

# The Impact of Individual and Organizational Factors on Problem Perception: Theory and Empirical Evidence from the Marketing-Technical Dyad

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*Research into the question of what factors influence problem perception have tended to focus on single, isolated decisions, often in contrived settings. Moreover, research has inclined to investigate in isolation the effect of either individual level factors or organizational ones. The purpose of this article is to present the findings of research into the relative impact of individual and organizational factors on managers' perceptions of their role related problem context. This role related problem matrix is important as it acts as a meta-frame for future problems. The findings suggest that both individual and organizational factors significantly influence perception, however, not entirely in the manner hypothesized. The results are discussed and avenues for future research outlined. J BUSN RES 1998; 42:25-38. © 1998 Elsevier Science Inc.*

Managers do not make decisions in a vacuum, but rather in a complex job related gestalt of multiple decisions through time, that frame and influence perceptions of new problems (Bateman and Zeithaml, 1989). It is on this decision-making gestalt, or context, that the research described in this article focuses. How managers perceive this context and the factors which influence this perception can yield valuable insights into how future problems are likely to be framed and acted upon.

From the early work of Simon (1957) decision making has been seen as central to understanding and enhancing managerial and organizational effectiveness. Indeed some scholars see deci-

sion making as an emerging paradigm in management theory (Huber and McDaniel, 1986). The research described here focuses on the first stage of the decision-making process: initial problem perception. Problem perception can be defined as the psychological process of scanning, noticing, and constructing meaning about environmental change (cf., Kiesler and Sproull, 1982). It is of importance for two reasons. First, how a problem is perceived (and consequently defined) delimits to a substantial degree the subsequent course of problem solving action (Mintzberg, Raisinghani, and Theoret, 1976; Volkema, 1983; Lyles and Thomas, 1988; Dunegan, 1993). The second reason concerns organizational learning; there are often cases of inappropriate problem formulation, implementation of concomitant solutions and the apparent subsequent amelioration or dissipation of the problem. This produces inappropriate cause-effect schema and consequently faulty learning (Einhorn, 1982; Senge, 1990; Billman and Courtney, 1993).

Problem perception is possibly the least well researched phase of the decision-making process (Nutt, 1992). One line of research in this area has been into the broad question: "what factors influence managers' perceptions of problems?" Answers can help more effective management of the formulation process. There has been some theorizing as to process and the factors which impact managerial problem perception (Ramaprasad and Mitroff, 1984; Cowan, 1986; Volkema, 1983) but rather less empirical research. Kiesler and Sproull (1982) in a comprehensive review of the social cognition literature propose that managerial problem sensing is influenced by the dynamics of social perception, information processing, and social motivation. Volkema (1983), in a laboratory experiment, investigated the impact of different formulation techniques and individual creativity on problem formulation, finding that the latter had the strongest impact. Cowan (1991)

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investigated the impact of Jungian functions and experience on executives' descriptors of general problem categories, finding that decision functions explained more variance than experience. Characteristics of this line of research are twofold: first, they have typically been conducted in contrived settings (e.g., experiments, simulations, scenario's etc.); and second, they have tended to focus on specific problems in isolation of the wider problem/decision-making matrix which is characteristic of managers' day-to-day jobs.

On-the-job decision making differs from isolated experiments in a number of important respects. For example, the temporal dimension means that the consequences of one decision feeds into the next and that multiple decisions coexist and influence each other (Bateman and Zeithaml, 1989). Second, managers do not simply react to their decision environments, they actively construct them—they create their own decision support systems and selectively process the information generated (George, 1980). Third, managers work with and through others in manifold organizational roles—they are part of a system which is partly beyond their control and which processes information unconsciously or "mindlessly" (Ashforth and Fried, 1988). Finally various contextual affective, motivational, and other self-referent psychological factors shape decisions (Wood and Bandura, 1989).

The research presented in this article investigates the impact of individual and organizational factors on managers' perceptions of their day-to-day decision-making context. The construct of decision-making context is operationalized as the ratio of perceived problem types encountered while performing a specific organizational role related activity. The research seeks to make a contribution in two areas. First, it endeavors to extend and compliment previous research by focusing on real-world problem gestalts. Second, the research also strives to make a contribution in that it specifically compares the impact of organizational and individual factors on the problem formulation process. Indeed it goes toward heeding Lyles and Mitroff's (1980 p. p. 117) call: "we hope that future studies will determine more precisely the relative influence of individual and organizational characteristics" ... on problem formulation.

We chose to focus on the level of decision-making context for the following reasons. First, it overcomes the problems of somewhat artificially selecting and isolating one problem from a matrix. Second, the decision-making context will in itself act as a meta decision frame for new decisions (cf., Bateman and Zeithaml, 1989); knowing a manager's perception of their decision-making context tells us something about individual decisions, and the manner in which managers are likely to interpret and react to new events. Third, it heeds Miller and Mintzberg's (1983) call for approaches that favor synthesis—looking at "gestalts," "archetypes," or "configurations" rather than the atomistic decomposition of specific cases and elements.

In summary, the research problem this study seeks to address is: to what extent do individual and organizational facts

influence managers' perceptions of their decisions-making contexts? The rest of the article describes how we set about answering this question and is set out as follows. First, from the literature we establish a conceptual framework. Specifically, we outline a constructionist perspective on problem perception and outline a model of the factors which influence this process. Second, the constructs of decision-making context and perception type are delineated and the impact of organizational role explored. Third, how we set about testing the central model is described: various hypotheses are formulated, the study methodology is outlined, and the results presented. Finally, we conclude with a discussion of the findings.

## Conceptual Framework

### *Problem Perception: A Constructivist View*

In approaching the notion of problem perception we take a constructivist perspective (von Foerster, 1976). This tradition retains some features and rejects others from the subjectivist and objectivist perspectives. For a constructivist, problems have no existence of their own, but are nevertheless grounded in some objective reality (Landry, 1995). Like the objectivist tradition, constructivists posit the existence of some independent reality, however they reject that it can be known independent of a subject. Like the subjectivists, constructivists conceptualize problems as abstract entities, but reject that they are simply reflections of the observer's mind. The constructivist tradition argues that problem perception is built up through a recursive dialectic between subject and object, thus problems cannot be reduced to either subject or object, but emerge in an ongoing manner from the interaction. In this process, an active subject in quest of adaptation with an object, constructs problem representations or schema which are both in part objectively valid and subjectively meaningful (Brown, 1989). These constructions then drive future adaptive activity. This process continues with the subject assimilating the object to his or her problem schema, and with the object transforming those schema to accommodate novelty in the object. From this perspective one does not ask "what is the right view of a problem?" (objectivist), or "who are the critical subjects involved?" (subjectivist), but rather "which representation is best suited for the adaptation required?" Thus the utility of a particular problem representation is contextual, and degree of utility assessed (usually) *post hoc* either by social consensus or consistency over time (Cowan, 1986). For a full description of the constructivist view of problems the reader is invited to review Landry (1995).

### *Problem Perception: A Model*

Davis, Grove, and Knowles (1990), following Dickson, Senn, and Chervany (1977) and Mason and Mitroff (1973), employ a general descriptive model of decision making. This model specifies that overall decision performance is a function of three elements, namely: characteristics of the decision maker,

the decision environment, and the information system. Given that problem perception is the first stage in the decision-making process, it seems logical to propose that these elements will influence this primary stage. Initial support for this conjecture can be found in Cowan's (1986) model of the problem recognition process. Cowan argues that the problem recognition process is a function of individual cognitive frameworks, task-role schemas, and informational situations. Each model (Cowan (1986) and Mason and Mitroff (1973)) thus have an individual, a decision role environment, and an informational component. Following this logic we propose:

$$P_p = \text{fn}(\text{DM}, \text{DE}, \text{IS})$$

where  $P_p$  = perception of problem, DM = decision maker, DE = decision role environment, IS = information system.

We operationalize and offer justification for this formulation as follows. First, as discussed above, we focus on a decision maker's role-related problem gestalt rather than a specific isolated decision. Second, following Mason and Mitroff (1973), Ramaprasad and Mitroff (1984), Cowan (1991), and Davis et al. (1990) we employ Jungian dimensions of personality as key aspects of the decision maker. Previous research has demonstrated that these dimensions influence various stages of the decision-making process (e.g., Nutt, 1990). For example Davies et al. (1990) found that personality type had a significant impact on overall decision performance (as measured by total production costs in a computer simulation); Haley and Stumpf (1989) found that different personality types employ distinct heuristics to gather data, to generate and to evaluate alternatives during the decision-making process; and Cowan (1991) found that Jungian personality dimensions were related to executives' descriptors of organizational problems.

Third, the decision role environment, following Dickson et al. (1977), is operationalized in terms of level of management and job function. Conceptual support for the impact of level of management and job function on problem perception can be found on two levels. First, on a "structural" level, organizational decision roles serve as "interpretation systems" (Daft and Weick, 1984) alter perceptions, channel information, and consequently influence problem perception. Second, on an experiential/learning level, March and Olsen (1979) and Hambrick and Mason (1984) argue that functional experience and learning informs managers' perceptions and interpretation of events.

Specifically in terms of job, Smith (1989) found empirical evidence that individuals identify certain problems as the result of performing an assigned organizational function. While, Perkins and Rao (1990) found that functional experience is an important determinant of managerial decision-making behavior, especially for relatively unprogrammed decisions, and specifically that experience affects which information is selected and processed prior to making a decision.

In terms of the impact of level of management on problem

perception, the following research is pertinent. On a conceptual level, Mason and Mitroff (1973) argue that there is a close interdependence between problems and organizational structure. Specifically, they differentiate between strategic, management and operational problems which reflect an organization's hierarchical structure. On an empirical level, Franwick, Ward, Hutt, and Reingen (1994), following Frombrun (1986), found that organizational hierarchy impacted managerial cognitions generally and specifically their perceptions and interpretations of new strategy and its consequences.

Finally, we do not directly control for information system (the form, content, level of summarization, presentation media of information, etc., Davis et al. 1990) for the following reasons. First, the information system is in part tied to a particular organizational role; for example it is recognized that the level of summarization of information increases with organization level (Mintzberg, 1979). Second, individuals construct their own information systems (George, 1980), a process influenced by their own decision-making style (Mason and Mitroff, 1973; Nutt, 1979; Haley and Stumpf, 1989). Simply put, we argue that  $\text{IS} = \text{fn}(\text{DM}, \text{DE})$ . Obviously this can never entirely be the case, and as such this simplifying assumption represents a limitation of the present study. Thus we propose that:

$$P_{\text{DMC}} = \text{fn}(\text{PT}, \text{OR})$$

where  $P_{\text{DMC}}$  = perception of decision making context, PT = personality type, OR = organizational role, which leads to our first hypothesis:

*H1:* Perceptions of decision-making context are a function of individual (perception type) and organizational/collective factors (job and level of management) factors. We now address each of the constructs in more detail: decision-making context, Jungian personality type, and organizational role.

### Decision-Making Context

Recall that we define decision-making context as the role related problem gestalt within which a manager operates and makes decisions on an ongoing basis. As argued, at any one time managers face multiple interrelated decisions which are influenced by previous decisions and their outcomes. We operationalize decision-making context as the ratio of problem types a manager encounters while performing a specific organizational role. In differentiating problem types, we follow Mason and Mitroff (1973, 1981) and others (Churchman, 1961; Mintzberg, Raisinghani, and Theoret, 1976; Luce and Raiffa, 1989), by focusing the dimensions of structured versus unstructured problems and strategic versus operational problems. These two dimensions are especially pertinent to decision making as they trigger quite distinct decision processes and emphasize different organizational issues. We discuss each dimension of decision-making context in turn.

Structured problems are defined as problems where solu-

**Table 1.** The Two Dimensions of Decision-Making Context

Problem Type	Focus	Characteristics
Structured	Finding the most appropriate solution (problem solving)	Alternative solutions are known; outcomes of solutions vary from known to uncertain  such problems are typically routine, unambiguous, closed, and well defined
Unstructured	Delineating the problem (problem finding)	Alternative solutions and their outcomes are unknown  such problems are typically novel, unique, complex, ambiguous, open-ended, and poorly defined
Strategic	Purpose, goals, objectives	Long time horizon, globalized organizational impact and the key concern is with effectiveness
Operational	Specific actions	Short time horizon, localized organizational impact and the key concern is with efficiency

tion alternatives are known and where knowledge about consequences of each solution varies from complete to indeterminate. In contrast, unstructured problems are defined as those characterized by ambiguity, where both solution alternatives and their consequences are unknown (Luce and Raiffa, 1989; Mintzberg et al., 1976, p. 251). Unstructured problems can be thought of as "decision processes that have not been encountered in quite the same form and for which no predetermined and explicit set of ordered responses exists in the organization" (Mintzberg et al., 1976, p. 246). Drawing on the decision-making literature the common themes or characteristics of structured and unstructured problems are specified in Table 1 (Mason and Mitroff, 1973, 1981; Donnelly, Gibson, and Ivancevich, 1987). The dichotomy of structured and unstructured is important because these two problem types are the antecedents of two quite distinct decision-making processes: programmed and unprogrammed modes of decision making (Simon, 1977); the analyzable and unanalyzable decision processes identified by Ullrich (1976); and Nutt's (1990) high and low puzzlement decisions. Simply, a problem perceived as structured will trigger a relatively automatic, programmed decision process, while one perceived as unstructured

will, trigger an unprogrammed, highly customized decision process.

The second dimension addressed here focuses on classes of organizational problem. From the literature the characteristics of strategic and operational problems can be set out (Ackoff, 1974; Thompson and Strickland, 1989; Cowan, 1991; Mintzberg et al. 1976). Strategic problems are defined as problems which deal with: the determination of an organization's purpose, goals, and direction; the fit or alignment between the organization and its environment; and the organization as a whole. In contrast, operating problems are defined as problems which deal with: specific courses of action for the immediate future; actions taken to achieve pre-established goals and objectives; and localized parts of an organization. Conceptually, the difference between operating and strategic problems can be equated to the distinction between efficiency and effectiveness. Operating problems tend to be more concerned with efficiency issues, while strategic problems tend to be more concerned with issues of effectiveness. The differences in terms of focus, time orientation, impact, and primary concern are set out in Table 1. The dichotomy of strategic versus operational is important because these two problem types deal with two quite distinct sets of organizational issues. Perceiving a problem as strategic will emphasize long-term implications, stress the effect of the problem on the organization as a whole and its consequences for competitive positioning. In contrast perceiving a problem as operational will tend to emphasize short-term localized implications, and focus attention on specific actions to be taken.

### Personality Type

Jung's (1923/1977) theory of personality has provided fecund ground for theory and research in management. For example, the theory has shed useful light on the design of inquiring systems (Churchman, 1971), management information systems (Mason and Mitroff, 1973), organizational problem solving (Mitroff and Kilmann, 1976), strategic planning (Mason and Mitroff, 1981), and organizational effectiveness (Quinn, 1988). Jungian personality types have been used as analogues for decision-making style (e.g., Davis et al., 1990; Henderson and Nutt, 1980) and problem-solving style (e.g., Hellriegel and Slocum, 1980). Empirical research has shown that different decision-making styles (defined using the Jungian typology) have differing attitudes to risk (Henderson and Nutt, 1980), prefer different organizational designs (Hellriegel and Slocum, 1980), and utilize different cognitive heuristics (Haley and Stumpf, 1989). Finally, research suggests that no one decision style is inherently superior for all decision tasks (e.g., McKenney and Keen, 1974), but that different styles can excel in specific contexts (e.g., Davis et al. 1990).

Jung's theory of the psyche postulates two attitudinal orientations and four basic psychological functions (Jung, 1923/1977). The two attitudinal orientations comprise extraversion and introversion, and describe the direction of flow of psychic

energy or attention. The four basic psychological functions comprise two antipodal perceptual functions (sensation and intuition) which mediate information to the psyche and two antipodal judgmental functions (thinking and feeling) which process and evaluate that information. Furthermore, implicit in Jung's typology are two functional orientations which were later made explicit by Myers (1962). People tend to approach the outer world by relying on either judgment or perception as functions in themselves. Each pair of functions (sensation-intuition and thinking-feeling), attitudes (extraversion-introversion), and orientation (judgment-perception) are opposite yet complementary, they mutually coexist and define one another, and comprise the four axes which define Jungian personality types.

In this study we specifically focus on the axes of sensation—intuition and judgment—perception. These are now described in greater detail and the rationale for their inclusion specified. Ramaprasad and Mitroff (1984) argue that certain psychological functions are more important in different phases of the decision-making process. Specifically, the functions of sensation and intuition are seminal in the problem perception stage, while thinking and feeling are central in the evaluation phase (Cowan, 1991). Of the perceptual functions, sensation is the function that mediates information through the five senses; sensation establishes conscious reality; that is, what “exists.” In contrast, intuition goes beyond the apparent “manifest” world to the implicit world of potential and possibilities. It mediates inner perceptions from the unconscious. Intuition sees wholes or patterns, while sensation sees details: intuition sees systemic-gestalts while sensation sees particulars.

In terms of the perception-judgment axis Myers (1962) argues that a person's orientation to the other world is either adaptive (perception) or directive (judgment); the former seeks to understand and adapt to the world, while the latter seeks to direct and control it. The potential importance of the perception-judgment axis to problem perception becomes clear when related to schema theory (Axelrod, 1973), and more specifically to Neisser's (1976) perceptual cycle. In Neisser's model, cognitive schema, (defined as constructed anticipations of certain kinds of information which are plans of perceptual action as well as readiness for particular kinds of information (i.e., they have a specific information valency) direct or drive perceptual exploration. The environment is scanned and sampled for specific information, which in turn modifies the original “driving” schema. The process is cyclic and continuous. A Jungian judgmental type person would tend to have relatively fixed schema (composed of thought or feeling structures). These would direct perceptual exploration (sensation or intuition) in a somewhat deterministic manner. Sampling of information would be highly selective and the schema highly resistant to modification. Indeed such a person only “sees” what they “think” or “feel”—they would be strongly prone to the confirmation bias (Bazerman, 1990). In contrast, the perceptual person would have relatively fluid schema.

These would direct perceptual exploration in a fairly loose or general way. Information would be scanned in a comprehensive manner and the fluid schema would be easily modified. The judgment type is thus schema driven, focused and selective in sampling, and dismissive of information which does not “fit” the original schema. The perceptual type is thus information driven, comprehensive in sampling, and malleable in terms of modification of existing schema and the generation of new schema.

The two axes of sensation-intuition and perception-judgment delineates four types, called here perception types: sensation-judgment (SJ), intuition-judgment (NJ), intuition-perception (NP), and sensation-perception (SP). The characteristics of each type are first defined in general terms and then specifically related to management problem types. The managers with an SJ type focus on the immediate and particular; data and detail are rapidly structured, classified, and ordered. The SJ manager seeks out/imposes order and structure in/on concrete information. The NJ type focuses on the global or gestalt nature of situations; he/she seeks out possibilities, temporally unconfined, ranging backward and forward in time. Rapidly these possibilities are arranged into neatly ordered hypothetical models (thinking) or myths and stories (feeling). The NP type again focuses on possibilities, emphasizing and perceiving the fluid and dynamic nature of these. Here is the Heraclitean mode of perception: “All is flux . . . everything flows nothing abides” (Wheelwright, 1959). The SP type again focuses on the particular; grounded in the here and now, the ever changing, fluid nature of the moment is encountered. This mode of perception seems to resonate with the notion of “mindfulness” in Buddhist thought (e.g., Katagiri, 1988).

Relating perception type to problem perception the following may be deduced. Those with a dominant sensation function (the SP and SJ types) are likely to perceive the immediate, manifest details of problems, resulting in a short-term, operational view. In contrast intuitive types (the NP and NJ types) are likely to emphasize the longer term, more holistic aspects of problems, resulting in a more strategic view. In addition to the foregoing theoretical argument, further support for this proposition can be found in the work of Mason and Mitroff (1973) who argue that sensation types stress immediate hard information and facts, while intuition types stress future possibilities. In addition, Hellriegel and Slocum (1980) demonstrated that sensation (S) type managers appear to focus on short-term problems, while, intuition (N) type managers appear to focus on long-term problems.

The judgment types (SJ and NJ) with relatively fixed schema are likely to stress the structured or ordered aspects of problems, while in contrast the perceptual types are likely to perceive the fluid unstructured nature of problems. Once again, in addition to the foregoing theoretical argument, further support for this proposition can be found in the work of Nutt (1986) who found that P type students are adept at discovering hidden meanings and nuances when analyzing business cases,

yet have difficulty in placing these insights into a final summarizing structure. In contrast, J type students often miss case subtleties, yet provide clear, well structured situation summaries.

Thus, in terms of a manager's perception of their decision-making context, we hypothesize:

*H2a:* NJ and NP managers will perceive their decision-making context as comprised of a higher portion of strategic problems than SJ and SP types.

*H2b:* SJ and NJ managers will perceive their decision-making context as comprised of a higher proportion of structured problems than SP and NP types.

### **Organizational Role: Job Function and Level of Management**

As specified above, following Dickson et al. (1977) and Davis et al. (1990), we operationalized organizational role as job function and level of management. The marketing-technical dyad was chosen to represent job function, and the top-middle management distinction was used for level of management. Each is discussed in turn.

**FUNCTION: THE MARKETING-TECHNICAL DYAD.** As described above, research suggests that managers' functional backgrounds can influence their perceptions of problems. The particular functional dichotomy investigated in the current research is that of the marketing-technical dyad. Conflict between these two functions has been the focus of recent marketing literature (e.g., Song and Parry, 1992; Bertrand, 1992; Kamath, Mansour-Cole, and Apana, 1993; Stevenson, Barnes, and Stevenson, 1993) and may involve differences in problem perception. Specifically, it has been observed that marketing and technical functions exhibit (and inhabit) quite distinct "thought worlds" (Dougherty, 1989) or "world views" (Deshpandé and Webster, 1989) which it is argued can influence constituent managers' perceptions of problems.

Specifically in terms of the structured-unstructured component of decision-making context, the following findings are pertinent. Dougherty, (1989) suggests that the marketing world view stresses "soft" issues of emotion, persuasion, and the nonquantifiable; the focus is on people, values, and the qualitative side of phenomena. In contrast, technical functions' (such as information systems, accounting and operations) world view emphasizes the more logical and quantifiable, where empirical fact and quantitative information are prized and sought. Now Mason and Mitroff (1981) and others (e.g., Cowan, 1991) argue that issues concerning values, emotion, and people tend to be more inherently unstructured in nature than technical issues of fact and quantitative information. Thus, whereas technical problems are defined in a relatively unequivocal context of technological applications, marketing problems dealing with the more qualitative are conceived of as more elusive and ambiguous (cf., Lyles and Mitroff, 1980). Consequently we hypothesize:

*H3a:* Marketing managers will perceive their decision-making context as comprised of a higher proportion of unstructured problems than their technical counterparts.

In terms of the impact of the focal dyad on the strategic-operational dimensions of decision-making context, the following research is pertinent. Marketing is recognized as a boundary-spanning function, that bridges the organization-environment interface and tends to be outwardly focused; in contrast, technical functions tend to be more insulated and inwardly focused (Michaels, Cron, Dubinsky, and Joachims-thaler, 1988; Piercy, 1989; Goolsby, 1992). Indeed research suggests that companies led by managers from output functions (such as marketing) tend to pursue more adaptive, outward-looking strategies than managers from throughput functions (such as technical functions), who pursue strategies which stress internal efficiency (Chaganti and Sambharya, 1987; Thomas, Litschert, and Ramaswamy, 1991). Overall, one may infer that inwardly focused, technical functions will encourage managers to select and focus on the more operational aspects of problems. In contrast, the externally oriented marketing function will influence managers to stress and focus on the strategic aspects of problems. Specifically we hypothesize:

*H3b:* Marketing managers will perceive their decision-making context as comprised of a higher proportion of strategic problems than their technical counterparts.

**LEVEL OF MANAGEMENT.** Research suggests that managers' decisions are influenced by their hierarchical positions (Fombrun, 1986; Franwick, Ward, Hutt, and Reingen, 1994) and it is proposed that the ratio of strategic to operational problems is likely to vary with level in an organization's hierarchy (cf., Anthony, 1965; Mintzberg, 1979). Specifically, in terms of problem perception the following may be gleaned. First, from a normative perspective, in most organizations top management are specifically charged with the responsibility of focusing on the strategic aspects of organizational problems (Hill and Jones, 1992). Organizations are structured so that (ideally) top managers are able to bring together and interpret information as a whole (Daft and Weick, 1984). This normative admonishment and the structuring of organizations' information flows suggest that top managers are likely to perceive organizational problems from a strategic perspective. In contrast, managers lower in the hierarchy are typically charged with focusing on implementation: that is converting broad top management decisions into specific day-to-day operations (Hill and Jones, 1992). Indeed organizations are structured in such a way as to focus and delimit lower level managers' information, typically along narrow functional lines (Moe, 1994). Again this normative responsibility and the structuring of an organization's information flow suggest that lower level managers are likely to perceive organizational problems from a strategic perspective. In this study it was decided to compare senior or top managers with middle managers, as junior or lower managers

are likely to be new to management, involved in supervised training, and are often moved around an organization as part of their development (Bonoma and Lawler, 1989). Consequently they may not have been in a given organizational decision-making context for any appreciable length of time. This leads to our next hypothesis.

*H4:* Top managers will perceive their decision-making context as comprised of a higher proportion of strategic problems than their middle manager counterparts.

Finally, no direct evidence was found in the literature to specifically link level of management with the degree of problem structure.

## Research Design

### Sample

The research attempted to tap on-the-job perceptions of managers. Accordingly, a cross-sectional mail survey was employed. The mailing consisted of two questionnaires, a prepaid return envelope and a covering letter. These were mailed to the 100 senior marketing managers and separately to 100 senior technical managers of medium- to large-sized British companies. Firms were selected at random from a commercial data base. Medium to large size was defined as those companies with >100 employees. The covering letter explained the research to the senior manager, requesting that he/she complete one questionnaire while giving the second survey to a middle manager within the same department. A request was made that the questionnaires be collected and returned in the envelope provided. Ten days after mailing, a reminder post card was mailed to each of the original recipients of the mailout.

A total of 108 questionnaires were returned, of which only 100 surveys proved usable (an effective response rate of 25%). These broke down as follows: 48% marketing, 52% technical. Of the technical managers, 27 classified themselves as specializing in operations, 23 in R&D, and a further 2 in information systems. In terms of position in the organization, 48% of the sample classified themselves as top managers and 52% as middle managers. The average age of the respondents was 43.6, with a standard deviation 8.3. Over half (59%) of the sample classified their companies as manufacturers, 15% as service providers (including finance, insurance, and real estate), with the remainder of the sample consisting of extraction industries, construction, transport, and retail.

### Instruments

The questionnaire was self-report and consisted of three sections: personal and company descriptors, job description and decision-making context, and an instrument to assess personality type. It consisted of 107 items of which five dealt with descriptors, eight with job and decision-making context, and 94 dealt with personality type.

**DECISION-MAKING CONTEXT.** To elicit information on decision-making context, managers were asked to describe their jobs and then rate them in terms of the percentage ratio of perceived problem types. On one scale managers rated their jobs in terms of the relative ratio of operational to strategic problems encountered, and on the other in terms of the relative ratio of structured to unstructured problems encountered. Sentences defining the characteristics of structured, unstructured, strategic, and operational problems (as summarized in Table 1) were provided. This ensured that managers worked with consistent and common definition of terms. The scales were constructed so that respondents had commonality of zero point and scale increments. With such a design, ratings take on interval scale properties and parametric statistical methods can be used to analyze the data. The scales are shown in the appendix and labeled US (unstructured-structured) and OS (operational strategic) for future reference.

The scores on the two scale dimensions were calculated by subtracting the percentage of unstructured decisions from the percentage of structured ones, and the percentage of operational decisions from the percentage of strategic ones, respectively. Thus, on the US dimension, negative scores indicate a higher proportion of unstructured decisions, positive scores, a higher proportion of structured decisions. On the OS dimension, negative scores indicate a higher proportion of operational decisions, positive scores, a higher proportion of strategic decisions. For example on the operational-strategic dimension, a person who feels that all their problems are operational would score -100, one who feels they encounter an even balance (i.e., 50:50) of strategic and operational problems would score 0. Finally, a person who encounters 70% strategic problems and 30% operational problems would score +40.

The questions arise: how reliable is this type of scale? To what degree are managers' responses capricious? How stable are the scales over time? Is scale ambiguity a problem? To assess reliability a test-retest was conducted. A separate group of 29 managers assessed their decision-making contexts at two points in time separated by an interval of two months. Pearson product moment correlations between the two sets of scores yielded an *r* of .91 for the strategic-operational scale and an *r* of .83 for the structured-unstructured scale.

**PERCEPTION TYPE.** The 94-item, form G version of the Myers-Briggs Type Indicator (MBTI) was employed to assess personality type. This instrument, with a few notable exceptions (e.g., Urban, 1989), has received limited attention in the marketing literature. Essentially the MBTI is a forced choice inventory designed to elicit the individual's preference for extroversion versus introversion, sensation versus intuition, thinking versus feeling, and perception versus judging. The majority of the items on the MBTI are questions which ask respondents to choose between responses. For example, an item on the sensation-intuition scale reads: If you were a teacher, would you rather teach: (A) fact courses, or (B) courses involving theory?

Scoring comprises assigning points to each of the responses

and summing them for each scale. For example, in the above sample question, selecting (A) would score one point for sensation, and selecting (B) one point for intuition. To get an overall score, all selected items relating to sensation are summed and the same for intuition. The higher of the two scores denotes preference. Thus in terms of perception type, if a person scores higher on sensation than intuition and higher on judgment than perception they are classified as a sensation-judgment or SJ type. A detailed description of the instrument and scoring procedure can be found in Myers and McCaulley (1985).

In terms of reliability, the MBTI in the present study yielded internal consistency (Cronbach's alpha) scores of .83 for the S-N dimension, .89 for the J-P dimension. These results mirror the findings of Tzeng, Outcalt, Boyer, Ware, and Landes (1984) who found Cronbach's alpha scores of between .74 and .85 across the four dimensions of the instrument. Overall, the MBTI has been widely tested (Carlyn, 1977); for a comprehensive review see Carlson (1985). Split half reliability coefficients (Pearson) typically exceed .80 (Carlson, 1985), test-retest typically produces results of between .77 and .89, (McCarley and Carskadon, 1983). There has been concern over the bipolar forced choice format of the instrument (Loomis, 1982), however studies using unipolar versions of the instrument confirm the bipolar assumption behind the MBTI (Tzeng, Ware, and Chen, 1989).

## Analytical Approach and Results

To test our first hypothesis (H1: Perceptions of decision making context are a function of individual [perception type] and organizational/collective factors [job and level of management] factors) a multiple analysis of variance procedure (MANOVA) was conducted. The advantages of MANOVA in this context are that it handles multiple intercorrelated dependent variables (the variables US and OS were correlated with a Pearson's  $r$  of 0.31,  $p < 0.00$ ) and concomitantly reduces the possibility of type 1 error (e.g., Cooley and Lohnes, 1971; Leary and Altmaier, 1980). As the study design was non-orthogonal (see Table 2), we followed the recommendation of Bochner and Fitzpatrick (1980) and utilized the regression method for MANOVA with unequal cell sizes. In this technique, each effect is adjusted for all other effects in the model.

The MANOVA was conducted with US and OS as dependent variables, and perception type, level of management and job function as independent variables, the results of which appear in Table 3. Strong main effects were shown for both perception type (Wilks' lambda = 0.71,  $F(6, 166) = 5.25$ ,  $p < 0.00$ ) and job function (Wilks' lambda = 0.96,  $F(2, 83) = 3.38$ ,  $p < 0.04$ ), while the main effect for level of management was not significant (Wilks' lambda = 0.99,  $F(2, 83) = 0.46$ ,  $p < 0.64$ ). All second- and third-order interaction effects were not significant ( $p > 0.05$ ). Thus, overall the results support H1—perceptions of decision-making context are a function of individual and organizational/collective factors, although of the latter, only job was significant.

**Table 2.** Sample Breakdown

Type by Level		Perception	Type	
Level of management	SJ	NJ	NP	SP
Top	19	11	13	5
Middle	19	8	13	12
Type by Job		Perception	Type	
Job function	SJ	NJ	NP	SP
Marketing	12	11	19	6
Technical	25	8	7	11
Job by Level	Job	Function		
Level of management	Marketing	Technical		
Top	20	28		
Middle	28	24		

To determine which dependent variable(s) is (are) responsible for the statistically significant MANOVA results, ANOVA was performed for each of the individual dependent variables: US and OS. As the second- and third-order interaction effects in the MANOVA were insignificant, only the main effects were tested for in the ANOVA. To ascertain a factor's relative importance in explaining the variance in the independent variable(s),  $\omega^2$  statistics (Fern and Monroe, 1996; Malhotra, 1996) were calculated. The ANOVA results and concomitant  $\omega^2$  statistics are set out in Table 4.

For the US dimension of decision-making context the main effect of perception type was significant ( $F(3, 94) = 10.19$ ,  $p < 0.00$ ) with a relative contribution (as measured by  $\omega^2$ ) of .24. Malhotra (1996; p. 564) suggests that as a guide to interpreting  $\omega^2$ , a large experimental effect produces an  $\omega^2$  of  $\geq .15$ , a medium effect an index of  $\approx .06$  and a small effect an index of  $\approx .01$ . Thus we can conclude that perception type is an important factor in explaining the variance in the US dimension of decision-making context. Neither level of management nor job function were significant in their effect. For the OS dimension of decision-making context both perception type and job function were significant ( $F(3, 94) = 6.98$ ,  $p < 0.00$  and  $F(1, 94) = 4.08$ ,  $p < 0.04$ , respectively), although perception type ( $\omega^2 = .16$ ) accounted for considerably more variance in US than job function ( $\omega^2 = .03$ ).

**Table 3.** MANOVA Results: OS and US Dependent Variables

	Wilks' Lambda	df	F	p
PerType <sup>1</sup>	0.71	(6, 166)	5.25	0.00
LOM	0.99	(2, 83)	0.46	0.64
FN	0.96	(2, 83)	3.38	0.04
PerType*LOM	0.97	(6, 166)	0.42	0.86
PerType*FN	0.95	(6, 166)	0.69	0.66
LOM*FN	0.98	(2, 83)	0.74	0.48
PerType*LOM*FN	0.91	(6, 166)	1.26	0.28

<sup>1</sup> PerType=perception type; LOM=level of management; FN=job function.



**Table 4.** ANOVA Results: Main Effects for OS and US

Dependent Variable	Independent Variable	df	F	p	$\omega^2$
OS	PerType	(3, 94)	6.98	0.00	.16
	LOM	(1, 94)	0.81	0.37	.01
	FN	(1, 94)	4.08	0.04	.03
US	PerType	(3, 94)	10.19	0.00	.24
	LOM	(1, 94)	0.86	0.36	.01
	FN	(1, 94)	0.04	0.83	.00

To inspect differences between categories the cell means are set out in Table 5. In addition *a posteriori* contrast least-significant difference tests (LSD) were employed to test differences among the perception type categories (Winer, 1991). LSD is a systematic procedure for comparing all possible pairs of group means and essentially equates to a Student's *t*-test, on the dependent variable for each category pair which takes into account the number in each case, and thus is exact even for unequal group size (Kim and Kohout, 1975). In Table 5, the LSD classification appears to the right of the cell means for perception type.

An examination of the cell means in Table 5 reveals the following. On the OS dimension of decision-making context, in terms of the categories of perception type, SP and SJ managers perceived relatively more operating problems (-41.18 and -41.31, respectively), while NP managers perceived relatively more strategic problems (9.62); NJ managers fell in-between (-22.05) these two groups, and in absolute terms tended to see their decision-making context as being comprised of more operational problems than strategic ones. However, relative to sensation managers NJ managers still perceived relatively more strategic problems. The LSD categories indicate that significant differences lay between NP managers and sensation (SJ and SP) managers at the 5% level (i.e.,  $p < 0.05$ ), and between NJ managers and sensation managers at the 10% level (i.e.,  $p < 0.10$ ). In terms of job function marketing managers perceived relatively more strategic problems (-8.33)

than their technical counterparts (-38.85). Finally, although not significant, the differences between top and middle managers were again in the direction hypothesized (-20.96 vs. -27.71).

In terms of perception type, on the US dimension of decision-making context, NP and SP managers perceived relatively more unstructured problems (-25.38 and -6.47, respectively), while SJ and NJ managers perceived relatively more structured problems (30.26 and 12.10, respectively). The LSD categories indicate the differences lay between perceptual and judgmental managers were significant ( $p < 0.05$ ). The differences between the categories of job function and level of management on the US dimension, although not significant, were in the direction hypothesized.

Translating these results into addressing our remaining hypotheses: H2a is supported. NP and NJ managers see their decision-making context as comprised of a significantly higher portion of strategic problems than SJ and SP types. H2b is supported. SJ and NJ managers do see their decision-making context as comprised of a higher proportion of structured problems than SP and NP types. H3a is not supported. Marketing managers do not appear to perceive their decision-making context as comprised of a higher proportion of unstructured problems than their technical counterparts. H3b is supported. Marketing managers do perceive their decision-making context as comprised of a higher proportion of strategic problems than their technical counterparts. H4 is not supported. Top managers do not appear to perceive their decision-making context to be comprised of a higher proportion of strategic problems than their middle manager counterparts.

## Discussion

Having addressed each hypothesis separately, we now turn to a wider discussion of the findings. Recall that the research problem this study seeks to address is to ascertain the relative extent to which individual and organizational factors influence managers' perceptions of their decision-making contexts. The empirical findings of this study suggest that (1) individual and collective factors have a moderate but significant impact on perceptions and (2) individual factors have a greater impact on perceptions than organizational factors. The importance of problem perception is that it is the first stage in the decision-making process, and to a large extent guides and delimits subsequent problem-solving activities. The ensuing discussion explores these issues in greater depth under the headings of perception type, level of management, job function, and directions for future research.

### Perception Type

Perception type explained a greater amount of variance on both dimensions of decision-making context than either level of management or job function. Overall, the results suggest that NP and NJ managers have a significantly greater propensity to see the strategic nature of problems than SP and SJ

**Table 5.** Cell Means and Post Hoc Tests

		OS		US	
		mean	lsd <sup>a</sup>	mean	lsd
Perception Type	SJ	-41.31	a**	30.26	a**
	NJ	-21.05	b*	12.10	a**
	NP	9.62	b**	-25.38	b**
	SP	-41.18	a**	-6.47	b**
Level of Management	Top	-20.96		1.53	
	Middle	-27.71		11.04	
Job Function	Marketing	-8.33		-1.87	
	Technical	-38.85		13.46	

<sup>a</sup> Least significant difference test (LSD)—groups with different letter codes (e.g., "a" and "b") produced significantly different results at the 10% ( $*p < 0.10$ ) and 5% ( $**p < 0.05$ ) levels.

types. However, this tendency is not equally pronounced for both intuitive types, with NP managers appearing to differ more strongly from the sensation managers than their NJ counterparts. Finally, SJ and NJ managers tend to see problems as more structured than their SP and NP counterparts. Thus the primary message from these results is that perception of decision-making context is influenced by a manager's perception type. N managers, relative to S, tend to interpret a higher proportion of the problems they encounter as strategic; and J managers, relative to P, tend to interpret a higher proportion of the problems they face as structured.

Given the impact of perception type on the perception of problems, an important managerial concern should be potential adaptive mismatches of type and problem and its impact on the problem-solving process. We stress the term adaptive to recall that in the constructivist tradition there is no one right view of a problem; rather representation(s) are more or less suited to a particular adaptation task. Thus, for example, an SJ type confronted with the task of formulating a 10-year business plan for his or her product line may too easily reduce the problem to one of detailed operational issues and perceive the problem as a relatively structured one. In contrast, the NP type when confronted with a simple routine problem, may waste precious time speculating about multiple solutions and become side-tracked by the systemic effects the problem and its solutions may have.

Indeed successful marketing efforts require that managers learn to avoid the potential traps to which each style would be prone. The SJ, by focusing on the immediate, may tend to define problems in terms of immediate symptoms, failing to see the deeper trend or causal dynamic, and thus go on to ameliorate symptoms rather than causes. This would characterize a "fire fighting" mode of management. In the extreme, this might lead to errors of a third kind—solving the wrong problem (Mitroff and Betz, 1972). NJs might too easily fit or define a problem into a pre-existing solution. The unique aspects of each problem would tend to be overlooked. SPs and NPs, while recognizing the unstructured nature of problems, would be prone to failing to recognize the potential fitting of a problem to a programmed solution. NPs, while seeing the complexity and inter-relatedness of a particular problem, may tend to generate multiple possible perspectives on the problem without ever actually acting to intervene and solve it—for they are forever speculating upon the possible repercussions of such an intervention upon the system.

Ultimately, the need for particular perception types is contextual, and it is important to consider the changing context of marketing management. For instance, it has been suggested that marketers face increasingly turbulent external environments, that they must be capable of producing more innovation at a faster pace, that marketing programs must become more finely tuned to smaller and uniquely-defined market segments, and that the focus of marketing activities must become the building and maintaining of long-term customer

relationships (Hamel and Prahalad, 1991; McKenna, 1991, 1995; Webster, 1992). Under such circumstances, and especially where the past is no longer a reliable guide, SPs and NPs may be critical assets, for they manifest the openness and curiosity so essential in novel situations. Indeed, chaotic environments require managers to eschew both over-confident behavior and over-cautious behavior, both of which may paradoxically be a product of J types. The over-confident shun curiosity because they feel they know most of what there is to know, while the overcautious shun curiosity for fear that it will only enhance their uncertainty (Weick, 1993).

Following from the above, and on a practical level, managers could be made aware of: (1) the influence of perception type on the perception of problems; and (2) their own perception type. Obviously, managerial education and training would play a key role here both at a vicarious and at an experiential level. The process might be: first, introduce managers to the constructionist perspective on problems, demonstrate how problems are constructed, and stress that multiple possible constructions are possible. The process specified by Mason and Mitroff (1981) on assumption surfacing would be an ideal method to provide concrete examples of how different people define problems. The second step would be to present research into how psychological type affects decision-making and more specifically, how perception type affects problem perception. Third, feedback on individual perception types could be provided, and the exercise on assumption surfacing could be re-run with participants now in possession of the knowledge of their systematic biases.

### **Job Function**

Although impacting less on managers' perceptions than perception type, job function was also a significant factor. Marketing and technical managers differ in their perceptions of their decision-making context. Compared to technical managers, marketing managers perceive a context composed of a higher proportion of strategic problems. This clash between the long- and short-term views of marketing and technical managers may in part explain the culture clash between marketing and technical functions that has been highlighted in the literature. Indeed one root of "culture clash" (Bertrand, 1992), different "thought worlds" (Dougherty, 1989), different "world views" (Deshpandé and Webster, 1989) and interfunctional conflict (Franwick, Ward, Hutt, and Reingen, 1994) is in part laid bare in this study. Moreover, based on this research, it would seem that marketers may be able to lessen conflicts in interfunctional teams or groups by anticipating the tendency on their own part to see the strategic, while their technical counterparts concentrate on the operational. More fundamentally, however, tracing conflicts to functions and levels may be an oversimplification that is actually dysfunctional. There is a need, instead, to focus on the nature of the particular task with which the interfunctional team is charged, and to determine the extent to which conflicts are rooted in perceptual

types. Successful team leaders will be those individuals who are adept at interpreting a given team member's perceptual type and then seeking a match between type and the aspects of the task to which a team member is assigned.

### **Level of Management**

The finding that level of management was not significantly related to decision-making context was somewhat unexpected. Possible explanations for top managers perceiving no more strategic problems than their counterparts lower in the organizational hierarchy can be found in two related sources: first, in recent adaptive changes in organizational design and second, in the theory in this area. Changes in organizational design have stemmed from environmental pressures of increased competition and the concomitant need for greater organizational efficiency. Indeed, the late '80s and early '90s have witnessed dramatic delayering, downsizing, and general re-engineering of organizations (e.g., Hamel and Prahalad, 1994). Unfortunately the study did not control for changes in organizational structure, and it is unlikely that organizational restructuring is a systematic factor within the sample. However, even without restructuring, there is a gaining recognition that strategic decision making/thinking is no longer the exclusive task of senior management, but is rather permeating entire organizations. Indeed a stream of strategy literature arguing for and reflecting this perspective has gained prominence in recent years (Mintzberg, 1990, 1994a, 1994b).

The second explanation for this phenomena might be that management theory in this area is incomplete. The problem can be traced to Anthony's (1965) original conceptualization of management control systems, where the trichotomy of strategic, management, and operational problems was specifically linked to the organizational hierarchy. Later authors (Mason and Mitroff, 1973) are less prescriptive about this relationship—indeed it seems logical to postulate an uncoupling of the two. Strategic and operational problems can be thought of as ideal types which are essentially acontextual. Thus, their relationship to the organizational hierarchy, as originally conceptualized by Anthony (1965) and still part of contemporary management theory (e.g., Anthony, Dearden, and Govindarajan, 1992) may be more contingent than first realized.

### **Directions for Future Research**

Future research could pursue a number of different avenues. First, the moderate amount of variance that the variables in the present study accounted for suggests that other factors play a part in problem perception. These factors are likely to include other personal and social variables; other external organizational factors (such as firm size, competitive intensity, and environmental turbulence); and factors related to specific problems. One direction of research might be to assess the role these other factors play in problem perception, as a more complete picture of perception influences will increase understanding and ability to avoid unconsciously mismatching per-

ception with a given adaptive situation. Second, given the cross-sectional nature of the present study, the question of causality must remain equivocal. A complementary longitudinal piece of research would clarify this issue; knowledge of direction of causality enhances the ability to manage the variables concerned. For example, longitudinal tracking of individual managers in specific decision-making contexts would help identify the antecedents of particular problem perceptions (cf., Mintzberg et al., 1976). Finally, the question of context and generalizability must arise. For example, are differences in perceptions dependent on culture? This latter question can be addressed at both the micro (organizational) and the macro (country) levels. Given the increasing globalization of business answers to such questions are likely to be of increasing concern.

### **Conclusions**

Our point of departure has been the premise that problem perception determines and delimits solutions and outcomes (Nutt, 1992; Volkema, 1995) and is thus likely to have a significant impact on organizational decision making and ultimately business performance. It is argued and then empirically substantiated that the perception of problems is a function of both individual and organizational factors.

This research should extend our understanding of problem perception in a number of ways. First, it follows the call of Lyles and Mitroff (1980) and directly assesses the relative impact of individual and organizational factors; finding in this case the former to have the greater impact. Second, the research takes into account the managerial reality of multiple coexisting decisions (e.g., Bateman and Zeithaml, 1989), and focuses on problem gestalts rather than artificially isolated individual problems. Third, in addressing points one and two, the constructs of decision-making context and perception type are developed.

Overall, this research goes one step toward enhancing marketers' (and other managers') understanding of the dynamics of problem perception. The realist assumption of "one" right view of a problem is supplemented by an appreciation of the fact that problems are mental constructions and as such are influenced by a range of individual and collective factors. Moreover, these factors influence perception in a patterned and identifiable manner. Indeed the research can in part explain some of the well documented tensions between marketing and technical functions. Finally, the research argues for increased self-awareness in problem perception. Here the difference between reflective and reflexive management is useful. In anthropology, reflectivity denotes a consciousness and contemplation of one's self relative to one's environment. In contrast, reflexivity denotes a meta-level of awareness, or consciousness about being conscious. This latter posture leads to a detachment that allows one to reflect upon habitual or customary modes of thinking, acting, and perceiving—thereby

allowing for new and creative modes of being (Bailey and Ford, 1994). In terms of perception type, the difference between reflective and reflexive management might be analogous to the translation from perception type to perception style. The latter term implies a conscious choice and ability to operate in different orientations in different contexts. A similar transition might be achieved on an organizational level between functions. Indeed, overall it is hoped that this article offers both researchers and practitioners insights that will facilitate a more reflexive approach to problem perception.

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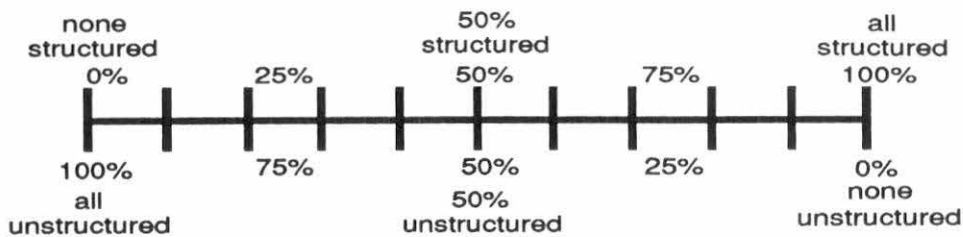
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**Appendix.** Response Scales for Measures of Decision-Making Context—US and OS Scales

**The US Scale**

In what proportion do you encounter **STRUCTURED** and **UNSTRUCTURED** problems?



**The OS Scale**

In what proportion do you encounter **STRATEGIC** and **OPERATIONAL** problems?

