaurant industry through work experience and two individuals familiar with academic management, was formed. The expert questionnaire consisted of the same list of possible restaurant responses that was included in the restaurant respondent questionnaire. The experts were asked to rate each possible response as to its degree of magnitude, locus (higher ratings indicated a more external locus), and activeness.

Table 4 - Reliability Analysis for the Independent Variables

<table>
<thead>
<tr>
<th>Scale Name</th>
<th>Items in Scale</th>
<th>Alpha Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>8</td>
<td>.83</td>
</tr>
<tr>
<td>Understanding</td>
<td>6</td>
<td>.67</td>
</tr>
<tr>
<td>Capability (Global)</td>
<td>7</td>
<td>.88</td>
</tr>
<tr>
<td>Finance</td>
<td>4</td>
<td>.90</td>
</tr>
<tr>
<td>Organization</td>
<td>5</td>
<td>.81</td>
</tr>
<tr>
<td>Human</td>
<td>3</td>
<td>.73</td>
</tr>
<tr>
<td>Technology</td>
<td>4</td>
<td>.82</td>
</tr>
<tr>
<td>Capability (Component)</td>
<td>16</td>
<td>.90</td>
</tr>
</tbody>
</table>

Two rounds were conducted. One industry expert failed to return a completed questionnaire in the first round and was dropped. This left the final panel with three industry experts and the two academic experts. At the end of the first round, median responses were calculated (following the procedure in Dalkey & Helmer [1963]) and these were indicated on the
questionnaires that were sent out for the second round. The experts were advised to complete the questionnaire again, taking into account both the median rating and their initial rating. The median rating was taken again for each item and this value was used in subsequent analysis.

Of the five questionnaires that were returned at the end of the second round, only four were used to calculate the final median values. The fifth questionnaire was returned quite late and exhibited a large number of "irrational responses." In a Delphi panel, experts give an initial opinion that is followed by additional rounds where they can modify this opinion by taking into account the opinions of the other panel members. An expert using the information available to them would tend to alter his or her initial assessment in the direction of the group median or mean. An individual who lowers their rating of magnitude, for example, when the group median was higher than their initial estimate is probably not using the information provided to them in a "rational" or anticipated manner. An additional instance would be an initially low rating being raised not only to the group median, but past it (a 1 becoming a 3 when the group median was 2, for example).

The fifth expert demonstrated an unusually high tendency to answer in this fashion. In fact, this individual answered in this "odd" manner more times than the other four experts combined, 42 versus 41. Also, the faculty member who was the contact person for these experts had suspicions that the fifth expert did not actually complete the questionnaire himself the second time. The faculty member reached this conclusion based on his knowledge of some difficulties that the fifth expert was going through at the time concerning bankruptcy and starting a new business. Since this would seem to significantly increase the amount of noise in the measure (the ratio of the
subjective component of the measure to the objective component [Reaves, 1992], this individual's questionnaire was not included in the calculation of the final expert panel medians.

Using these expert-derived values, the dependent variables (magnitude, locus, and activeness) were constructed as follows. The fourth section of the questionnaire mailed to restaurant executives contained a list of possible responses that their respective organizations could have taken. They were asked to indicate which responses they had implemented and the month and year they had started each one. Appendix F contains the number of companies in the sample that implemented each of the 38 responses on the list. A close examination of this appendix will reveal that every response listed was implemented by at least one company, indicating the items on the list were quite relevant to restaurants responding to the nutrition awareness issue.

The different operationalizations of Magnitude, Locus, and Activeness were measured as follows. Each response on the list of 38 responses was assigned three ratings: the expert median score for magnitude, locus, and activeness. If the median rating for a response was a 1 or 2, that response was classified as either small, internal, or passive, depending on the purpose of that rating. If the median rating for a response was a 3 or 4, that response was classified as either large, external, or active, depending on what that rating was for. If the median rating was 2.5, the response was not classified since 2.5 represented the exact midpoint between a rating of 1 (very small, for example) and a rating of 4 (very large). Measured in this way, a response might be large but passive, active but internal, and so on. Appendix G contains a listing of how many of the 38 responses were classified large versus small, external versus internal, and active versus passive.
A significant proportion of the responses were not classified because their ratings were 2.5. A mean rating of 2.5 indicated that the experts were quite evenly divided on the nature of a particular aspect of the focal response. The omissions of such responses assured that only responses seen as unambiguously large, or external, or active, for example, were included in the calculation of these variables. This strengthens the validity of these measures.

Magnitude was operationalized in three ways: 1) the number of responses implemented (MAGNUMBR); 2) the sum of the expert magnitude medians for all responses that were implemented (MAGRATIN); and 3) the ratio of the number of large responses implemented to the number of small responses (LAR/SMA). Locus and Activeness were each operationalized in two identical ways: 1) the ratio of the number of external (or active) responses to the number of internal (or passive) responses (EXT/INT and ACT/PAS, respectively); and 2) the number of external (or active) responses implemented (EXTNUMBR and ACTNUMBR, respectively).

Other operationalizations of Magnitude, Locus, and Activeness were attempted, but were not included because of severe residual term non normality. For the three dependent variables mentioned above, the average magnitude, locus, and activeness ratings were calculated for each company. All three of these measures were negatively skewed (skewness coefficients of -2.03, -1.89, and -2.04, respectively) and extremely peaked (kurtosis coefficients of 3.47, 3.21, and 3.34, respectively). Residual analysis of the regressions using these average measures as dependent variables exhibited a very non normal residual pattern. To salvage these measures and allow them to still be used, a Box-Cox transformation (Box & Cox, 1964) was employed to identify the optimum power transformation to employ on the dependent
variables. Fifth- and sixth-order power transformations were required to minimize the error sum of squares, the Box-Cox selection criterion. Since interpretation of power transformations on this order can be problematic, and since other, more suitable, operationalizations of these three dependent variables were employed, the results involving these variables were not reported.

Immediacy, the fourth dependent variable, was operationalized independently of the expert ratings in two ways. First, the number 1990 was subtracted from the year of the first response the organization implemented (IMMYEAR). If they implemented no responses, the year of response was set to 1995. Second, the identical procedure was used but was denominated in months and not years (IMMMONTH). The results did not differ whether years or months were used, and so only one set of results for the different operationalizations was reported, those using years (IMMYEAR).

Response rate and statistical power. One hundred nine questionnaires were returned from individuals in 89 different companies. This was after a significant follow-up effort was implemented. A follow-up letter was mailed to each potential respondent two weeks after the questionnaires were mailed. Several weeks after that, an effort was made to call all the potential respondents who had not yet returned a questionnaire. Then, several weeks later, those executives who indicated that they would try to return a questionnaire were called again.

Given the organizational level of analysis, the effective sample size for determining statistical power is 89. Power considerations have traditionally been overlooked in strategic management research and Mazen, Hemassi, and Lewis (1987) recommend that these issues be addressed a priori. Power calculations were made before sending out the questionnaires to determine
the number of responses needed for good statistical power. Cohen (1977) was used as a guide, and the chance of a type I error (incorrectly concluding statistical significance) was set at alpha = .05. The chance of a type II error (incorrectly concluding statistical non-significance) should be four times as great, beta = .20 (Mazen, et. al., 1987). The target statistical power is then (1 - beta) = .80. The necessary sample size was computed using this desired level of statistical power, assuming a medium effect size (meaning an anticipated r-square statistic in the teens), and taking into account the number of independent variables in the regression equations. Using the regression equation with the most independent variables (dependent variable = response activeness: six independent variables), the required sample size was approximately n = 115. Given that most of the R-squares of the regression were in the twenties (hence the effects are somewhat stronger than what Mazen, et. al. (1987) termed "medium"), being 26 short of 115 should not represent a severe power problem. Low statistical power means that chances of Type II errors (incorrectly concluding statistical non-significance) would be enhanced. The frequency of significant relationships in the regression analyses would indicate that the merely marginal statistical power of the tests did not cause this to happen very frequently.

Response bias. Given the somewhat anemic response rate (19%), it is important to check for response bias. In other words, is the sample included in this study representative of the restaurants to which questionnaires were sent? Data on three important variables, size (measured in number of units), sales (in millions of dollars) and restaurant type (fast food versus non-fast food) were gathered from the 1991 Directory of Chain Restaurant Operators. The most relevant size measure for restaurants is number of outlets, since this measure, more than sales or profits, would indicate the visibility of such
a restaurant to publicity and notoriety related to the nutrition issue. Never­
the-less, sales was also included, as was restaurant type, in order to examine
potential sample nonrepresentativeness along several important dimensions.

Data for these variables was collected on only 71 responding firms and
175 nonresponding firms because data on the other firms was not in the
Directory. There were no significant differences between respondent and
nonrespondent firms on any of the three dimensions. Responding firms
were slightly smaller (373 units versus 477 units) than nonresponding firms
and also had lower sales ($252 M versus $503 M). Neither of these differences
was significant, however (t-values were .567 and 1.169, respectively). Forty­
six percent of the responding firms were fast food, while only 39% of the
nonresponding firms were, but this was not a significant difference, either
(t-value = .986). Thus, the sample seems to be representative.

Results

The correlations of both the interpretation and response variables are
contained in Tables 5 through 7, along with the mean and standard deviation
of each. Table 5 contains the descriptive statistics for the independent
variables. Table 6 contains the descriptive statistics for the dependent
variables. Table 7 contains the correlations between the independent and
dependent variables.

As can be readily determined, the correlations between the response
variables are, with the exception of IMMMONTH and IMMYEAR, highly
correlated with each other. Responses that were large in magnitude also
seemed to be external in focus as well as very active. This coherence
between these variables is not unexpected but the magnitude of the
correlations is notable. The immediacy variables exhibit negative
correlations because earlier responses are scaled lower than later responses.
Those companies that had early responses also tended to have large, external, and active response sets.

Urgency is highly, positively correlated with all the response variables, a result that will be shown to be robust in the regression discussion to follow. Capability and Understanding are highly correlated, which was expected, given that Dutton and Duncan (1987) presented these two assessments as parts of feasibility. The positive correlation is interesting, in a way, given that Understanding and Capability usually had different signs in the regression equations. Tolerances for the regression equations were well within acceptable limits on these two variables so this result was probably not due to multicollinearity.

Understanding was negatively correlated with most of the response variables, a result opposite of what was expected. Although not statistically significant here, they become so in the regression equations. Capability was positively correlated with most of the response variables.

The global measure of Capability was positively correlated with the four Capability component measures, which was to be expected. They also were significantly correlated with each other. These significant correlations may have caused a problem with multicollinearity in the regressions but the tolerances were within acceptable limits on these variables (from .32 to .80). The strong correlation between Technology and Organization is interesting given that these two variables often exhibited different signs, and significantly so, in the regressions. Without exception, these were the only two component variables that were correlated with any of the response variables. The two component measures not correlated with each other were Finance and Human.
### Table 5 - Descriptive Statistics

**Independent Variables**

<table>
<thead>
<tr>
<th>Mean</th>
<th>S Dev</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Urgency</td>
<td>25.92</td>
<td>5.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Understanding</td>
<td>16.27</td>
<td>3.58</td>
<td>.116</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Capability</td>
<td>24.30</td>
<td>5.88</td>
<td>.239*</td>
<td>.422***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Technology</td>
<td>13.83</td>
<td>3.42</td>
<td>.233*</td>
<td>.213*</td>
<td>.379***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Human</td>
<td>11.82</td>
<td>2.29</td>
<td>.095</td>
<td>.157</td>
<td>.350***</td>
<td>.568***</td>
<td></td>
</tr>
<tr>
<td>6. Organization</td>
<td>18.42</td>
<td>3.84</td>
<td>.180†</td>
<td>.146</td>
<td>.434***</td>
<td>.659***</td>
<td>.754***</td>
</tr>
<tr>
<td>7. Finance</td>
<td>12.79</td>
<td>4.51</td>
<td>.071</td>
<td>.033</td>
<td>.309**</td>
<td>.369***</td>
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</table>

Note - All significance tests are two-tailed.

*** - Significant at alpha = .001
** - Significant at alpha = .01
* - Significant at alpha = .05
† - Significant at alpha = .10
Table 6 - Descriptive Statistics

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<tr>
<th>Dependant Variables</th>
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<th>S Dev</th>
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<th>4</th>
<th>5</th>
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<th>7</th>
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<td>.05</td>
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<td>.894***</td>
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<td>.409***</td>
<td>-.290**</td>
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<td>IMMMONTH</td>
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<td>34.77</td>
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<td>.412***</td>
<td>-.296**</td>
<td>.997***</td>
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<tr>
<td>EXT/INT</td>
<td>.12</td>
<td>.12</td>
<td>.915***</td>
<td>.915***</td>
<td>.844***</td>
<td>.400***</td>
<td>.409***</td>
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<td>.433***</td>
<td>.984***</td>
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<td>ACT/PAS</td>
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<td>.16</td>
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<td>.973***</td>
<td>.906***</td>
<td>.363***</td>
<td>.368***</td>
<td>.911***</td>
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<td>.967***</td>
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Note - All significance tests are two-tailed.

*** - Significant at alpha = .001
**  - Significant at alpha = .01
*   - Significant at alpha = .05
†   - Significant at alpha = .10
Table 7 - Correlations Between Dependant and Independent Variables

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<tr>
<th></th>
<th>Urgency</th>
<th>Understanding</th>
<th>Capablity</th>
<th>Technology</th>
<th>Human</th>
<th>Organization</th>
<th>Finance</th>
</tr>
</thead>
<tbody>
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<td>1. MAGNUMBR</td>
<td>.408***</td>
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<td>.229*</td>
<td>.225*</td>
<td>.138</td>
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<td>-.080</td>
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<td>2. MAGRATIN</td>
<td>.406***</td>
<td>-.065</td>
<td>.229*</td>
<td>.224*</td>
<td>.143</td>
<td>.043</td>
<td>-.090</td>
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<tr>
<td>3. LAR/SMA</td>
<td>.298**</td>
<td>.033</td>
<td>.248*</td>
<td>.215*</td>
<td>.093</td>
<td>.004</td>
<td>-.116</td>
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<tr>
<td>4. IMMYEAR</td>
<td>-.141</td>
<td>-.126</td>
<td>-.070</td>
<td>-.006</td>
<td>-.115</td>
<td>-.003</td>
<td>.079</td>
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<tr>
<td>5. IMMOUTH</td>
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<td>.004</td>
<td>-.106</td>
<td>.005</td>
<td>.071</td>
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<tr>
<td>6. EXT/INT</td>
<td>.345***</td>
<td>-.093</td>
<td>.180†</td>
<td>.215*</td>
<td>.147</td>
<td>.065</td>
<td>-.057</td>
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<tr>
<td>7. EXTNUMBR</td>
<td>.394***</td>
<td>-.062</td>
<td>.187†</td>
<td>.204†</td>
<td>.133</td>
<td>.068</td>
<td>-.060</td>
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<tr>
<td>8. ACT/PAS</td>
<td>.409***</td>
<td>-.091</td>
<td>.240*</td>
<td>.197†</td>
<td>.129</td>
<td>.007</td>
<td>-.114</td>
</tr>
<tr>
<td>9. ACTNUMBR</td>
<td>.421***</td>
<td>-.081</td>
<td>.216*</td>
<td>.176</td>
<td>.107</td>
<td>-.003</td>
<td>-.114</td>
</tr>
</tbody>
</table>

Note - All significance tests are two-tailed.

*** - Significant at alpha = .001
** - Significant at alpha = .01
* - Significant at alpha = .05
† - Significant at alpha = .10
The results of the regression equations are contained in Tables 7 through 14. Each table contains two different models for each dependent variable. Model 1 is a hierarchical, polynomial, moderated regression model including the stock assessments of Urgency, Understanding, and Capability; the three squared terms, and the three interaction terms.

Hierarchical regression methodology allows the effects of additional independent variables on the dependent variable to be assessed after the effects of an initial independent variable or variables have been previously assessed and held constant. It is so named because independent variables, or sets of variables, are entered in a hierarchy through different steps. A special statistic, Δ $R^2$, is calculated which identifies the additional explanatory contribution attributable to the new variable or variables. If not statistically significant, Δ $R^2$ indicates that the additional independent variables do not add sufficient explanatory power to the model to warrant their inclusion or the interpretation of their effects.

The regression is also in a polynomial form because it contains squared terms. After the stock assessment variables are entered in the first level of the hierarchy, the squares of these three terms are entered in the second level as a precondition for testing interactions effects. This second step is necessary to hold constant any nonlinear effects that may bias the interaction terms (Cortina, 1993). It also determines if the relationship of the stock assessments with the dependent variables is curvilinear in nature. Significant t-values for these squared terms indicate the presence of such curvilinearity.

The moderated nature of the regression model comes from testing interactions between the stock assessments. Significant, positive effects indicate that the effect of one independent variable in the interaction is
strengthened by high levels of the other variable and weakened by low levels. Significant, negative effects indicate an opposite effect. All interactions are hypothesized to be positive.

To reiterate, the variables were entered into the first model in three steps. In Step 1 the three stock assessments were entered. In Step 2 the three squared terms were entered. In Step 3 the three interaction terms were entered in two different ways. First, all three interaction terms were entered as a block into the same regression equation and the summary statistics for Δ R-square and its significance noted. Then, three additional regressions were run in which each interaction was entered by itself because of severe collinearity among the three interaction terms. This multicollinearity made interpreting them individually problematic. The regression coefficients for the interaction terms were taken from this last set of regressions.

An alternative methodology for dealing with multicollinearity is suggested by Neter, et. al. (1985). They recommend differencing the collinear variables with respect to their means. While they state that this should reduce multicollinearity substantially, and recommend the use of this technique for situations involving polynomial and interaction terms, doing so had no appreciable effect on reducing the multicollinearity. Hence, results using difference scores are not reported.

Model 2 consisted of the same stock assessments of Urgency and Understanding used in Model 1, but the global stock assessment of Capability was replaced by four component measures of capability: Organizational, Technological, Human, and Financial. These six variables were entered together.

Weinzimmer, Mone, and Alwan (1994) noted the infrequent use of regression diagnostics in management research. They recommend that
residual analysis be done to assess the validity of important regression assumptions. This analysis was run for each regression in this research. With the exception of the residuals of the regressions using average magnitude, locus, and activeness discussed above, no regression's residuals exhibited significant signs of heteroscedasticity or non normality. Thus there was no reason to make any remedial adjustments and the regression results are reported as they resulted from the initial regression runs.

Response magnitude. Hypothesis 1 posited that Understanding and Capability would have a positive effect on Magnitude. Capability was measured two ways, globally and by assessing its components, and Magnitude was operationalized in three ways, the number of responses (MAGNUMBR), the summed magnitude rating of all the responses a company implemented (MAGRATIN), and the ratio of large responses to small responses (LAR/SMA). Therefore, six different regressions were run to test Hypothesis 1. Tables 8 through 10 contain the regression statistics for these equations. Although no relationships were suggested between Magnitude and Urgency, or any of the interaction terms or squared terms, these were also included in the analysis on an exploratory basis.

In Model 1, Capability was significantly positively related to MAGNUMBR, MAGRATIN, and LAR/SMA at the .05 level of significance, thus supporting Hypothesis 1. This means that as the assessment of Capability increased, the number of responses rose, the overall magnitude of the response set rose, and the responses that were implemented were more likely to be large in magnitude.

Understanding, on the other hand, was significantly negatively related to all three Magnitude ratings, the opposite of what was hypothesized. Two of these relationships, with MAGNUMBR and MAGRATIN, were
<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1 Step 1</th>
<th>Model 1 Step 2</th>
<th>Model 1 Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>.389*** (.102)</td>
<td>.413*** (.105)</td>
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</tr>
<tr>
<td>Understanding</td>
<td>-.326† (.171)</td>
<td>- .253 (.163)</td>
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</tr>
<tr>
<td>Capability</td>
<td>.220* (.107)</td>
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</tr>
<tr>
<td>Urg*Urg</td>
<td>.013 (.017)</td>
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</tr>
<tr>
<td>Und*Und</td>
<td>.056* (.027)</td>
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<tr>
<td>Cap*Cap</td>
<td>-.008 (.014)</td>
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<td>Urg(RS)*Und</td>
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<td>Urg(RS)*Cap</td>
<td>-.026 (.016)</td>
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</tr>
<tr>
<td>Und*Cap</td>
<td>-.022 (.023)</td>
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<tr>
<td>Organization</td>
<td>-.465† (.259)</td>
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<tr>
<td>Technological</td>
<td>.510* (.234)</td>
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<tr>
<td>Human</td>
<td>.512 (.395)</td>
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<tr>
<td>Finance</td>
<td>-.171 (.141)</td>
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</tr>
</tbody>
</table>

n: 87 87 87 82
Δ R-square: .219 .044 .031 .267
F-score: 7.844 1.629 1.135 4.610
Significance: .000 .189 .340 .001

***  - Significant at alpha = .001
**   - Significant at alpha = .01
*    - Significant at alpha = .05
†    - Significant at alpha = .10

Note - Coefficients are regression coefficients with the standard error reported below. Δ R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.
Table 9 - Regressions for MAGRATIN

<table>
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<tr>
<th>Independent Variables</th>
<th>Step 1</th>
<th>Model 1</th>
<th>Step 2</th>
<th>Step 3</th>
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<td>-.056</td>
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<td>(.033)</td>
<td>(.045)</td>
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<td>(.045)</td>
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<td>(.053)</td>
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<td>Human</td>
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</tr>
<tr>
<td>n</td>
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*** - Significant at alpha = .001
** - Significant at alpha = .01
* - Significant at alpha = .05
† - Significant at alpha = .10

Note - Coefficients are regression coefficients with the standard error reported below. Δ R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.
### Table 10 - Regressions for LAR/SMA

<table>
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<th>Independent Variables</th>
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<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
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<td></td>
<td>(.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Und</td>
<td>.000</td>
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</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cap*Cap</td>
<td>.000</td>
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<td></td>
<td>(.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Und</td>
<td>-.000*</td>
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<td></td>
<td>(.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Cap</td>
<td>-.000*</td>
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<td></td>
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<td></td>
<td>(.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Cap</td>
<td>-.000</td>
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<tr>
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<td>.006**</td>
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<tr>
<td>Human</td>
<td>.003</td>
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<td>(.004)</td>
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</tr>
<tr>
<td>Finance</td>
<td>-.002</td>
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<td>(.001)</td>
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</tr>
</tbody>
</table>

- **n** = 87
- Δ R-square = 0.169
- F-score = 5.700
- Significance = 0.001

<table>
<thead>
<tr>
<th></th>
<th>87</th>
<th>87</th>
<th>87</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ R-square</td>
<td>.169</td>
<td>.027</td>
<td>.065</td>
<td>.214</td>
</tr>
<tr>
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<td>3.451</td>
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<tr>
<td>Significance</td>
<td>.001</td>
<td>.437</td>
<td>.084</td>
<td>.005</td>
</tr>
</tbody>
</table>

*** - Significant at alpha = .001
**  - Significant at alpha = .01
*   - Significant at alpha = .05
†   - Significant at alpha = .10

Note - Coefficients are regression coefficients with the standard error reported below. Δ R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.

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significant at the .10 level, but the negative relationship with LAR/SMA was significant at $\alpha = .05$. This means that as Understanding increased, the number of responses fell, the overall size of the response set dropped, and companies were less likely to choose large responses as opposed to small ones. The consistency of these results across three different measures of Magnitude indicates this finding is robust. Thus, there is only mixed support for Hypothesis 1.

Model 2 also offers very weak support for Hypothesis 1. Only one of the component measures of Capability, Technological, was positively related to Magnitude, although this was with all three Magnitude measures with at least a .05 level of significance. As restaurant managers believed that their knowledge and use of technology were more of a strength, their restaurant was more likely to have more responses, a larger response set, and implement more large responses in relation to small ones.

Organization Capability, however, was negatively related to Magnitude in all three equations at the $\alpha = .10$ level. This indicates that as restaurant managers believed their systems, procedures, and administration were a strength, the number of responses fell, the size of the response set was smaller, and the ratio of large responses to small responses also decreased.

The component measures of Human and Finance were not significantly related to Magnitude in any of the regressions. Understanding was negatively correlated with Magnitude in Model 2, but in no case reaching statistical significance.

Other findings of interest were the positive, significant relationship that Urgency had with all three Magnitude measures. Of the six positive, significant correlations with measures of Magnitude (out of six possible), four were significant at $\alpha = .001$ (with MAGNUMBR and MAGRATIN) and the
other two had significance levels of .05 or better. The positive correlations mean that when Urgency was higher, restaurants implemented more responses, a larger response set, and more large responses in relation to smaller ones. Urgency by far had the strongest relationships with Magnitude of the three stock assessments, although this result was not anticipated nor hypothesized. These results will be discussed in greater depth in Chapter 5.

The squared Understanding term was significantly positive in two of the three regressions (see Tables 7 and 8), indicating a curvilinear relationship with Magnitude. Given the regression coefficients of Understanding (negative) and Understanding squared (positive), the shape of the relationship between Understanding and Magnitude is concave upward, indicating a more complex relationship than that suggested by the linear effect alone. By conducting a first-derivative test (Chiang, 1984), it is possible to determine the point at which the quadratic term will overtake the linear one and the relationship between Understanding and Magnitude becomes positive (if at all within a feasible range).

The regression equation for MAGNUMBR and the two Understanding terms (just including those two variables) is:

\[ \text{MAGNUMBR} = -2.198 \text{Und} + .056 \text{Und}^2. \]  

(The regression coefficient for Und was taken from the equation in Step 2, and is not shown in Table 7.)

To locate the minimum, the equation is differentiated with respect to Understanding and set equal to 0. This yields:

\[ \frac{d\text{MAGNUMBR}}{d\text{Und}} = -2.198 + .112 \text{Und} = 0. \]  

Solving for Understanding yields the minimum of

\[ \text{Understanding} = \frac{2.198}{.112} = 19.625. \]
Thus, the relationship between Understanding and the number of responses implemented is negative below 19.625 and positive above it. The mean of Understanding is 16.26 and the standard deviation is 3.58. By locating on a Normal Table the area associated with a z-score of .94 (19.625 is .94 standard deviations away from the mean), it can readily be determined that only about 17% of the companies claimed to have had levels of understanding high enough to fall within the range where the relationship with Magnitude was positive, as hypothesized.

Using the identical procedure for MAGRATIN, which Und*Und also had a significant relationship with:

\[ \text{MAGRATIN} = -5.048 \text{Und} + .129 \text{Und}^2. \quad (4) \]

Differentiating and setting the result equal to zero:

\[ \frac{d\text{MAGRATIN}}{d\text{Und}} = -5.048 + .258 \text{Und} = 0. \quad (5) \]

The minimum point at which the relationship with MAGRATIN turns positive is: \( \text{Und} = \frac{5.048}{.258} = 19.565 \), an almost identical amount to that above. The interpretation is the same, indicating that the relationship between Understanding and Magnitude, while negative over most of the feasible range of Understanding values, at very high levels of Understanding (around the top 17%) turns positive.

Finally, although not hypothesized, two interaction terms Urg(RS)*Und and Urg(RS)*Cap were negatively, significantly correlated with LAR/SMA, the ratio of large responses to small. The \( \Delta \text{R-square} \) statistic for Step 3 was significant at \( \alpha = .10 \) (see Table 10). Given that Urg(RS) is reverse scored, the interactions of both Capability and Understanding with Urgency are positive. This indicates the effect of Capability on Magnitude (measured by LAR/SMA) is stronger at higher levels of Urgency, and that the effect of Understanding on Magnitude (measured by LAR/SMA) is
stronger at higher levels of Urgency. In response to Urgent interpretations, both Capability and Understanding had a greater impact on the ratio of large to small responses implemented. The reverse is also true. At higher levels of both Understanding and Capability, the effect of Urgency on Magnitude (measured by LAR/SMA) is also strengthened.

**Response immediacy.** Hypothesis 2 posited that Urgency, Understanding, and Capability would have positive effects on Immediacy. While Immediacy was operationalized in two ways, for the sake of brevity only the results for IMMYEAR are reported here, since the results were almost identical between the two operationalizations. Recall that lower values of IMMYEAR indicate earlier responses. Again, the interaction and squared terms were added into the equation, although no hypotheses were posited concerning them. The regression statistics are reported in Table 11.

The results can be briefly summarized by stating that no relationship was statistically significant. Urgency, Understanding, or Capability (regardless of how it was measured), did not in their linear, quadratic, or interaction forms significantly affect IMMYEAR. The stock assessments have no discernible effect on when a restaurant organization began to respond to the strategic issue of consumer nutrition awareness. An investigation of the significance of the F-scores also reveals that no part of Model 1 was significant, and it was also insignificant as a whole. The results were essentially identical for IMMMONTH and so are not reported here.

The reasons for this lack of significance may not involve a straightforward and categorical rejection of the logic behind the hypotheses but could involve methodology and the manner in which the focal strategic issue unfolded slowly over time. This will be discussed in Chapter 5.
Table 11 - Regressions for IMMYEAR

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1 Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>-.068 (0.059)</td>
<td>-.081 (0.062)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding</td>
<td>-.094 (0.100)</td>
<td>-.089 (0.096)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capability</td>
<td>.005 (0.062)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg*Urg</td>
<td>-.008 (0.100)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Und</td>
<td>.001 (0.016)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cap*Cap</td>
<td>-.013 (0.008)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Und</td>
<td></td>
<td>.006 (0.012)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Cap</td>
<td></td>
<td>.000 (0.009)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Cap</td>
<td></td>
<td>.000 (0.014)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td></td>
<td></td>
<td>.137 (0.153)</td>
<td></td>
</tr>
<tr>
<td>Technological</td>
<td></td>
<td></td>
<td>.060 (0.138)</td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td></td>
<td></td>
<td>-.336 (0.233)</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td></td>
<td>.025 (0.083)</td>
<td></td>
</tr>
</tbody>
</table>

| n                      | 82             | 82     | 82     | 77      |
| Δ R-square             | .032           | .047   | .003   | .068    |
| F-score                | .877           | 1.281  | .067   | .866    |
| Significance           | .457           | .287   | .977   | .524    |

*** - Significant at alpha = .001  
** - Significant at alpha = .01  
*  - Significant at alpha = .05  
†   - Significant at alpha = .10  

Note - Coefficients are regression coefficients with the standard error reported below. Δ R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.
Response locus. Hypothesis 3 posited that both Understanding and Capability would have a positive relationship with Locus (or externality of response). Locus was measured in two ways: EXT/INT, or the number of external responses divided by the number of internal responses, and EXTNUMBR, the number of external responses. The results of the regression equation to test these relationships are presented in Tables 12 and 13. As before, Urgency, the squared terms and the interactions are also included and analyzed.

Capability was significantly correlated with only one Locus measure, EXT/INT, at the .10 level of significance. This indicates that as the Capability assessment was more favorable, restaurants tended to implement more external responses in relation to the number of internal responses. Capability seemed to have no significant impact on the actual number of external responses implemented.

The Technology Capability component was positively related to both EXT/INT and EXTNUMBR, again at only the .10 level of significance, indicating that as restaurant managers' confidence in their knowledge and usage of technology increased, the proportion of external responses to internal responses increased, and the number of external responses increased. No other Capability components were significantly related to either Locus measure, although both Organizational and Finance capability had negative regression coefficients in both cases, contrary to predictions. Overall, these findings represent weak support for Hypothesis 3.

Understanding was negatively, significantly correlated with EXT/INT in both models at $\alpha = .10$ (see Table 12), meaning that as the Understanding assessment increased, the proportion of external to internal responses
Table 12 - Regressions for EXT/INT

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1 Step 1</th>
<th>Model 1 Step 2</th>
<th>Model 1 Step 3</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>.007**</td>
<td>.007**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.002)</td>
<td>(.002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding</td>
<td>-.007†</td>
<td>-.006†</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.004)</td>
<td>(.003)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capability</td>
<td>.004†</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg*Urg</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Und</td>
<td>.001*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cap*Cap</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Und</td>
<td>-.001</td>
<td></td>
<td></td>
<td>-.008</td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td></td>
<td>(.005)</td>
</tr>
<tr>
<td>Urg(RS)*Cap</td>
<td>.000</td>
<td></td>
<td></td>
<td>.009†</td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td></td>
<td>(.005)</td>
</tr>
<tr>
<td>Und*Cap</td>
<td>-.000</td>
<td></td>
<td></td>
<td>-.003</td>
</tr>
<tr>
<td></td>
<td>(.001)</td>
<td></td>
<td></td>
<td>(.003)</td>
</tr>
<tr>
<td>Organization</td>
<td></td>
<td>-.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.005)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological</td>
<td></td>
<td>.009†</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.005)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td></td>
<td>.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.008)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td>-.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.003)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| n         | 87 | 87 | 87 | 82 |
| Δ R-square | .166 | .063 | .032 | .211 |
| F-score   | 5.557 | 2.212 | 1.127 | 3.388 |
| Significance | .002 | .093 | .344 | .005 |

*** - Significant at alpha = .001  
** - Significant at alpha = .01  
* - Significant at alpha = .05  
† - Significant at alpha = .10  

Note - Coefficients are regression coefficients with the standard error reported below. Δ R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.
### Table 13- Regressions for EXTNUMBR

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Step 1</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Step 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 3</td>
<td></td>
</tr>
<tr>
<td>Urgency</td>
<td>.179***</td>
<td>.185***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.048)</td>
<td>(0.050)</td>
<td></td>
</tr>
<tr>
<td>Understanding</td>
<td>-.133</td>
<td>-1.10</td>
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</tr>
<tr>
<td></td>
<td>(0.081)</td>
<td>(0.078)</td>
<td></td>
</tr>
<tr>
<td>Capability</td>
<td>.079</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.050)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg*Urg</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Und</td>
<td>.030*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cap*Cap</td>
<td>-.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Und</td>
<td></td>
<td>-.012</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.009)</td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Cap</td>
<td></td>
<td>-.011</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.008)</td>
<td></td>
</tr>
<tr>
<td>Und*Cap</td>
<td></td>
<td>-.007</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.011)</td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td></td>
<td>-.157</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.124)</td>
<td></td>
</tr>
<tr>
<td>Technological</td>
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<td>.189†</td>
<td></td>
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<td></td>
<td></td>
<td>(0.112)</td>
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</tr>
<tr>
<td>Human</td>
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<td>.195</td>
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<tr>
<td></td>
<td></td>
<td>(0.189)</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td>-.069</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.068)</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>87</td>
<td>87</td>
<td>87</td>
</tr>
<tr>
<td>Δ R-square</td>
<td>.190</td>
<td>.054</td>
<td>.025</td>
</tr>
<tr>
<td>F-score</td>
<td>6.574</td>
<td>1.912</td>
<td>.877</td>
</tr>
<tr>
<td>Significance</td>
<td>.001</td>
<td>.134</td>
<td>.457</td>
</tr>
</tbody>
</table>

*** - Significant at alpha = .001  
** - Significant at alpha = .01  
* - Significant at alpha = .05  
† - Significant at alpha = .10

Note - Coefficients are regression coefficients with the standard error reported below. Δ R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.
decreased, and the response set was more internal. This is directly opposite of Hypothesis 3's prediction but is consistent with the finding of Understanding's relationship with Magnitude. It was also negatively related to EXTNUMBR, but not significantly.

Und*Und was positively, significantly correlated with both locus variables, again identifying a curvilinear relationship between understanding and locus. Since both Und and Und*Und were correlated only with EXT/INT only the relationship of Understanding with this locus measure will be examined. The regression equation for EXT/INT, including only the Understanding terms (not all coefficients shown in Table 11) is:

\[
\text{EXT/INT} = -0.055 \text{ Und} + 0.0014 \text{ Und}^2. \tag{6}
\]

\[
d(E/I)/d\text{Und} = -0.055 + 0.0028 \text{ Und} = 0. \tag{7}
\]

Critical Point - Und = 0.055/.0028 = 19.64. \tag{8}

Given the signs of the terms, the shape of the function is concave up, and that it reaches a minimum at Understanding = 19.64. Below this point the relationship with EXT/INT is negative, above it is becomes positive. The mean of Understanding is 16.27 and its standard deviation is 3.58. Again, only when Understanding is very high (around 15-17% as before) does the relationship with EXT/INT become positive as hypothesized. Below this point, increases in Understanding are associated with a decreased proportion of external responses to internal ones. Above it, however, when the Understanding assessment is very high, increases in Understanding lead to increases in the proportion of external to internal responses.

As for the other variables not hypothesized to have a relationship with locus, Urgency again had a strong, positive relationship with both measures. Tables 11 and 12 show that the relationship was stronger with EXTNUMBR than with EXT/INT. This means that the higher the assessment of Urgency
the greater the proportion of external to internal responses and the larger
the number of external responses implemented. In other words, in
increasingly urgent situations, restaurants responded in a more external
fashion. None of the interactions between the stock assessments and either
measure of response locus was significant.

**Response activeness.** Hypothesis 4 posited positive relationships
between all three stock assessment and Activeness. It also posited positive
relationships between the three interaction terms and Activeness.
Activeness was measured in two ways: ACT/PAS, the ratio of active responses
to passive responses, and ACTNUMBR, the number of active responses
implemented. The results of these regression equations are presented in
Tables 14 and 15.

Urgency was significantly, positively correlated with Activeness in all
four models, meaning that the higher the assessment of Urgency the greater
the proportion of active responses to passive responses and the larger the
number of active responses. Urgent interpretations led to a more active
response stance, providing strong support for Hypothesis 4.

Capability was also positively, significantly correlated with both
measures, although with ACTNUMBR at only $\alpha = .10$, indicating that when
assessments of Capability were high, restaurants were more likely to have a
large number of active responses to passive ones and were also likely to have
a higher number of active responses. This significant result also provided
support for Hypothesis 4.

The components of Capability again provided mixed support.
Organizational Capability was negatively correlated with both Activeness
measures. When restaurant managers thought their systems, procedures,
Table 14 - Regressions for ACT/PAS

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1 Step 1</th>
<th>Model 1 Step 2</th>
<th>Model 1 Step 3</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>.011*** (.003)</td>
<td>.012*** (.003)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding</td>
<td>-.011* (.005)</td>
<td>-.008† (.004)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capability</td>
<td>.007* (.003)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg*Urg</td>
<td>.000 (.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Und</td>
<td>.002* (.001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cap*Cap</td>
<td>-.000 (.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Und</td>
<td>-.001 (.001)</td>
<td></td>
<td></td>
<td>-.016* (.007)</td>
</tr>
<tr>
<td>Urg(RS)*Cap</td>
<td>-.001† (.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Cap</td>
<td>-.000 (.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>-.005 (.004)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological</td>
<td>.014* (.006)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td>.018 (.011)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>-.005 (.004)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| n                     | 87            | 87            | 87            | 82      |
| Δ R-square            | .237          | .044          | .039          | .292    |
| F-score               | 8.693         | 1.663         | 1.503         | 5.224   |
| Significance          | .000          | .182          | .220          | .000    |

*** - Significant at alpha = .001
** - Significant at alpha = .01
* - Significant at alpha = .05
† - Significant at alpha = .10

Note - Coefficients are regression coefficients with the standard error reported below. Δ R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.
Table 15 - Regressions for ACTNUMBR

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1 Step 1</th>
<th>Model 1 Step 2</th>
<th>Model 1 Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>.251***</td>
<td>.273***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.062)</td>
<td>(.064)</td>
<td></td>
</tr>
<tr>
<td>Understanding</td>
<td>-.215*</td>
<td>-.165†</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.105)</td>
<td>(.100)</td>
<td></td>
</tr>
<tr>
<td>Capability</td>
<td>.129†</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.065)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg*Urg</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.010)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Und*Und</td>
<td>.034*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.016)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cap*Cap</td>
<td>-.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.009)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Und</td>
<td></td>
<td>-.018</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.012)</td>
<td></td>
</tr>
<tr>
<td>Urg(RS)*Cap</td>
<td></td>
<td>-.016</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.010)</td>
<td></td>
</tr>
<tr>
<td>Und*Cap</td>
<td></td>
<td>-.014</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.014)</td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td></td>
<td>-.325*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.158)</td>
<td></td>
</tr>
<tr>
<td>Technological</td>
<td></td>
<td>.279†</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.143)</td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td></td>
<td>.348</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.241)</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td>-.114</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.086)</td>
<td></td>
</tr>
</tbody>
</table>

| n         | 87    | 87    | 87    | 82    |
| A R-square | .230  | .039  | .034  | .284  |
| F-score    | 8.377 | 1.430 | 1.253 | 5.014 |
| Significance | .000  | .240  | .297  | .000  |

** - Significant at alpha = .01
* - Significant at alpha = .05
† - Significant at alpha = .10

Note - Coefficients are regression coefficients with the standard error reported below. A R-squares for Step 3 in Model 1 are for the 3 interaction terms entered as a block but, due to severe multicollinearity between them, the coefficients are from separate regressions run with each interaction entered by itself.
and administration were a strength, they tended to have fewer active responses in relation to passive ones and fewer active responses. Thus, perceived organizational strength tended to inhibit active responses.

Technological Capability was positively, significantly correlated with both measures of Activeness but only marginally with ACTNUMBR. The greater the confidence in their knowledge and use of technology, the higher the proportion of active to passive responses and the larger the number of active responses. Perceived strength in the technology area tended to enhance activeness.

The other two component measures were both insignificant. Taken together, the component measures of Capability provide mixed support for Hypothesis 4.

Understanding was negatively, significantly correlated with both measures of Activeness at the .05 level for Model 1 and at the .10 level for Model 2. Higher assessments of Understanding led to lower proportions of active to passive responses and fewer active responses. Tables 13 and 14 reveal that the relationship of Understanding with Activeness is curvilinear, since Und*Und is significantly, positively correlated with both measures at the .05 level. The first derivative test was employed again. The equations are provided below.

\[ \text{ACT/PAS} = -0.065 \text{Und} + 0.0016 \text{Und}^2 \]  \hspace{1cm} (9)

\[ \frac{d(A/P)}{d\text{Und}} = -0.065 + 0.0032 \text{Und} = 0. \]  \hspace{1cm} (10)

Critical Point: Und = 0.065/0.0032 = 20.31. \hspace{1cm} (11)

The curve is concave, falling at Understanding values lower than 20.31 and rising thereafter. When assessments of Understanding are low, Understanding tends to have a negative impact of ACT/PAS: the higher the assessed Understanding the lower the proportion of active to passive
responses. After the critical point, however, this relationship reverses and higher assessments of Understanding lead to a higher proportion of active to passive responses. Recall that the mean of Understanding is 16.27 and its standard deviation is 3.58. This would indicate (using the Normal table again) that the relationship between Understanding and ACT/PAS is negative in all but the top 9% of the range of Understanding, where it is positive.

The identical calculations for ACTNUMBR follow.

\[ \text{ACTNUMBR} = -1.348 \text{Und} + 0.0339 \text{Und}^2. \]  
(12)

\[ \frac{d(A/P)}{d\text{Und}} = -1.348 + 0.0678 \text{Und} = 0. \]  
(13)

Critical Point: Und = 1.348/0.0678 = 19.88.  
(14)

The minimum point is about the same here as previously and the interpretation is the same. The negative relationship between Understanding and Activeness becomes positive in the top 15% range of Understanding scores. This finding is not supportive of Hypothesis 4.

Of the six relationships between the three interaction terms and the two Activeness measures, only one, Urg(RS)*Cap with ACT/PAS was significant, and that at only the .10 significance level and in the opposite direction of that hypothesized. All six correlations were negative, indicating, given the reverse-scored nature of Urgency, that the interaction between Urgency and Capability is positive. The interpretation is identical to the previous interactions: at higher levels of one variable, the effect of the second variable on Activeness (measured as ACT/PAS) is stronger. At higher levels of Urgency, Capability more strongly affects Activeness and vice versa. The interaction terms provide no support for Hypothesis 4.

**Summary of Significant Findings.**

Table 16 contains a summary of the results of the hypotheses. The results are reviewed below.
Hypothesis 1a found mixed support. Capability (global) was positively related to response set Magnitude (measured three ways) at the .05 significance level. Technological Capability was also positively related to Magnitude at the .05 level in all three cases. Financial and Human Capability, however, were not related to Magnitude at all, and Organizational Capability was negatively related to Magnitude at the .10 level of significance in all three cases, opposite of expectations. The higher the perception of Organization Capability the lower the magnitude of response.

Hypothesis 1b was rejected. Not only was Understanding not positively related to response set Magnitude, it was negatively related to it at the .05 level of significance in all three Model 1 regressions. (It was negatively, but not significantly, correlated with the Magnitude measures in Model 2.) This finding is directly contrary to what was hypothesized and indicates that the more executives believed they understood the nutrition awareness issue, the less they responded to it. The relationship with Magnitude exhibited curvilinearity, however: it turned positive in the top 15% range of Understanding scores. Understanding squared was positively related to two of the Magnitude measures. Within this range, the hypothesized positive relationship obtained.

Hypotheses 2a, 2b, and 2c were all rejected. Immediacy was not affected by Urgency, Understanding, or Capability (regardless of how it was operationalized). This lack of significance was a surprising result, given the strong theoretical and intuitive appeal of these proposed effects. The issue of timing and how this particular issue evolved may have had an impact on these results.

Hypothesis 3a was rejected: Understanding did not positively affect response Locus regardless of how it was measured. In fact, it was negatively,
significantly correlated with one of the Locus measures. This result exhibited curvilinearity again, however, turning positive in the upper 15% range of Understanding scores.

Table 16 - Summary of Results

| Hypothesis 1a: Cap -> Mag | Mixed - global had a positive effect, components both positive and negative |
| Hypothesis 1b: Und -> Mag | Rejected - negative, significant effect; positive curvilinear effect |
| Hypothesis 2a: Urg -> Imm | Rejected - no significant relationships |
| Hypothesis 2b: Und -> Imm | Rejected - no significant relationships |
| Hypothesis 2c: Cap -> Imm | Rejected - no significant relationships |
| Hypothesis 3a: Und -> Loc | Rejected - negative, significant effect; positive curvilinear effect |
| Hypothesis 3b: Cap -> Loc | Moderate - global had a positive, significant effect, as did one component measure |
| Hypothesis 4a: Urg -> Act | Strong support - positive, significant at the .001 level |
| Hypothesis 4b: Und -> Act | Rejected - negative, significant effect; positive curvilinear effect |
| Hypothesis 4c: Cap -> Act | Mixed - global had a positive effect, components both positive and negative |
| Hypothesis 4d: Und*Cap -> Act | Rejected - no significant relationships |
| Hypothesis 4e: Und*Urg -> Act | Rejected - no significant relationships |
| Hypothesis 4f: Cap*Urg -> Act | Rejected - relationship opposite that hypothesized |
Hypothesis 3b obtained moderate support. Capability (global) was positively correlated with only one Locus measure, although marginally. Technological Capability was significantly related to both measures of Locus at the .10 level of significance. None of the other component measures had a significant regression coefficient. Generally, the greater the assessment of Capability, the more external the response set.

Hypothesis 4a was supported at the .001 level of significance. Urgency had a strong, positive effect on both measures of response activeness: the higher the urgency of the issue the more active the response set. Urgency also was significantly, positively related to Magnitude and Locus, also, although this was not hypothesized. The impact of Urgency on the response variables (except for Immediacy) was the most consistent and strongest finding in this study. The higher the assessment of Urgency, the larger the magnitude of the response set, the more externally focused the response set, and the more active the response set.

Hypothesis 4b was not supported. Not only was Understanding not positively related to either measure of Activeness, it was significantly, negatively related to both. Again, however, the relationship was a curvilinear one as Understanding squared was related to both measures positively and significantly. Over most of the range of Understanding, the relationship with Activeness was negative, but in around the top 15% of the range of Understanding scores the relationship turned positive. The curvilinearity of the relationship of Understanding with the response variables was an interesting and robust finding.

Hypothesis 4c obtained mixed support. While Capability (global) was positively related to both measures of Activeness, as was Technological Capability, Organization Capability was negatively related to them.
Confidence in the technology prowess of the organization led to a more active response set while confidence in administrative skill had the opposite effect. While the relationship between Technological Capability with Activeness was framed in causal terms, it may be spurious since organizations that are more likely to respond actively are also more likely to be more technologically competent due to a more proactive and pioneering attitude toward new trends and innovation. The Organization Capability result may address organizational inertia issues. It is interesting to recall that these two capability measures were positively correlated.

Hypotheses 4d, 4e and 4f were not supported. None of the interactions was positively related to either measure of Activeness, and one was significantly, negatively correlated, albeit at $\alpha = .10$. This would seem to indicate that the threat rigidity hypothesis suggested by Staw, et. al. (1981) is not supported in this case. Strictly speaking, however, threat rigidity suggests a curvilinear relationship with Response Activeness, which would require testing the squared terms of the interactions. This test was done, although not reported. None of the regression coefficients of these terms approached statistical significance.
Chapter 6 - Discussion and Implications

This dissertation addressed strategic issue management and the relationship between strategic issue interpretation and response. The literature on these topics was reviewed and a model constructed. The link between interpretation and response was explored in greater depth and four hypotheses posited which delineated this link in greater detail. To some extent, three of the four hypotheses found support, but aspects of each could be rejected outright.

This dissertation fills a gap in the literature by examining how organizations in a single-industry responded to an actual strategic issue based on their interpretations of it. The idea that interpretation influences response has not gone without empirical support or previous investigation, however. For example, Dutton and Dukerich (1991) examined this relationship, but only in a single organization. Dutton and Webster (1988) also investigated this relationship, but used an artificial in-basket simulation methodology. Schneider & de Meyer (1991) investigated the effect of culture on this relationship, but used a case study and executive informants in a non-organizational setting. Thomas, et. al. (1993) also used case-studies in their data collection in the hospital industry that, while realistic, were still artificial. They also used a different framework, opportunity-threat, than the one used here; a framework that, while very popular, underemphasizes considerations of feasibility (understanding and capability) in the interpretation process. This dissertation thus makes a unique contribution to the area of strategic issue management and interpretation. Its contribution is mainly descriptive rather than normative, just as much of the research on SIM has been, given that performance outcomes were not measured.
The meaning and relevance of these findings will be discussed, along with other significant findings that emerged which were not hypothesized.

Methodological Issues and Caveats

Before continuing with this discussion, several caveats should be addressed and some interpretational (related to the findings of this study) and methodological issues explored. These issues are often not discussed until after a summary review and discussion of the relevance of the findings. Due to the retrospective nature of this research, however, and the tendency of such methodology to be prone to various biases, a frank appraisal of these potential problems before discussion of findings may answer some questions before they arise.

One obvious (and intentional) omission of the research was the area of context. Recall that in Figure 1, interpretation influences response while both issue characteristics and interpretation context influence interpretation. Variance due to issue characteristics was held constant by examining a single issue, the trend of increased consumer nutrition awareness, and its effect on the restaurant industry. Contextual variables, however, such as size, strategy, and structure, were not held constant and might affect the way the issue was interpreted, and hence the response.

While these considerations represent areas of fruitful future research, they are of no immediate concern in this case due to the particular focus of this study. The main idea tested was that interpretation influences response in certain predictable, common ways among different organizations. It is very likely, for example, that large restaurant organizations, due to their greater visibility, would have interpreted this issue differently than would small restaurant organizations. While this is an important idea, this research
did not attempt to explore the causes of managerial interpretations, but rather took them as given and examined the effect they would have on organizational actions. The lack of contextual variables or controls in no way calls into question the basic findings of this research, that interpretations, regardless of how they were reached or what may have influenced their creation, influence response.

An additional concern is the study methodology itself. The use of retrospective accounts in management research has been questioned by some as being problematic (Huber & Power, 1985; Golden, 1992), this being especially true regarding perceptual data. The concern is that managers may not be able to accurately recall events from the not-so-recent past, and the data they provide would be very noisy. This concern, on its own, would not represent a significant problem here if the noise were random. In that case, it would be assumed that the significance of whatever results emerged may be attenuated by the noise, but not invalidated. For example, given that significant findings obtained in this study, one might think that, if the data were noisy, the results may have been stronger. These weak results would not call into the question the validity of the findings that did manage to emerge amidst the noise. It may even indicate that the relationships must have been strong to have emerged as they did with so little statistical power at hand, though that could only be conjecture.

The primary issue here is not merely that managers may have trouble recalling past events accurately, but that, when they attempt to do so, various biases are likely to creep into the process (Schwenk, 1985). In this research, for example, one might propose that, instead of interpretation affecting response, the responses implemented and their effects would bias the recollection of interpretations regarding related past events. Perhaps a
manager in a restaurant that implemented few responses to this issue and which later suffered no ill effect, would attribute a high level of rationality to their past activities and would, therefore, claim that their level of understanding was high: "We knew people really didn't care."

The possibility of bias is a serious concern because it might call into question the validity of this study in a way that mere noisy recollections may not. Given the nature of the methodology, it is not possible to categorically dismiss this as a possibility. Alternative hypotheses concerning bias in management recall are possible, and so the steps taken to minimize such bias are reviewed again.

In doing so, it is important to note that none of the authors addressing this issue concluded that research using retrospective accounts should be abandoned. Indeed, there are circumstances and topics that can only be investigated by using retrospective accounts (Huber & Power, 1985; Golden, 1992). The key is to use retrospective accounts with an awareness of their limitations and to address them in data collection methodology.

Multi-item scales were employed to measure the interpretation variables. These are inherently more reliable than single item scales (Kerlinger, 1986), such as the single-item strategy scale used in Golden (1992). More reliable scales are less prone to bias.

Also, before the interpretation items were included on the study questionnaire, factual questions about the respondent's job position and duties were asked. This would "prime" the respondents' recollections by starting with events and situations they could readily access, following Boeker (1989).

In addition to the priming questions, a copy of one of Phil Sokolof's advertisements was included with each questionnaire to increase the
salience of the issue for the respondent. Inclusion of this advertisement would reduce confusion about the events and issues the questionnaire was about.

The way the questionnaire was constructed also took potential bias into account. The interpretation questions were included after the factual oriented questions were asked and mention was made of the enclosed advertisement, reversing one common practice of collecting information on the dependent variable before the independent (Sheatsley, 1983), and for good reason. Asking respondents initially what responses their organization took would have heightened the chance that the interpretation data would have been biased because respondents would have just finished thinking about what their companies did before being asked about what motivated them to do it. It was thought that the risk of the subjective data (the interpretations) biasing the objective data (either a restaurant implemented a response or it did not) was much less than the risk of the objective biasing the subjective.

Beyond consideration concerning question order, it is important to note that respondents did not provide the final dependent variable data. These data were the result, in all but 3 cases (MAGNUMBR, IMMYEAR and IMMMONTH), of combining ratings from the expert panel (none of whom were respondents) with the lists of responses provided by respondents. Basing the dependent variables, in part, on expert ratings does not eliminate bias, but may attenuate it compared to what it would have been had respondents been asked to "Please rate how Active you considered your set of responses to this issue to have been on a scale from 1 to 5."

It would be unwise to argue that these steps render alternative hypotheses completely impossible, but they do reduce their likelihood of
validity, leading to confidence that the results are what they appear to be: evidence of interpretation influencing response.

**Interpretation and Response**

A major finding of this study was that the link between interpretation and response was strongly supported. The interpretations that executive-level managers made of the consumer nutrition awareness issue influenced the manner in which their restaurants responded to it, supporting a strong body of conceptual and theoretical literature that has been traditionally somewhat weak on the empirical side. This study, rather than using a simulation or doing an in-depth case study of a single organization, used data from real executives from many organizations facing a real strategic issue. That such a study could be conducted successfully, even though it addressed events that were several years in the past, bodes well for continued research in the area of strategic issue interpretation and response.

The primary focus of this dissertation, however, was not to test whether interpretation affected response. On the contrary, as can be readily ascertained from the literature review and hypotheses sections, that interpretation affected response was taken as a given. Rather, the question of interest was, which interpretations led to which responses? Here this dissertation has made its contribution.

**Choice of frameworks.** Interpretation could have been operationalized in one of two ways: the urgency-feasibility approach of Dutton and Duncan (1987), or the better known and more often used opportunity-threat framework (Ansoff, 1965; Dutton & Jackson, 1987), or even both. The first approach was used due to its conceptual clarity and completeness as well as its relevance to the research issue at hand. An organization considering whether to respond to an issue must assess the amount of time, information,
and resources it has with which to do so. The urgency-feasibility framework addresses the stock assessments directly, while the opportunity-threat framework does not. This omission in the opportunity-threat framework is a significant one, given that, while it contains consideration of the need to respond, it does not as clearly include consideration of the ability to respond. The urgency-feasibility framework contains both considerations, given that urgency addresses the need question. Dutton and Duncan (1987) correctly identified both considerations as important ones in determining how an organization would respond, as has been shown in this dissertation.

The second framework is not altogether inadequate: on the contrary, it directly and completely addresses the important consideration of likelihood of impact and effect on performance (Ansoff, 1980). As such, this research was not an exhaustive study of the different possible interpretations and their affect on response. Including the extra items to measure these additional constructs, however, would have lengthened what some respondents considered to be an already long questionnaire (based on telephone conversations with several executives and managers). Even so, the issue of opportunity and threat interpretation could be addressed indirectly by the urgency-feasibility framework, given that an issue viewed as urgent and infeasible may be more likely viewed as a threat and vice versa. Never the less, care should be exercised in drawing such implications since there is not a one-to-one correspondence between elements in the two frameworks.

Relevance and importance of findings. Interpretation was shown here to affect response in a variety of ways. A quick synopsis of the major findings is presented first, followed by a more in-depth discussion of each.
Urgency had the strongest relationship with the response variables. It had consistently positive and significant relationships with all but Immediacy. Understanding, contrary to expectations, was negatively and significantly related to all the response variables except Immediacy. The relationships tended to be curvilinear (concave up), which was also unexpected. Capability was measured two ways, globally and by its components. Global Capability was positively and significantly related to at least one operationalization of each response variable, except Immediacy. These positive relationships were hypothesized. The technological component of Capability was significantly and positively related to all response variables, except Immediacy. The organizational component was significantly and negatively related to both Magnitude and Locus, contrary to expectations. Thus, different components of Capability had very different affects on response. No interpretation variable had a significant relationship with Immediacy.

These findings extend the current level of knowledge in the following ways. By investigating an actual strategic issue rather than using a previously employed artificial research methodology, these findings lead to greater confidence in the reality of the relationship between interpretation and response. The findings related to Urgency's effect demonstrate the empirical validity of Dutton and Duncan's (1987) arguments concerning that construct's effect on strategic momentum. Such effects had not previously been demonstrated using actual "field" data. Capability's effect on response, found to be significant here, had also not been demonstrated using such data.

The concave-up relationship that Understanding had with the response variables was unanticipated and opposite of what was hypothesized. This unexpected finding indicates that not all strategic issues will be
responded to based on identical relationships between interpretation and response. Issue characteristics may not only have a direct effect on interpretations but may also moderate the effect of interpretation on response, as well. This issue-moderation effect has not previously been addressed.

Another important extension of current knowledge involves the differential effects of global capability and Capability's components. While global Capability's effect on the response dimensions was generally positive, this effect was duplicated by only one of the four component measures, Technological Capability. Beyond this, Organizational Capability had generally negative effects, the opposite of what was predicted. Dutton and Duncan (1987) presented Capability as a monolithic construct, but these results indicate that doing so may not tell the whole story. While some components of Capability may have a positive impact on an organization's issue responsiveness, others may have the opposite effect of inhibiting such responsiveness, thus representing core rigidities (Leonard-Barton, 1992).

These findings represent important advancements in our understanding of the interpretation of, and response to, strategic issues. These findings, and others, are now discussed in greater depth.

The most consistent finding in this research was the effect of urgency on response. When managers saw the nutrition issue as urgent their companies implemented response sets that were larger in magnitude, more external in focus, and higher in activeness. The only relationship hypothesized was that concerning activeness. One element of Dutton and Duncan's (1987) formulation of the construct of urgency was visibility. An issue visible to the public requires a direct, active response. Under the light of publicity, it was often not possible for restaurants to duck the nutrition
issue by passive responses that failed to really do something about it. Of course, larger companies, particularly the ones named in the advertisements, would have been more visible in relation to this issue and probably would have had interpretations of higher urgency. This contextual variable (size) should be included in future research as it has already been found to influence issue responsiveness due to greater visibility (Goodstein, 1994).

Similar logic can be used to explain the other urgency results. One item on the Urgency scale addresses whether an issue will be around for a long time. If managers believe it will be long-lasting, then they are more likely to be willing to commit more time, energy, and resources to responding to it. Such commitments would lead to larger response sets. Yet another aspect of urgency as discussed by Dutton and Duncan (1987) is importance. Important issues are seen as urgent, and this importance would allow managers to justify the expenditures necessary to implement larger response sets.

As for Urgency's effect on Locus, visibility may again be an important factor. Internal responses are not likely to be visible to the public, and even though the company may have responded to an issue, important constituencies may not be aware of the response. A visible, important issue would have a high level of salience for external stakeholders, and one way that companies can signal these important groups is to implement external, not internal, responses.

These last two relationships were not hypothesized, and it is important not to capitalize on what may be a chance result in theory building and testing (Neter, et. al., 1985). Never the less, the strength and consistency of these findings are compelling. Urgency emerges as the most powerful interpretational influence on organizational response. Given its prominent
position, it would seem to have practical relevance to managers trying to package and sell issues to top management (Dutton & Ashford, 1993). Urgency emerged in this study as the most powerful driver of response magnitude, locus, and activeness. If these response outcomes are desired, managers can stress the issue's likely longevity, visibility, and time pressure, not to mention the issue's importance and the need to respond. While some of these implications seem obvious (importance), some may not be as well known or salient (issue longevity). This finding is not only relevant to managers, but to anyone desiring to influence organizational activities (lobbyist groups, for example).

Urgency emerges from this research as more than simply a consideration of the amount of time available to implement responses. In future research, it may be important to examine the different aspects of urgency (visibility, importance, longevity, etc.) to see which components of urgency are most relevant. Research along these lines would heighten the relevance of such research to practitioners. As it stands, the direct implication is that to drive organizational action managers should make an issue seem more urgent. Such advice is nothing new and is probably at too high a level of aggregation to be of much use. For example, is stressing issue longevity a more effective motivator to action than visibility? Perhaps the relative importance of these components of urgency also depends upon issue characteristics and interpretational context. If so, how? What are the relationships?

The second component of Dutton and Duncan's (1987) drivers of strategic momentum is issue feasibility, hypothesized as having a positive impact on strategic change. The two components of feasibility tested here are understanding and capability. Both of these variables were hypothesized
to have positive correlations with magnitude, locus, and activeness (also immediacy, to be discussed later). The results here were not as unequivocal as those concerning Urgency.

For example, the stock assessment of Understanding was not linearly, positively correlated with any of the three response variables listed above. The linear component was consistently negative with all three, although not always significantly. The relationship was also not linear once the squared term was entered. This squared term had a positive coefficient (statistically significant in six out of seven regressions) leading to a conclusion that, at lower levels of understanding, the relationship between understanding and the response dimensions was negative, but that it turned positive at high levels of understanding (generally in the top 15% range). What could explain this odd result?

It may be that understanding has a threshold kind of impact on response. Understanding is seen as an assessment of the stock of information and is, thus, inversely related to uncertainty. At low levels of understanding, managers might be well aware that they do not have enough information to be able to respond effectively to an issue, creating an aura of caution that additional information may only serve to heighten. Managers in companies with a slightly larger stock of information may not be motivated by this increased understanding to implement larger, more external, and more active response sets. On the contrary, if a wait-and-see attitude prevails when understanding is low, managers may use the additional information as a justification for greater caution, due to the generally negative framing of uncertainty. "We don't know what we should do, and here is all the data that shows we don't."
At some level, however, once a threshold level of understanding is reached, managers in companies with higher levels of understanding are no longer disturbed by a lack of information but are very confident they have enough knowledge to act. This confidence then leads to larger, more external, more active response sets in companies with additional information due to the more positive frame these managers put on new information. This somewhat tortuous logic would explain the pattern obtained. If this explanation is true, however, why was the threshold as high as the 85th percentile? Was it as high as it seemed?

The Understanding scale had six items, and the highest score possible was a 30. The mean was 16.27, with a standard deviation of 3.58. The minimum of the differential function was generally near 20, at which point the relationship turned positive. These results indicate that the mean item response would be around 3.3. On two of the items, therefore, the typical respondent would have answered at least 4, indicating a recollection of good understanding (the items were scored so that higher values meant more understanding). Such scores do not represent a high assessment of understanding and may indicate a lack of bias since biased data would probably include claims to higher levels of understanding than actually existed (Feldman & March, 1981; Salancik & Meindl, 1984). Thus, the level of understanding at which the relationship turned positive was not as high as it might seem because, at that level, respondents still did not claim a very high level of understanding.

An alternative explanation may lie in the dynamics of this particular issue. By 1990, the nutrition awareness trend had been building for some time, and many restaurants had already responded to it. For example, D'Lites restaurant operated in the mid-1980s and claimed to have healthier fast food.
By 1990, however, D'Lites had already closed down, and other restaurants also had some experience with serving healthy food. Thus, when the 1990 ad blitz occurred, some in the restaurant industry had already formed an opinion that the healthy eating trend did not really affect them. This conclusion was supported by some comments made on returned questionnaires such as, "Healthy eating is a myth," "People talk lean but eat fat," and "We used heart-healthy symbols. They were the kiss of death." If this were the case, then the more restaurant executives believed they understood the issue, the less compelled they felt to do anything substantial about it, thus explaining the result in the negative range of Understanding.

Unfortunately, the early experiences of some restaurants with the nutrition awareness issue does not explain why the relationship would turn positive at higher levels. It may be that those companies that were very confident of their understanding were taking the ads at face value as indicating a real desire for healthy food in restaurants, a conclusion not supported by subsequent events (Gibson, 1993). This suggests the odd situation of those who do not think they understand responding the most; those who think they understand more than the first group responding less; and those who think they understand more than the second but not as much as the first responding more. Obviously this awkward explanation has some holes in it.

One possibility is that the type of restaurant, fast food versus sit-down, for example, would act as a moderator by influencing how well restaurant executives thought they understood the issue or how a certain level of understanding would influence response. Data on these variables were not collected, and thus exploring the impact of restaurant type on understanding
levels and responses clearly represents a fruitful avenue for future research.

These results on Understanding do not support the ideas of Dutton & Duncan (1987) that higher levels of understanding create greater strategic momentum. It may be that additional variables need to be included to more fully describe the relationship.

One important caveat to note is that the reliability on the Understanding scale was somewhat low at alpha = .67. This is slightly below the standard hurdle rate of alpha = .70 set by Nunnally (1978). It may be that the results, though significant, were influenced by the relatively low reliability of the Understanding scale. These results should be considered tentative, therefore, and more definitive conclusions must await additional investigation using a more reliable measure.

As for the Capability portion of the feasibility assessment, results showed mixed, though overall favorable, support for its hypothesized relationships. Capability was measured in two ways: globally and by its possible components. The results using the global measure are discussed first, followed by the results using the component measures, and then the relationships between these two sets of measures.

Global Capability was consistently and positively related to Magnitude. In all three regressions, Capability's influence on the three different measures was significant at the .05 level, supporting the assertions of Dutton and Duncan (1987) and corroborating the similar findings of Chen, et. al. (1992).

Capability was positively related, but only at α = .10, to just one of the two measures of locus. External responses are generally pictured as being more difficult and requiring a greater amount of available resources than
internal responses. When a restaurant believed it had enough resources to respond effectively it was more likely to attempt external responses.

Capability was also positively related to both measures of activeness, though to one only at the .10 significance level. A restaurant was more likely to face an issue squarely rather than avoid it by mere coping responses if its managers believed it had a strong capability in relation to the issue.

Taken as a whole, these results are very supportive of the idea that issue capability assessments are positively related to strategic momentum and change. Given the increasing importance of strategic change in our society and the concomitant interest in it in the academic community, these results may be an important finding (Stewart, 1993; Chakravarthy & Doz, 1992). Strategic renewal, change, and corporate entrepreneurship may be more likely to occur in situations where managers are confident of their organization's overall capability. Of course, this begs the question, what influences such confidence? Given the narrow focus of this research, it is not possible to address this issue. The results do indicate that investigation that searches for such antecedents to perceptions of capability is a potentially fruitful pursuit. Of course, research on what leads to certain kinds of organizational capabilities has been occurring, most often in the organizational resources stream (Mahoney & Pandian, 1992; Hall, 1993; Peteraf, 1993). This dissertation adds a different twist to this stream by its focus on interpretations.

In a way, however, some of these issues were addressed here by the inclusion of component measures of capability. Drawing from various strategic management sources, a list of four capability areas was compiled:
technological, organizational, financial, and human. These results speak to the question of what particular areas of capability seem to be most relevant.

Technological Capability was positively related to all measures of Magnitude, Locus, and Activeness, as hypothesized. The greater the confidence of an organization's managers in their use and knowledge of technology, the greater the magnitude, the more external the locus, and the higher the activeness of that organization's response set. Confidence in the technology area would probably come from past success at acquiring, understanding, and using new technologies as they emerged. As such, this confidence may lead to a willingness to take on riskier ventures, hence the results obtained in this study.

On the other hand, since the nutrition issue involves the area of technology in the development and preparation of new menu items, this result may be idiosyncratic to the particular issue studied, and might not have broad applicability. For example, technology capability might not have the same influence on responses to rising wages and the shortage of good workers. It is also possible that large, external, and active response sets and technology capability are both influenced by context, for example a Prospector strategy (Miles & Snow, 1978). A Prospector organization, given its focus on innovation and entering new markets, would have developed a strong technological capability and also tend to always respond to emerging issues in aggressive and proactive ways. In this case, technological capability and response would be correlated, but spuriously, given that each is heavily influenced by strategic orientation. Future research examining the generalizability of this finding to other issues and industries would prove useful, as would investigation of contextual effects. Research concerning
the effects of strategy on interpretational activities has begun to address some of these issues (Jennings & Lumpkin, 1992).

Organization Capability (a confidence in the procedures, systems, policies, and guidelines of an organization) was negatively related to Magnitude and Activeness, contrary to expectations. Rather than facilitating responsiveness to the strategic issue in question, Organization Capability seemed to inhibit it, leading to smaller and more passive response sets. This negative relationship between Organization Capability and responsiveness would tend to support inertia theory that emphasizes the obstacles to organization change (Hannan & Freeman, 1984; Kelley & Amburgey, 1991; Huff, Huff & Thomas, 1992). In this case, strong capability in the organizational area represented a core rigidity, inhibiting responsiveness and change (Leonard-Barton, 1992). It may be that confidence in certain present capabilities, in this case structural and systems ones, may inhibit change rather than facilitate it, as suggested by Dutton and Duncan (1987). That previous strengths can hinder future change was the argument of Starbuck, Greve, and Hedberg (1978), as they emphasized how past success can lead to future failure. The literature on strategic momentum and change (Miller & Friesen 1980; Tushman, Newman, & Romanelli, 1986) also adds insight here. Since change is disruptive, organizations tend to change only when there is a significant need to do so, and then they tend to make large changes because the accumulated pressure to do so requires it. The managers think that since things are running so smoothly, why change them?

Both Financial and Human Capability failed to achieve significance in any regression. Financial Capability was consistently negatively correlated with the response variables, and Human was consistently positively
correlated, but since the effects were relatively small and insignificant no implications can be drawn.

Given the manner in which different components of capability affected response, one potential avenue for future research is to examine the impact on organizational response of different aspects of capability. Organization and Financial capability consistently had negative regression coefficients while Technological and Human capability consistently had positive ones, although only Organization and Technological were significant. Would results similar to these be found if different issues or industries were studied? Such findings would increase our understanding of how organizational resources affect strategic issue response and strategic change. It may be that strengths in different resource areas will have even opposite impacts and this may vary in different contexts.

The hypotheses involving the interaction effects of the stock assessments were not supported. These interactions were all negatively, not positively, correlated with response Activeness and one interaction, that of Urgency (RS) and Capability was statistically significant. Given the scoring of the Urgency variable, the negative correlation indicated a positive interaction effect. When Urgency is high, Capability has a stronger effect on Activeness and vice versa. High Urgency may sensitize managers to prepare for active responses. In this environment of heightened awareness and readiness, Capability has a stronger effect. Likewise, when there is a high assessment of Capability, managers think they are able to respond actively to an issue, and so Urgency has a stronger motivational effect in this situation, as well. These findings are the opposite of what one would expect had threat rigidity (Staw, et. al., 1981) been operating. In this case, stronger Urgency would have weakened the effect of Capability. In urgent situations,
Capability would not have much of an impact on how active the response set would be since the managers' reaction would be one of avoidance, justification, and passivity.

Some other interactions were significant although no hypotheses had been posited concerning them. The Urgency with Capability and Urgency with Understanding interactions had a positive effect in one of the three Magnitude equations. The interpretation is similar to that of Activeness. The restaurants in this sample, in responding to the nutrition awareness issue, seemed to have reacted in a rational manner insofar as the interaction terms could detect. Most of the interaction terms were not significant, however.

None of the hypotheses related to Response Immediacy were supported. It did not seem to matter at all whether the stock assessments were high or low along any of the three interpretation dimensions: there was no effect on how early a company seemed to respond to the issue of nutrition awareness. This result may have obtained because these variables do not actually have any affect on immediacy. Unfortunately, a different, methodological, consideration is very important here.

The issue of consumer nutrition awareness did not appear suddenly in the spring of 1990 as this research methodology presumes. By 1990, some restaurant companies had already responded to the consumer nutrition awareness trend in some way, and hence had very early responses to it, and low scores on immediacy (the earlier the response the lower the score). These companies, for example, may not have rated the issue as being very urgent in 1990 since they had already been dealing with it, some of them for quite some time. As such, the test of this hypothesis turned out not to be a very strong one.
For a better test of the immediacy hypothesis, it would be necessary to use an issue that emerged more suddenly and with less warning. As previously noted, just because no one had made a strong, public connection between nutrition concerns and eating out at restaurants before Phil Sokolof's advertisements did not mean that restaurant executives were unaware of this trend or that they had not already responded to it. The opportunities for such responses muddied the data to such an extent that, if relationships did exist between the stock assessments and immediacy, the signal was swallowed up in the noise.

The possibilities of such a test remain promising, given that both Urgency and Understanding had the anticipated negative coefficients (given that smaller values of Immediacy indicated earlier responses). A test using an issue having better timing characteristics perhaps would uncover significant results, as have other studies that have examined response timing (for example, MacMillan, et. al., 1985; Chen & MacMillan, 1992; Chen, et. al., 1992).

Additional future research. Research using different strategic issues is needed to broaden the applicability of this dissertation's findings. Given that this research examined one particular issue in one particular industry, it may be that these results will not have much generalizability. It cannot be known if they do without additional studies in different industries with different issues. Such research should also involve studies that include multiple issues in one industry. In this way, the affect of different issue characteristics on interpretation and response, which were held constant in this study, could be ascertained. Such characteristics as suddenness of emergence, the legitimacy attainable from conforming, how many areas of the organization are affected, the degree of constituent multiplicity, the
degree of dependence on relevant constituents, and the degree of consistency of the issue's demands with organizational goals (Oliver, 1991) could be ascertained for each issue. These characteristics could be assessed by an expert panel as was used here, and the relative effects of these characteristics tested against one another. Such a study could only be feasible if a few firms were selected and intensive access were allowed to investigators since the data collection would probably be time consuming. Also, more refined or different measures would be needed, given an executive's likely reluctance to answer similar questions about different issues several times.

Industry effects were also held constant in this study. While not mentioned explicitly in the model, it may be that consolidation, profitability levels, rivalry, threat of substitution, threat of entry, and the power of buyers and suppliers (Porter, 1980), to name some of the possibilities, may affect the way organizational managers interpret and respond to strategic issues. In this case, an issue that had very broad applicability, such as a change in a federal law or regulation (e.g., Americans With Disabilities Act or health care reform), could be selected and companies from various industries surveyed. If such research included firm-level contextual information, the topic of the relative impact of firm versus industry factors, long of interest in industrial organization (Schmalensee, 1985; Rumelt, 1991), could be addressed in the managerial interpretation arena.

There is also a host of firm-level variables that could have an impact on the interpretation-response relationship. These include age, size, strategy, structural characteristics, types of scanning systems, performance, top management team characteristics: the list is quite long. Research on how managerial cognitions influence strategy and other firm-level phenomena
is common (Barr, Stimpert, & Huff, 1992; Reger & Huff, 1993). Research investigating effects in the opposite direction should be continued, as well.

Also of interest in managerial interpretation is the influence of individual characteristics (Schneider & de Meyer, 1991). Research has shown that age, educational background, personal experiences, and functional orientation of managers have an impact on the strategies their companies are likely to employ and the financial performance they are likely to attain (Miller & Toulouse, 1986; Norburn, 1989). Tendencies of certain types of individuals toward certain types of interpretations may act as a mediative step in this relationship. Such research could extend to how individual differences (such as personality, age, gender) may affect interpretations.

One methodological improvement that could be made is to research an issue or issues of more recent vintage. While the company-level response rate was adequate, the individual one was lower, as was expected. Executives are probably more likely to provide information about recent events than ones less recent for the reasons of salience, interest, and ease of recall. Given the lead-times involved with dissertation research, the time factor was somewhat unavoidable in this case. This should not be the case in future endeavors. A good approach would be being prepared to act quickly with data collection for an "issue of opportunity." Questionnaires could be mailed early in an issue's evolution and the respondents later asked what they did in response.

Additional areas of relevance. This research has the potential for applicability to a wide arena of research streams. For example, Hall's (1984) "retained set" idea, within the context of the model delineated in this dissertation, relates very strongly to the idea of emergent strategies...
(Mintzberg & Waters, 1985) and the work in what has been termed the "learning school" of strategy formation (Mintzberg, 1990). It has been shown empirically that issue interpretation influences responses to new issues arising in the environment, and these responses represent the emergent aspects of what ends up being the realized strategy. It is thus possible to begin to understand the important factors in the formation of emergent strategies. Further research examining the influences of context, as has been suggested here, would go a long way toward bolstering our knowledge of such processes.

Research in the corporate social responsibility area may also be informed by these results. Factors that tend to increase or decrease corporate responsiveness to social needs are of interest here (Goodstein, 1994). This dissertation examined how organizations in one industry responded to the social concern of serving food that is healthier for consumers and demonstrated how interpretations of this issue influenced how they responded to it.

Given the importance of interpretation (opportunity versus threat) in most traditional strategic management models (Digman, 1986), these results also inform the areas of strategy-making and decision-making. Strategic control involves tracking premise validity and maintaining vigilant surveillance for environmental trends (Schreyogg & Steinmann, 1987). These results may form part of a descriptive model of these processes.

Conclusion

Organizations must respond to strategic issues, social issues, competitive moves, crises, and institutional pressures. Understanding what influences the kinds of responses that organizations enact provides knowledge about an important area of strategic management and social
responsibility. While many influences on organizational responses have been suggested, this dissertation has specifically examined the impact that issue interpretation has on organizational response by investigating how different restaurant organizations interpreted the issue of increased nutritional awareness in the spring of 1990 and what relationships these differing interpretations had on the responses that organizations made. In this way, interpretation has been highlighted as an important mediational step between the monitoring and scanning of the environment and taking action in response to it, a basic management activity.
References


Lamb (Eds.), *Advances in strategic management*, 6 (pp. 143-167). Greenwich, CN: JAI Press.


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Appendix A - Glossary of Key Terms

Issue Capability - estimates of whether the organization has sufficient resources to adequately respond to a strategic issue.

Issue Response - the organizational reaction to a particular strategic issue.

Issue Understanding - the degree of confidence the organization has that it knows or can determine an appropriate response to a particular strategic issue.

Issue Urgency - the cost of doing nothing in response to a strategic issue and how important it is for the organization to respond.

Response Activeness - the extent that the response deals with the actual issue or evades the issue through justification, denial, or other protective responses.

Response Assets - factors that an organization needs to be able to formulate a functional response to a particular strategic issue.

Response Certainty - the degree of understanding an organization has concerning the alternative actions it can take and the effectiveness of each of the alternatives.

Response Immediacy - the amount of time elapsed between the data interpretation and response stages.

Response Locus - the degree to which the response is internal or external.

Response Magnitude - the extent of the change or the degree the response might be considered revolutionary.

Strategic Issues - emerging developments that can have a major impact on the organization's strategy.
Strategic Issue Management (SIM) - the broad-based monitoring of the environment where strategic issues are interpreted, analyzed, and responded to.

Strategic Issue Management System - that part of an organization that perceives, analyzes, and responds to strategic issues.
Appendix B - The Organizational Informant Scales

Issue Urgency Scale
This is an issue that our organization must respond to.
This is an urgent issue.
This issue will be around for a long time.
There is very little time pressure associated with this responding to this issue. RS
This issue is very visible to the public.
This is not a very important issue. RS
This issue could develop into a crisis for our organization.
We must take action quickly to resolve this issue.

Issue Understanding Scale
It is hard to understand which alternative response is likely to be most effective in the long run. RS
I don't think that we are aware of all the response alternatives available to us. RS
There are many unknowns that could influence our response. RS
We understand this issue.
To some extent we just have to guess which alternative will produce the most desirable outcome for our organization. RS
It is easy to determine exactly which response alternatives are available.
It is relatively easy to evaluate the impact of each response alternative on the long-run well-being of our organization.
Global Capability Scale
We have enough resources to be able to respond effectively to this issue.
Due to a lack of resources, we are restricted in the kinds of responses we can make. RS
Our organization's capability gives us a broad range of response options.
The most effective responses are beyond our organization's capability. RS
Sufficient resources exist for our organization to have great latitude as to which alternative response(s) we can implement.
Our organization is capable of responding effectively to this issue.
Since our organization has many resources, we can respond to this issue pretty much as we want to.

Component Capability Scale
Please indicate the degree to which you think each of the following represented a strength or a weakness during this period.
- Financial Subscale
  Our organization's cash flow.
  Our organization's capacity to take on more debt.
  The availability of new equity financing.
  The amount of cash and liquid assets our organization has on hand.
- Organization Subscale
  Our organization's reputation.
  The administrative procedures of our organization.
  Our organization's administrative systems.
  The management techniques used by our organization.
  Our organization's operational policies and guidelines.
- Human Resource Subscale
The training and/or experience of our organization's managers and workers.
The relationship between our organization and our franchisees.
The motivation of our organization's managers and workers.
The working relationships of our organization's managers and workers.

- Technology Subscale
Our organization's ability to develop new and/or innovative methods to serve our customers.
The usage of new technology in the design and operation of our restaurants.
Our organization's proprietary information.
Our organization's skill at taking advantage of new technology and innovation.
During the mid- to late-1980s and the early 1990s, the American public became increasingly concerned with health. Part of this concern was reflected in a heightened interest in nutrition. Since the food offered by some restaurants has been traditionally perceived as unhealthy by many people, this increased interest in nutrition represented an issue that many restaurant companies, especially the fast-food ones, thought they must respond to.

Below is a list of hypothetical responses that restaurant chains could have implemented at the chain level in reaction to the nutrition trend. You are being asked to rate each of these responses as to its degree of responsiveness, its focus (external or internal), and its magnitude.

What follows is a brief description of what the terms responsiveness, focus, and magnitude mean.

Responsiveness - refers to whether or not the response directly addresses the nutrition issue and can vary between direct and indirect. A direct response deals squarely and straightforwardly with the nutrition issue, while an indirect response avoids the real issue or deals with it in a passive manner. For example, in the case of the Tylenol poisonings, a direct response would have been to pull all bottles of Tylenol off store shelves, while an indirect response would have been to announce the formation of a blue-ribbon panel to study the psychology of random poisonings.

Focus - refers to the area that the response targets for activity and can vary between internal and external. Internal responses make changes
inside the organization while external responses make changes outside it. For example, in the case of the Exxon-Valdez oil spill, an internal response would have been to tighten up Exxon's monitoring of oil rig captains, while an external response would have been to run advertisements stressing the company's otherwise outstanding safety record.

**Magnitude** - refers to the size and cost of the response in terms of resources and can vary between small & inexpensive and large & costly. For example, in the case of possible defects with a new automobile's gas cap, a large and expensive response would be to recall all the affected cars and to replace the gas caps, while a small and inexpensive response would be to mail customers a notice of the problem with instructions of how they could fix it themselves.

What follows is a description of what the numbers 1 through 4 correspond to for each of the response characteristics: responsiveness, focus, and magnitude.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsiveness</strong></td>
<td>Indirect</td>
<td>Somewhat</td>
<td>Somewhat</td>
<td>Direct</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Internal</td>
<td>Somewhat</td>
<td>Somewhat</td>
<td>External</td>
</tr>
<tr>
<td><strong>Magnitude</strong></td>
<td>Small &amp; Inexpensive</td>
<td>Somewhat</td>
<td>Somewhat</td>
<td>Large &amp; Costly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small &amp; Inexpensive</td>
<td>Large &amp; Costly</td>
<td>Costly</td>
</tr>
</tbody>
</table>
Responsiveness - direct deals squarely with the issue, indirect avoids the issue.

Focus - internal: changes inside the organization, external: changes outside it.

Magnitude - refers to the size and cost of the response in terms of resources.

For each possible response, please circle the number that best describes the degree of responsiveness, focus, and magnitude you think the response has. Please answer thoughtfully and consider each of them as occurring at the chain level.

Introduce a new, healthier product

<table>
<thead>
<tr>
<th>Responsiveness</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Magnitude</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Use advertisements showing how healthy the food already is

Provide nutrition information for customers

Use advertisements showing how healthy the food is compared to competitors

Increase R&D budget to develop healthier items

Form a committee to study the nutrition issue

Run ads contesting perceptions that the food is unhealthy

Offer more food that is perceived to be lower in fat (i.e., chicken vs. beef)

Increase the budget of the public relations office

Spend more resources to identify consumer eating trends

Cut the price of items that may be perceived as unhealthy

Increase the price of items that are perceived as healthy

Broaden food offerings (e.g., hamburger restaurant opens salad bar)

Donate money to promote public nutrition awareness
Do not change product offerings because nutrition is not an important issue with customers

Adjust profit forecasts

Run ads showing the non-nutrition benefits of fast food

Change names of items to make them sound healthier

Discontinue advertising higher-fat items

Discontinue serving higher fat items

Report to shareholders/owners that difficult times may lie ahead

Study feasibility of opening a healthier-menu fast food store

Begin to poll franchisees more often for market information

Merge or acquire another fast-food restaurant

Seek a buyer for the business

Communicate need for changes to franchisees

Test market healthier menu ideas

Begin to offer lower-fat items not offered before (e.g. lower-fat desserts - yogurt)

Increase advertising on items perceived to be unhealthy to increase sales

Offer sales on items higher in fat

Increase expansion in areas not as affected by nutrition issue

Stress superiority of cooking method used over that of competitors

Change production methods to reduce fat content in food

Test market items with lower-fat ingredients

Increase resources used for market intelligence

Copy competitors successful ad campaign or product roll-out

Run ads showing food items being consumed by active people who work-out

Introduce healthier reformulation of existing product
Appendix D - Cover Letter

We are engaged in some exciting research involving the restaurant industry. After working with restaurateurs during the last twelve years we have developed a master list of special restaurant executives to participate in a major restaurant research activity. Our advisors have nominated you and your organization to be a part of this special project.

Our expert panel of restaurateurs, together with our faculty, have helped develop the enclosed questionnaire. This questionnaire is concerned with basic management practices and activities of special restaurant owners here in the United States.

We are asking you (and the other recommended executives) to complete this questionnaire and return it to us by March 18, 1994. The confidential questionnaire will take only about twenty minutes to complete. (No individual responses will ever be reported - only the total group responses will be combined and analyzed.)

Thank you very much for your assistance and participation.

Sincerely,

Robert T. Justis
Professor

Scott D. Julian
Research Associate

Encl. - study questionnaire, SASE
Organizational Responses to Consumer Nutrition Awareness

Questionnaire

In the spring and summer of 1990 an organization called the National Heart Savers Association (NHSA) ran a series of aggressive advertisements aimed at several restaurants in the fast-food industry. A copy of one of these ads is included for your examination (see attachment A). The purpose of the NHSA's campaign was to heighten consumer's nutrition awareness and to get the fast-food industry to offer healthier menu selections. Although consumers had been increasingly aware of nutritional concerns for years, the NHSA campaign brought this issue to the forefront.

This questionnaire is designed to capture your organization's impressions of the consumer nutrition awareness issue during the spring and summer of 1990 and what actions your organization has subsequently taken in response to it. The questionnaire has four parts: A) General Information, B) Impressions of the Nutrition-Awareness Issue, C) Your Organization, and D) Actions Taken in Response to the Issue.

A) General Information - Please write the answers to the following questions in the spaces provided. Please be assured that all of your answers will be kept completely confidential.

1) What was your position in the company in the spring and summer of 1990?

2) What were your job duties in this position?
3) How would you characterize your company's performance in the spring and summer of 1990? Were sales and profits increasing, stagnant, or decreasing? How was your performance in relation to your competitors?

4) What trends and issues were affecting the restaurant industry in the spring and summer of 1990?

5) What opportunities and threats was your particular company facing in the spring and summer of 1990?
### Appendix F - Strategic Issue Response
**Implementation Frequency (n = 89)**

<table>
<thead>
<tr>
<th>Response Description</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduce a new, healthier product</td>
<td>71</td>
</tr>
<tr>
<td>Offer more food that is perceived to be lower in fat (i.e., chicken vs. beef)</td>
<td>70</td>
</tr>
<tr>
<td>Begin to offer lower-fat items not offered before (e.g., lower-fat desserts - yogurt)</td>
<td>58</td>
</tr>
<tr>
<td>Test market healthier menu ideas</td>
<td>55</td>
</tr>
<tr>
<td>Broden food offerings (e.g., hamburger restaurant opens salad bar)</td>
<td>52</td>
</tr>
<tr>
<td>Test market items with lower-fat ingredients</td>
<td>49</td>
</tr>
<tr>
<td>Provide nutrition information for customers</td>
<td>46</td>
</tr>
<tr>
<td>Advertisements showing how healthy food already is</td>
<td>37</td>
</tr>
<tr>
<td>Increase R&amp;D budget to develop healthier items</td>
<td>36</td>
</tr>
<tr>
<td>Change production methods to reduce fat content in food</td>
<td>33</td>
</tr>
<tr>
<td>Spend more resources to identify consumer eating trends</td>
<td>33</td>
</tr>
<tr>
<td>Introduce healthier reformulation of existing product</td>
<td>27</td>
</tr>
<tr>
<td>Increase resources used for market intelligence</td>
<td>25</td>
</tr>
<tr>
<td>Communicate need for changes to franchisees</td>
<td>24</td>
</tr>
<tr>
<td>Form a committee to study the nutrition issue</td>
<td>21</td>
</tr>
<tr>
<td>Stress superiority of cooking method used over that of</td>
<td>21</td>
</tr>
<tr>
<td>competitors</td>
<td></td>
</tr>
<tr>
<td>Increase the budget of the public relations office</td>
<td>18</td>
</tr>
<tr>
<td>Merge or acquire another fast-food restaurant</td>
<td>17</td>
</tr>
<tr>
<td>Begin to poll franchisees more often for market information</td>
<td>16</td>
</tr>
<tr>
<td>Use advertisements showing how healthy the food is compared to competitors</td>
<td>14</td>
</tr>
<tr>
<td>Do not change product offerings because nutrition is not an important issue with customers</td>
<td>14</td>
</tr>
<tr>
<td>Adjust profit forecasts</td>
<td>14</td>
</tr>
<tr>
<td>Study feasibility of opening a healthier-menu fast food store</td>
<td>12</td>
</tr>
<tr>
<td>Change names of items to make them sound healthier</td>
<td>11</td>
</tr>
<tr>
<td>Copy competitors successful ad campaign or product roll-out</td>
<td>10</td>
</tr>
<tr>
<td>Increase the price of items that are perceived as healthy</td>
<td>10</td>
</tr>
<tr>
<td>Increase expansion in areas not as affected by nutrition issue</td>
<td>8</td>
</tr>
<tr>
<td>Increase advertising on items perceived to be unhealthy to increase sales</td>
<td>8</td>
</tr>
<tr>
<td>Run ads showing food items being consumed by active people who work-out</td>
<td>7</td>
</tr>
<tr>
<td>Discontinue serving higher fat items</td>
<td>7</td>
</tr>
<tr>
<td>Donate money to promote public nutrition awareness</td>
<td>7</td>
</tr>
<tr>
<td>Seek a buyer for the business</td>
<td>5</td>
</tr>
<tr>
<td>Run ads contesting perceptions that the food is unhealthy</td>
<td>4</td>
</tr>
<tr>
<td>Cut the price of items that may be perceived as unhealthy</td>
<td>3</td>
</tr>
<tr>
<td>Run ads showing the non-nutrition benefits of fast food</td>
<td>2</td>
</tr>
<tr>
<td>Discontinue advertising higher-fat items</td>
<td>2</td>
</tr>
<tr>
<td>Offer sales on items higher in fat</td>
<td>1</td>
</tr>
</tbody>
</table>
Appendix G - Classification of Responses

Using the Expert Median Scores

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Large: 8</td>
</tr>
<tr>
<td></td>
<td>Small: 8</td>
</tr>
<tr>
<td></td>
<td>Not Classified: 22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Locus</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>External</td>
<td>20</td>
</tr>
<tr>
<td>Internal</td>
<td>8</td>
</tr>
<tr>
<td>Not Classified</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activeness</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>18</td>
</tr>
<tr>
<td>Passive</td>
<td>8</td>
</tr>
<tr>
<td>Not Classified</td>
<td>12</td>
</tr>
</tbody>
</table>

All subsections of the right column sum to 38.
Vita

Scott Julian received his B.S.B.A. in Economics from the University of Central Florida. His area of concentration in his doctoral studies is in Management with an emphasis in Strategic Management. He has taught college-level business courses at five institutions. His research interests include Strategic Issue Management, Strategic Control, and International R & D Management. He presently resides in Baton Rouge, Louisiana with Bridget, his wife of four and a half years.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Scott D. Julian

Major Field: Business Administration (Management)

Title of Dissertation: Strategic Issue Interpretation and Response in the Restaurant Industry

Approved:

[Signatures]

Major Professor and Chairman
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

June 24, 1994