

Managing Organizational Uncertainty: Conceptualization and Measurement

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Abstract

Uncertainty is the inherent state of nature, pervading organizational life and communication. The purpose of this research project was to develop measures to assess how both organizations and employees manage uncertainty. Three studies were conducted. In Study 1, we developed scale items and a tentative factor structure. In Study 2, we refined the instruments and assessed the psychometric qualities of the scales by testing them on another sample of subjects. In Study 3, we created the Uncertainty Management Matrix by merging the individual employee measure of uncertainty management and the organizational measure. The matrix suggests that four different uncertainty climates can be found in an organization. The matrix also implies that communication plays a different role in the uncertainty management process on the individual and organizational levels. Finally, we examined the implications of the research for organizational communication scholars.

Managing Organizational Uncertainty: Conceptualization and Measurement

Anything significant is inherently uncertain and therefore all judgments are probabilistic.

--Robert Rubin

Most people do not share the sentiments of the former Secretary of the Treasury, who along with his friend, Alan Greenspan, helped shape one of the best economies in U.S. history. In fact, many employees actively try to avoid uncertainty, others merely tolerate it, while few actively embrace it. Since most organizations operate in chaotic, complex, confusing, and ambiguous environments, shunning uncertainty creates an organizational conundrum. Leaders can no longer ignore uncertainty and assume their organizations operate in stable environments. The emerging global marketplace and the growing power of the Internet are just two of the many factors threatening the traditional organizational thinking that focuses on making detailed plans, clearly defining job responsibilities, and meeting carefully established objectives. By the late 1970s, researchers estimated the typical organization experienced a significant change at least every four or five years (Kotter & Schelesinger, 1979). Today, the rate of change has accelerated so that organizations are experiencing sequential as well as simultaneous change (Conner, 1993). In short, uncertainty abounds, while the presumption of certainty fades.

Translating the uncertainties of organizational life into a viable communication strategy is challenging. In fact, many business communication experts advocate a “tell-it-like-it-is” communication strategy (Ober, 1998). They routinely advise organizational leaders to “avoid weasel words” and “use definitive language”. Indeed, a recent analysis of the public discourse used by Fortune 500 companies demonstrated that leaders heeded

this advice in both good and bad times (Ober, Zhao, Davis, & Alexander, 1999). Ironically, skillful executives also can use definitive language to discuss the underlying confusions, ambiguities, paradoxes, and mysteries organizations face (e.g., “I don’t know”, “We don’t understand this yet”). Perhaps additional insights about managing uncertainty can be gained from looking beyond the expressed language (i.e., definitive vs. tentative) to the underlying issue of how organizations and employees experience, process, and deal with uncertainty.

Therefore, the focus of our research is on understanding how employees manage and communicate about uncertainty. What strategies do employees and organizations use to manage uncertainty? What are the consequences of those strategies? How are employee and organizational strategies related? And how will traditional organizational communication practices need to be changed? Answering these questions is the long-term aim of this research endeavor. Using insights gleaned from the literature, we develop a conceptual framework and a related instrument designed to answer some of these questions.

Insights from Past Research

Physicists, mathematicians, philosophers, psychologists, communication researchers, and organizational theorists have studied uncertainty. Integrating the efforts of scholars from such a wide range of disciplines is a formidable task. Nevertheless, we can identify seven general insights gleaned from the literature that provided the basis for our research effort.

First, uncertainty is the inherent state of nature. The second law of thermodynamics states that the “entropy of a system increases as the system undergoes a

spontaneous change” (Rossini, 1950, p. 68). Physicists explain the essentially chaotic and random behavior of gasses with this law (Atkins, 1984). This does not mean that there is a complete lack of order but that the patterns appear on a higher level. Werner Hiesenberg's famous uncertainty principle echoes a similar theme: "The more precisely we determine the position (of an electron), the more imprecise is the determination of velocity in this instance, and vice versa"(Cassidy, 1992, p. 228). In a similar vein, Godel's celebrated incompleteness theorem asserts that "some statements about natural numbers are true but unproveable" which means they are formally considered "undecideable" (Dawson, 1999). In short, the spirit of uncertainty pervades the scientific literature and culture.

Transforming the sentiments of the hard to the soft sciences is as natural as it is challenging. Natural because most social scientists and organizational theorists accept the fact that the world is chaotic, contradictory, and incompletely apprehended. For example, Kahneman, Slovic, and Tversky's (1982) noteworthy research regarding decision-making under conditions of uncertainty, begins with the following premise:

Uncertainty is a fact with which all forms of life must be prepared to contend. At all levels of biological complexity there is uncertainty about the significance of signs or stimuli and about the possible consequences of actions. At all levels, action must be taken before uncertainty is resolved, and a proper balance must be achieved between a high level of specific readiness for the events that are most likely to occur and a general ability to respond appropriately when the unexpected happens (p. 508).

It is challenging because understanding how people learn how to operate in such a world is difficult. Initially some social psychologists hypothesized that “tolerance for uncertainty” was a personality trait. Today the consensus seems to be that “tolerance for uncertainty” is more of a cognitive and/or emotional orientation (Furnham, 1995).

Second, "tolerance for uncertainty" is a robust concept that has been measured in a number of different ways. In one sense, uncertainty can be defined by its opposite. Certainty means that something is fixed or settled. Those who are certain are free of doubt; they are sure of what they know. To embrace uncertainty is to embrace doubt. It is to question what is fixed and settled. However, the distinction between certainty and uncertainty is not an either/or proposition. There are degrees of uncertainty. Thus, a continuum may be the best way to conceptualize uncertainty. The degree to which individuals embrace uncertainty describes their tolerance level.

As seen in Figure 1 there are a variety of concepts related to uncertainty. Psychologists have been particularly intrigued by the notion of ambiguity, which is a somewhat less encompassing idea than uncertainty. Ambiguity implies that the alternatives are known, while uncertainty implies that the alternatives are potentially unknown and even unknowable. Psychologists’ interest in uncertainty and ambiguity grew out of their research on authoritarianism, no doubt, driven by the horrors of World War II. Adolf Hitler was not one to tolerate ambiguity or uncertainty (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950). Indeed, Frenkel- Brunswick (1949) defined intolerance of ambiguity as a personality variable possessed by individuals who have a "tendency to resort to black-white solutions, to arrive at premature closure as to evaluative aspects, often at the neglect of reality, and to seek for unqualified and unambiguous

overall acceptance and rejection of other people" (p. 115). Her notion highlights the conceptual link between the inability to think in terms of probabilities and the intolerance of ambiguity.

Transforming this concept into a measurable construct proved somewhat elusive. Numerous self-report measures were developed based on slightly different conceptualizations (Budner, 1962; Ehrlich, 1965; MacDonald, 1970; Furnham, 1994). For instance, over 35 years ago Budner (1962) developed a scale that has been widely used and considered psychometrically sound. He defined tolerance for ambiguity as "the tendency (to interpret) ambiguous situations as desirable" (p. 29). He argued that ambiguous situations are "characterized by novelty, complexity, or insolubility" (p. 30). However, in a rigorous study involving 12 different measures, Kreitler, Maguen, and Kreitler (1975) argued that ambiguous situations occur for one of three basic reasons: 1) the situation can be interpreted in a variety of ways, 2) the situation is difficult to categorize, and 3) the situation involves contradictions and conflict. Over the years the dynamic interplay between the conceptual definition and its related measurement tools have resulted in a healthy debate. Perhaps it should not be surprising that there is some ambiguity regarding the definition of "ambiguity". Indeed, Bochner (1965) discovered nine primary and nine secondary characteristics of the tolerance for ambiguity concept. Norton (1975) content-analyzed references to ambiguity in *Psychological Abstracts* from 1933 to 1970 and found that eight categories emerged. But he also noted that "the essence of each category interpenetrates the essences of all other categories" (p. 609). In short, uncertainty like ambiguity is associated with a number of closely-related concepts but at the core, there are a few fundamental notions that pervade the various definitions.

Third, people have different tolerance levels for uncertainty that are associated with a number of factors. Despite the fact that various measures have been used to measure tolerance for uncertainty (or ambiguity), researchers found differences between people. The reason for those differences remains an important research issue. As seen in Table 1, scholars have found that those who are less tolerant of uncertainty (or ambiguity) tend to be more dogmatic, conservative, ethnocentric and are inclined to prefer more supportive and less objective information than those who are more tolerant (Kirton, 1981; McPherson, 1983). Some researchers speculate that the underlying desire of those who are less tolerant of uncertainty is to avoid conflict and anxiety (Hamilton, 1957). On the flip side, researchers typically have not reported that tolerance for uncertainty varies on the basis of gender, age, or education level (Furnham, 1995). Many different approaches and methods were used in these largely unreplicated studies, which make it difficult to draw any firm conclusions. Moreover, it is difficult to ascertain causality because the tolerance for uncertainty has been used as both an independent and dependent variable. Does dogmatism cause intolerance for uncertainty? Or, does intolerance for uncertainty cause dogmatism?

Hofstede (1984) is not afraid to speculate on the direction of the influence. He believes that some cultures foster greater uncertainty avoidance in people than others do. Societal rules, rituals, educational standards, religious orientations, and technologies are cultural forces that shape an individual's responses to uncertainty. Hofstede's "Uncertainty Avoidance Index" is based on three survey questions and has been administered in 40 countries. The data were used to rank-order all 40 countries on the Index. Countries such as Greece, Portugal, and Japan were highly ranked on the UAI,

indicating a desire to avoid uncertainty. Other countries like Singapore, Denmark, and Great Britain received much lower rankings. Hofstede links the rankings to a wide array of issues ranging from propensity for traffic accidents to preferences in managerial style.

Fourth, people are usually, though not always, motivated to reduce uncertainty. Communication scholars have been particularly interested in the impact of uncertainty on interpersonal relationships. In fact, Berger and Calabrese (1975) proposed the "Uncertainty Reduction Theory" which basically argues that during initial encounters people naturally experience uncertainty and they seek to reduce the uncertainty by gathering more information. The higher the uncertainty, the greater the motivation. This proposition resembles Festinger's (1962) notion that people are motivated to reduce high levels of "cognitive dissonance". The proposition may sound intuitively correct, but the research is unsupportive (Sunnafrank, 1990). In fact, an individual's level of uncertainty is not really that important; it is "wanting knowledge rather than lacking knowledge (that promotes information seeking in initial encounters with others" (Kellerman & Reynolds, 1990, p. 71). The motivation to reduce uncertainty is greater in the workplace than in many social situations. Therefore, it is not surprising that researchers have found considerable evidence indicating that newly hired employees use a variety of overt and covert techniques to reduce certain types of organizational uncertainty (Teboul, 1994). Likewise, in times of major change, many employees seek information, even rumors, to decrease their uncertainty levels (Clampitt & Berk, 1996; Eisenberg & Riley, 1988).

Fifth, people reduce uncertainty through heuristics or rules of thumb that are often useful but sometimes detrimental. An intriguing group of studies by Kahneman, Slovic, and Tversky (1982) demonstrated that "in making predictions and

judgments under uncertainty, people do not appear to follow the calculus of chance or statistical theory of prediction. Instead, they rely on a limited number of heuristics which sometimes yield reasonable judgments and sometimes lead to severe and systematic error" (p. 48). Other scholars make a similar point by arguing that individuals and organizations simplify the world in order to achieve satisfactory, if not optimal outcomes (Simon, 1957; Cyert & March, 1963; March & Simon, 1958). Thus, rationality is bounded by the heuristics people employ.

Stereotypes, for example, are heuristics that work from time to time. But they can also be misleading. Consider these two questions: Is a woman more likely to work as an actress or a postal employee? Is a young attractive woman living in Los Angeles more likely to work as an actress or postal employee? Since there are far more female postal employees than actresses, the answer to the first question is obvious. But if one plays the probabilities, the answer is the same for the second question. Most people don't play the odds and answer the second question based on their stereotype of young, attractive women living in Los Angeles. Kahneman et. al. (1982) label this phenomenon the "representativeness" heuristic in which people make judgments based on the degree to which X is representative of Y. People use two other common heuristics: availability and anchoring. Availability involves the bias introduced into decision-making because of the availability of certain information over that which is not as readily accessible. Anchoring involves bias introduced by the initial starting point of an analysis of problems. Thus, most people use rules of thumb like representativeness, availability, and anchoring as ways to make decisions when faced with uncertainty.

MacCrimmon and Wehrung (1986) offer a parallel approach, arguing that risk (or uncertainty) management involves five phases: recognizing risks, evaluating the risks, adjusting the risks, choosing among risky actions, and tracking the outcomes. They use their REACT model to research the actual decision-making practices of executives. They developed a survey based on a number of hypothetical risky situations such as how to deal with an impending lawsuit and how to invest corporate earnings. The survey asked the executives to make decisions based on the facts presented. The researchers evaluated the "riskiness" of the decisions based on the actual outcome probabilities and drew some intriguing conclusions. For example, they found that risk-taking varies by situation, particularly whether it is a personal or organizational decision. Generally, those executives who were most successful took the most risks. Finally, like Kahneman et. al. (1982), they found that executives often focus on one or two attributes of a risky situation. In other words, they use rules of thumb to strip away much of the uncertainty during the recognition and evaluation phases. Sometimes this is wise, but at other times, they inadvertently dismiss vital information.

Sixth, acknowledging uncertainty allows communicators to achieve a variety of conversational and persuasive objectives. The exemplary research of Beach and Metzger (1997) on "claiming insufficient knowledge" examined how uncertainty is used as a tool to achieve certain interpersonal objectives. They conducted an in-depth analysis of typical conversations occurring in the legal, medical, and other settings. Usually people mark their uncertainty in conversations by saying "I don't know" or "I'm not sure". These scholars concluded that:

"I don't know" can function as a resource for qualifying responses to prior inquiries, avoiding or neutralizing others' projects and trajectories. In some cases, "I don't know" was shown to be employed as a craftily devised method for disattending, neutralizing and implementing topic transition. In other environments, "I don't know" functioned to delay and possibly reject invitations and/or requests (p. 579).

Persuaders use uncertainty in a similar way. Politicians, for instance, routinely deliver vague messages in order to avoid premature disclosure of positions on controversial issues (Thayer, 1967; Alston, 1964). In fact, stating issues with which an audience disagrees in an ambiguous way can positively affect the speaker's character ratings (Williams & Goss, 1975). Thus, equivocating is an effective stalling strategy, allowing speakers to circumvent audiences' premature negative evaluations. In essence, uncertainty becomes a tool for managing difficult issues. In short, these scholars differ from the mainstream because they essentially ignore any controversies about an individual's internal state and instead focus on the rhetorical use of uncertainty in various situations.

Seventh, organizations typically try to reduce the amount of environmental uncertainty. Scholars investigating uncertainty in the organizational arena usually take either an internal or external tact. Those who take the internal tact are concerned with the impact of uncertainty on employees. For example, some researchers have claimed that newly hired employees who experience high levels of uncertainty tend to be less satisfied with their jobs, less productive, and more likely to voluntarily leave their organizations (Hecht, 1978; Spiker & Daniels, 1981; Wanous 1980). Any number of factors, including

role ambiguity or information overload, can produce employee uncertainty. Employees who have been recently hired, work in matrix organizations or are involved in major change efforts are prone to be exposed to these factors. Therefore, practitioners have usually been motivated to find ways to either reduce the perceived uncertainty or mitigate the deleterious outcomes.

Obviously another major source of uncertainty comes from the external organizational environment. One concern is how uncertainty in the environment impacts employee behavior, but the vast amount of organizational literature addresses a more macro-level challenge: How should an organization conceptualize and manage an essentially chaotic array of environmental issues, such as changing government regulations, consumer demands and competitive pressures? Theorists, scholars, and consultants have offered a variety of answers to this fundamental question. System theorists use the “law of requisite variety” to argue that the organizational complexity should match environmental complexity (Ashby, 1956; Lawrence & Lorsch, 1967). In fact, Burns and Stalker’s (1961) classic study of 20 English and Scottish organizations indicated that more “mechanistic” organizational structures worked best in stable environments, while more “organic” structures worked best in dynamic environments. Nevertheless, most organizations seek out tools that reduce the perceived uncertainty. Indeed much of the literature discusses powerful analytical techniques, including strategic planning, cost-benefit analysis and the like, which are designed to categorize, quantify, and reify the future (Clampitt & DeKoch, 1999).

In recent years, less static and more fluid approaches have emerged that seek to effectively adapt to uncertainty rather than eliminate it. For example, Courtney, Kirkland,

and Viguerie (1997) identify four levels of uncertainty that organizations can face when forecasting about the future: a clear-enough future, alternate futures, a range of futures, and true ambiguity. They suggest that the organization's strategic posture should be directly related to the type of uncertainty faced. Scenario planning, for instance, would be appropriate for an organization facing a discrete set of "alternative futures" such as whether a new competitor enters the market or not. In contrast to many scholarly approaches, these consultants are concerned with how to effectively manage uncertainty. Thus, new approaches focusing on the benefits of uncertainty are starting to emerge.

Conclusions from Past Research

Past research has provided many useful insights into how uncertainty is managed. Individuals as well as organizational institutions are often uncomfortable with uncertainty due to the inherent lack of predictability, complexity, and unsurity. Uncertainty is cognitively and emotionally challenging. It creates a feeling of vulnerability or anxiety that can lead to actively distorting perceptions and information. This can produce premature closure, false dichotomies, rejection of relevant information, rigid categories, and regression to old rule-of-thumb models of thinking. In addition, the randomness associated with uncertainty makes it difficult to develop strategies that appropriately adapt to present and future circumstances.

While many people and organizations view uncertainty as undesirable, others are more tolerant. Personality factors, past experiences, and cultural conditioning appear to be contributing factors to the comfort level associated with uncertainty. Indeed, some become bored with the straightforwardness and stability of certainty, and thus perceive uncertainty as energizing, stimulating, and necessary for growth or development. The

challenges associated with the unpredictable provide a dynamic and vital environment for meaningful work. For these people, the benefits gained from fully engaging the human potential outweigh the costs.

Meaningful research in any area of inquiry cannot proceed until quality measures are created, however. To this end, a major objective of the present study was to develop an instrument measuring how individual employees manage uncertainty as well as a measure of how organizations manage uncertainty.

Prior efforts to measure the management of uncertainty have been lacking in several respects. First, most of the measurement tools focus on general tolerance levels, not on how people manage uncertainty in organizational settings. From an intervention standpoint, this makes it difficult to provide specific recommendations. It is not particularly helpful to say to employees that they are intolerant of uncertainty and need to change. Greater precision would be useful. Second, the role of communication in the uncertainty management process remains elusive. We know something about how organizational newcomers reduce their uncertainty and how uncertainty is used as a tool to achieve conversational objectives. But we know little about how communication encourages employees to embrace the inherent uncertainties of organizational life. Third, the relationship between personal and organizational management of uncertainty is largely unexplored. For the most part, scholars have been concerned with either how well individuals tolerate uncertainty or how organizations should manage uncertainty. Understanding the interaction between personal and organizational management of uncertainty may prove particularly valuable in times of constant change.

Objectives

These observations guided our research effort to develop instruments with the following attributes:

- * **Psychometrically sound:** Reliable and valid.
- * **Context-specific:** Oriented to the workplace.
- * **Practical:** Easy to administer, tabulate and interpret.
- * **Process-oriented:** Focuses on the process of uncertainty management rather than on tolerance levels.
- * **Communication-sensitive:** Includes communication variables as part of the uncertainty management process.
- * **Consequential:** Impacts other important organizational variables such as job satisfaction, productivity, or employee commitment.
- * **Actionable:** Implies specific types of intervention.

We conducted three studies in order to develop the managing uncertainty instruments.

In Study 1 we made an initial selection of scale items and determined the tentative factor structures of the instruments. In Study 2 we used another sample of subjects to refine the instruments and assess the reliability and validity of the scales. In Study 3 we joined the individual employee measure of uncertainty management and the organizational measure to create the Uncertainty Management Matrix. The matrix highlights the different uncertainty climates that can be found in an organization.

Study 1: Initial Scale Development

Sample and Data Collection

Participants in the preliminary study were drawn from a wide range of organizations in Wisconsin, Florida, and Texas. The following types of organizations were represented in the sample: retail sales and service organizations, social service agencies, medical professional organizations, public schools, universities, a radio station, insurance companies, and computer information and technology organizations. The size of the organizations ranged from 10 employees to 10,000.

We distributed 301 questionnaires to a cross section of managerial and non-managerial employees. Organizational liaisons disseminated the questionnaires. Respondents mailed their surveys to the researchers in self-addressed stamped envelopes or returned them to the organizational liaison, who forwarded them to the researchers. Two hundred usable questionnaires were returned (66% return rate). Sixty percent of the respondents were female and 40% male. The age of employees ranged from 19 to 82 years ($M=39.7$, $SD=13.2$).

Scale Development

The purpose of this initial analysis was to operationalize the construct of personal uncertainty as presented above and delineate the factor structure. We created a pool of 45 items designed to measure personal uncertainty. These items reflected a range of behaviors associated with presumed dimensions of how employees manage uncertainty. Based on a careful review of existing scales and models, we hypothesized several related uncertainty management competencies including creating awareness of uncertainty, processing uncertainty, communicating about uncertainty and appropriately responding to

uncertainty. Both positive and negative declarative statements were produced, and a 7-point Likert scale (ranging from 1 “Strongly Disagree” to 7 “Strongly Agree”) was used. Items that were negatively worded were reverse scored.

As was the case for personal uncertainty, the purpose of the initial empirical analysis of work environment uncertainty was to operationalize the construct and determine the factor structure. A pool of 46 items designed to measure work environment uncertainty was created which closely paralleled those in the personal uncertainty section. Items were designed to tap employees’ perceptions of how their organization embraced uncertainty. Positively and negatively worded items were measured on a 7-point Likert scale (ranging from 1 “Strongly Disagree” to 7 “Strongly Agree”).

Method

We used principal components factor analysis with orthogonal (varimax) rotation to analyze the responses to the personal uncertainty items and work environment uncertainty items. Factors with an eigenvalue of 1.0 or greater were selected for extraction and rotation. The scree plot was also consulted. The criteria for interpreting items and factors were as follows: (a) items loading at least .60 with no secondary loading above .40 on any other factor were considered to be strong, (b) items loading at least .50 on one factor and no higher than .30 on another factor were considered weak but possible for inclusion in this exploratory phase of the research (McCroskey & Young, 1979), and (c) for a factor to be considered meaningful it needed to have at least three items that loaded with acceptable Cronbach’s alpha reliability.

When a meaningful factor solution was established, item-whole correlations were also consulted. Items were eliminated or considered for rewording depending on their

factor loading, item-whole correlation, contribution to the reliability of the factor, and the number of items needed to create a reliable factor. Responses to acceptable items were summed to create an overall scale score.

Results for Personal Uncertainty Items

The factor analysis of the 45 personal uncertainty items produced 9 factors with eigenvalues above 1.0. However, most of the items had low factor weightings or factors contained less than three items loading on the factor. After reviewing the conceptual framework established for the construct of personal uncertainty as well as the empirical results for the initial factor analysis, items were deleted, and subsequent factor analyses were conducted. The optimal solution appeared to be one that included 16 items clustered into 4 factors. The first factor was named “Perceptual Uncertainty” and addressed an individual’s willingness to perceive uncertainty in the environment or work situation (e.g., I actively look for signs that the situation is changing). The second factor, “Expressed Uncertainty,” addressed the acceptability or comfort associated with expressing uncertainty (e.g., Acting like you know, even when you don’t, is OK (reverse score)). Factor three, “Process Uncertainty,” concerned the degree to which one embraced uncertainty in the decision-making process (e.g., I’m comfortable using my intuition to make a decision). The fourth factor was named “Outcome Uncertainty” and addressed the tolerance one has for working on something when the outcome is not clear (e.g., When I start a project, I need to know exactly where I’ll end up (reverse score)). These 4 factors explained a total of 55.5% of the variance.

Results for Work Environment Uncertainty Items

The initial factor analysis of the 46 work environment uncertainty items produced 12 factors with eigenvalues greater than 1.0. Since most of the items were not loaded highly on a factor or an insufficient number of items loaded on a factor, items were eliminated, and additional factor analyses were conducted. Guided by the conceptual framework established for the construct of work environment uncertainty, it was determined that the best solution included 13 items representing 4 factors. The first factor, named “Perceptual Uncertainty,” focused on the organization’s willingness to perceive uncertainty in the environment or work situation (e.g., My organization is always on the lookout for new ideas to address problems). Factor two, “Process Uncertainty,” addressed the degree to which the organization embraced uncertainty in the decision-making process (e.g., My organization is comfortable with employees making decisions on their gut instincts). The third factor, “Expressed Uncertainty”, focused on the organization’s comfort level in expressing uncertainty (e.g., In my organization, being unsure about something is a sign of weakness (reverse score)). The fourth factor, named “Outcome Uncertainty,” addressed the organization’s tolerance for working in situations where the outcomes are not clear (e.g., My organization rewards employees who have a definite sense of direction (reverse score)). These 4 factors explained a total of 60.0% of the variance.

Study 2: Scale Refinement

Sample and Data Collection

Subjects used in the scale refinement phase of the research were drawn from a broad spectrum of organizations in Wisconsin and Texas. The following types of organizations were represented in the sample: state government agencies, a research and

publishing company, an insurance company, banks, universities, public schools, a paper company, financial organizations, health profession organizations, sports organizations, manufacturing companies, retail organizations, an oil and gas exploration company, a technical college, newspapers, libraries, and a computer/information technology organization.

In most organizations, an organizational liaison distributed questionnaires to a cross-section of managerial and non-managerial employees. After completing the questionnaire, responses were mailed in self-addressed stamped envelopes to the researchers. A total of 239 individuals completed the questionnaire. Sixty-one percent were female and 39% were male. The age of employees ranged from 19 to 67 years ($M=41.0$, $SD=11.0$), and job tenure ranged from 1 month to 40 years ($M=8.7$ years, $SD=8.9$). The distribution of subjects by managerial level was: 5.1% top management, 29.8% management, 43.8% non-managerial professional, and 21.3% non-management.

Instrument

The questionnaire consisted of 82 items. It was posed as an analysis of working styles, and respondents were assured of anonymity. The questionnaire included 25 personal uncertainty items, 22 work environment uncertainty items, the 10-item Social Desirability Scale (Strahan & Gerbask, 1972), the 16-item Intolerance of Ambiguity Scale (Budner, 1962), five demographic items, and four outcome measures related to job satisfaction, commitment to the organization, and general comfort with uncertainty. The Social Desirability and Intolerance of Ambiguity scales were used to check the validity of the scales.

In the initial scale development phase (i.e., Study 1), a preliminary version of the personal uncertainty measure was produced. It contained 16 items and four factors. After analyzing the results of the first study, new items were created so that each of the four factors contained at least five items. The version of the scale used in Study 2 contained 25 items designed to measure employee variations in managing uncertainty. Likewise, a preliminary version of the work environment uncertainty measure containing 13 items and four factors emerged from the initial development phase. To refine the scale, new items were created so that each of the four factors contained at least five items. The version of the scale used in Study 2 contained 22 items designed to measure how an organization manages uncertainty. Our basic objective in Study 2 was to create scales with 10 to 15 items with sound reliability and validity qualities.

Results for the Personal Uncertainty Scale

Items from the personal uncertainty measure were submitted to principal components factor analysis with orthogonal (varimax) rotation using the 60/40 criterion. The analysis produced seven factors with eigenvalues greater than 1.0, which accounted for 56.0% of the total variance. An examination of the factor loadings and scree plot revealed that a three factor interpretation was appropriate. Four of the seven factors had weak loadings or contained only two items.

Subsequent principal components analyses using varimax rotation forced items into a three factor solution, and items which were unrelated to the primary factors or showed a low item-whole correlation were systematically eliminated. The result was a three factor scale (with eigenvalues of 2.81, 1.77, and 1.54) which accounted for 55.6% of the total variance. The first factor accounted for 25.5% of the variance and was named

“Process Uncertainty.” The four items on this factor addressed the employee’s comfort in making a decision on intuition or a hunch. The second factor, which accounted for 16.1% of the variance, contained four items and was named “Outcome Uncertainty.” These items addressed the employee’s need to have detailed plans or know the specific outcome of a task or project. The third factor, which accounted for 14.1% of the variance, was named “Perceptual Uncertainty.” The three items on this factor addressed the individual’s willingness to actively look at different perspectives, new ideas, or signs that the situation is changing.

The final version of the Personal Uncertainty Scale contained 11 items that reflected three dimensions of an employee’s desire to embrace uncertainty. Table 2 displays the items on the Personal Uncertainty Scale and factor loadings. A high score indicates a greater tolerance for uncertainty and is viewed as more desirable. The scale mean was 52.0, median 52, and standard deviation of 8.28. A visual inspection of the frequency distribution revealed the scale was normally distributed. The overall Cronbach’s alpha reliability was .70.

Results for the Work Environment Scale

Similar procedures were used with the Work Environment Uncertainty Scale. The factor analysis employed an orthogonal solution with varimax rotation, following the 60/40 criterion. The analysis produced five factors with eigenvalues greater than 1.0, which accounted for 58.3% of the total variance. An examination of the factor loadings and scree plot revealed that a three-factor interpretation was appropriate. Two of the five factors had weak loadings or contained only two items.

Subsequent principal components analyses using varimax rotation forced items into a three factor solution, and items which were unrelated to the primary factors or showed a low item-whole correlation were systematically eliminated. The result was a three-factor scale (with eigenvalues of 3.67, 2.04, and 1.12) which accounted for 62.1% of the total variance. The first factor accounted for 33.4% of the variance and was named “Expressed Uncertainty.” The four items on this factor addressed the degree to which the organization encouraged employees to express doubts or misgivings. The second factor, which accounted for 18.5% of the variance, was named “Perceptual Uncertainty.” The four items on this factor addressed the degree to which the organization was willing to actively look for new ideas to address problems or signs that the situation was changing. The third factor, which accounted for 10.2% of the variance, contained three items and was named “Outcome Uncertainty.” These items addressed the degree to which the organization needed detailed plans or a specific outcome before starting a project.

The final version of the Work Environment Uncertainty Scale contained 11 items that reflected three underlying dimensions of an organization’s desire to embrace uncertainty. The items on the Work Environment Uncertainty Scale and factor loadings are presented in Table 3. A high score indicates the organization has a greater tolerance for uncertainty and is viewed as more desirable. The scale mean was 47.87, median 49, and standard deviation of 10.01. A visual inspection of the frequency distribution revealed the scale was normally distributed. The overall Cronbach’s alpha reliability was .78.

Validity of Instruments

To determine the convergent and divergent validity of the Personal Uncertainty Scale, it was correlated with a variety of conceptually related scales. Table 4 summarizes these relationships. As anticipated, Personal Uncertainty was significantly correlated with Budner's (1962) Intolerance of Ambiguity Scale ($r = -.40, p < .001$). This concurrent validity finding indicates that an employee who does not embrace uncertainty is also intolerant of ambiguous situations. The Personal Uncertainty Scale was also correlated with a single item measuring comfort with uncertainty (i.e., I'm comfortable with uncertainty) ($r = .39, p < .001$), but not significantly correlated with gender ($r = -.07$), age ($r = -.05$), or tenure in the organization ($r = .05$). The scale was significantly correlated with managerial level ($r = -.23, p < .001$), thus indicating employees in non-managerial positions do not embrace uncertainty as much as employees in managerial positions. Personal Uncertainty was not correlated with the Social Desirability Scale (Strahan & Gerbask, 1972) ($r = .05$), nor was it correlated with a single item measure of job satisfaction (i.e., I'm satisfied with my job) ($r = .10$) or commitment (i.e., I'm committed to my organization) ($r = .12$).

To assess the validity of the Work Environment Uncertainty Scale, it was also correlated with a variety of other scales. These relationships are summarized in Table 4. Work Environment Uncertainty was not correlated with Intolerance of Ambiguity (Budner, 1962) ($r = -.02$), thus indicating employees' personal tolerance of ambiguity was not related to how they perceived their organization managing uncertainty. In addition, the Work Environment Uncertainty Scale was not correlated with the individual's

comfort with uncertainty ($r = -.02$), gender ($r = -.02$), age ($r = .01$), tenure in the organization ($r = .07$), or managerial level ($r = -.07$). The scale was significantly correlated with job satisfaction ($r = .49, p < .001$), commitment ($r = .43, p < .001$), and a single item measuring the organization's concern with employee satisfaction (i.e., My organization is concerned with employee satisfaction) ($r = .64, p < .001$). These findings indicate those who perceive the organization as embracing uncertainty have greater job satisfaction, are more committed to the organization, and see the organization as more concerned about the satisfaction of employees. Results also revealed that Work Environment Uncertainty was minimally correlated with Social Desirability (Strahan & Gerbask, 1972) ($r = .15, p < .02$). Since this correlation explained only 2% of the variance and the large n-size produced considerable statistical power, this relationship was considered inconsequential. Finally, the Work Environment Uncertainty Scale was not significantly correlated with the Personal Uncertainty Scale ($r = .06$).

Overall, these results for the Personal Uncertainty Scale and Work Environment Uncertainty Scale are reassuring. The scales were not conceptually redundant with any of the other variables investigated in the study (i.e., r values were not above $.70$), and the scales did not evoke socially desirable responses. The scales are not correlated with gender, age, or tenure in the organization, but they are moderately correlated with variables logic would suggest are similar. They are not correlated with each other and tap conceptually distinctive dimensions of uncertainty.

Study 3: The Uncertainty Management Matrix

The purpose of Study 3 was to explore the utility of the Uncertainty Management Matrix displayed in Figure 2. The Matrix joins the individual employee's tolerance for

uncertainty (as measured by the Personal Uncertainty Scale) and the organization's desire to embrace uncertainty (as measured by the Work Environment Uncertainty Scale). As past research has clearly indicated, people have a tendency to either avoid or embrace uncertainty. Those who embrace it see uncertainty as challenging, desirable, invigorating, and useful. They do not try to artificially drive the ambiguities and contradictions out of the situation. Those who avoid uncertainty tend to shun complexities and novelty, and prematurely structure ambiguous situations. Organizations, like employees, tend to either avoid or embrace uncertainty. Organizations can drive out uncertainty with inflexible strategic planning, the overuse of consultants, and rigid control procedures. They can embrace it by encouraging meaningful dialogue, fostering innovation, and de-emphasizing planning processes.

The conceptual relationship between the way employees and organizations manage uncertainty is fairly straightforward. As suggested in Figure 2, there are four basic possibilities. Each quadrant represents a different kind of organizational climate, with varying beliefs, values, assumptions, and ways of communicating. In Quadrant 1, the Status Quo Climate, employees and the organization both avoid uncertainty. Employees want few surprises and they rarely get them. In Quadrant 2, the Unsettling Climate, employees desire certainty while the organization is perceived as embracing too much uncertainty. Thus employees become unsettled and perhaps overwhelmed by the chaotic work environment. In Quadrant 3, the Stifling Climate, employees embrace uncertainty but they perceive the organization avoiding it. The result: employees feel stifled. In Quadrant 4, the Dynamic Climate, both employees and the organization embrace uncertainty. Consequently, the climate is dynamic, energetic, and ever-changing.

Results

By dividing each measure into levels of low and high, four quadrants are produced. Using the 239 subjects in Study 2, a median split for the Personal Uncertainty Scale scores (median = 52) and a median split for the Work Environment Uncertainty Scale scores (median = 49) was carried out to divide respondents into low and high categories on each scale. It was then possible to place subjects into the 4 quadrants of the Uncertainty Management Matrix. The result was a fairly equal distribution of employees in each quadrant: Status Quo Climate -- 30.7%, Unsettling Climate -- 21.8%, Stifling Climate -- 21.4%, Dynamic Climate -- 26.1% (see Figure 3).

Analysis of variance tests were then run to determine if there was a significant difference across variables investigated in this study. Those in the Dynamic Climate indicated the highest degree of comfort with uncertainty ($M= 4.23$ on a 7 point scale) while those in the Unsettling Climate expressed the least comfort ($M= 3.14$), $F(3, 234) = 6.25, p < .001$. Employees in the Dynamic Climate ($M= 6.13$ on a 7 point scale) and Unsettling Climate ($M= 5.92$) expressed significantly more job satisfaction than those in the Status Quo Climate ($M= 4.47$) and Stifling Climate ($M= 4.82$), $F(3, 234) = 13.14, p < .001$. Individuals in the Dynamic Climate ($M= 6.40$ on a 7 point scale) and Unsettling Climate ($M= 6.39$) indicated significantly more commitment to the organization than those in the Stifling Climate ($M= 5.51$) and Status Quo Climate ($M= 5.56$) $F(3, 234) = 9.06, p < .001$. Those in the Unsettling Climate ($M= 5.71$ on a 7 point scale) and Dynamic Climate ($M= 5.50$) felt their organization was more concerned about employee satisfaction than those in the Stifling Climate ($M= 3.29$) and Status Quo Climate ($M= 3.60$) $F(3, 234) = 34.33, p < .001$. Results also indicated that across the four quadrants,

there was no significant difference in the distribution of gender or managerial/non-managerial work level. In addition, there was no significant difference for age or tenure in the organization.

Limitations

This research project, like all others, has limitations. Self-report measures are often suspect for a number of reasons. While we screened out those items that were perceived as socially desirable, it is still possible the employees over-estimate their willingness and ability to embrace uncertainty. Perhaps a greater concern, however, involves the use of perceptual data to assess the work environment. Clearly there are other ways to measure whether an organization embraces uncertainty such as assessing organizational practices, rules, and rituals. Employee perceptions of how uncertainty is managed are no doubt greatly influenced by their supervisor's behavior and communication from top management, which may or may not be indicative of how decisions are actually made. Finally, it is worth noting that a larger and more diverse sample would increase the generalizability of the results from Study 3. In the future we intend to address these issues. In spite of these concerns, the studies provide some useful insights into the management of organizational uncertainty.

Discussion

The Uncertainty Management Matrix and the related instruments were developed to explain how employees and organizations manage uncertainty. The three studies suggest several tentative conclusions.

First, the scales used to produce the Uncertainty Management Matrix (UMM) provide researchers and practitioners with a psychometrically sound and

practical tool. The reliability of the personal uncertainty and work environment scales was good. The scales also were deemed valid for a number of reasons. The Personal Uncertainty Scale, as expected, was significantly correlated with Budner's (1962) Intolerance of Ambiguity Scale and a global measure of the desire to embrace uncertainty. As expected, the Work Environment Uncertainty Scale was not correlated with the Budner measure, indicating a clear conceptual distinction between the personal and environment dimensions. And as we desired, the personal and work environment scales were not significantly correlated with the Social Desirability Scale. Most respondents can complete the scales in less than 10 minutes. Scoring is relatively straightforward, and we have found most employees easily understand the various dimensions of the scales.

Second, the UMM provides a useful method for diagnosing organizational challenges. The Uncertainty Management Matrix implies at least three levels of analysis: a) individual fit, b) organizational fit, and c) environmental fit.

First, an assessment can be made on the fit between the way individual employees and their organizations manage uncertainty. The fit should have an impact on employee satisfaction, commitment, and productivity as well as organizational performance. In fact, Study 3 revealed that those employees in the Dynamic Climate reported the highest levels of job satisfaction and commitment to their organizations. An employee who is constantly thinking of new approaches would presumably be dissatisfied and unproductive in an organization that values careful planning and project control (e.g., Stifling Climate). Likewise, an organization that values risk-taking would not be the right fit for an employee who is deliberate and planful. Consider, for instance, the paper mill

employee who ran the same machine and product for twenty years. He complained about recent organizational changes by proclaiming, "When is somebody going to figure out what is going on? I want to know for sure what machine I'm going to be working on." Unfortunately for him, management could not provide any assurances. The organizational climate was "unsettling" (quadrant 2) for this employee. Consequently he was unmotivated, unsatisfied and unproductive.

Second, it is entirely possible that an organizational audit might reveal that many employees perceive an Unsettling Climate (i.e., they do not embrace uncertainty but the organization does) but that executives perceive a Dynamic Climate (i.e., they embrace uncertainty and so does the organization). Such results might explain the underlying reasons for communication problems between the groups or why employees resist change. This clarifies the challenge for executives. They may need to persuade employees that uncertainty is healthy, while providing them the necessary tools for managing it. Another scenario might involve a significant number of employees who feel the climate is stifling (i.e., they embrace uncertainty but the organization does not) while executives believe the climate is dynamic (i.e., they embrace uncertainty and so does the organization). In this case, executives would need to discern how organizational practices, policies, and procedures inhibit the organization from embracing uncertainty.

Finally, the UMM could be used as a conceptual tool for exploring the fit with the organization's environment. Merely because there is a "fit" between organizational and employee style may not guarantee organizational success. There is another level of analysis. Employees might be quite content in a "status quo climate" but that is not necessarily what is good for the organization. An Internet-based company, for instance,

that created a steady climate would not be very successful in the long-term. For instance, Tim Mannon, an executive with Hewlett Packard believes, "The biggest single threat to our business today is staying with a previously successful business model one year too long" (Hoff, 1995). On the other hand, the stability and steadiness of many government agencies might be appropriate.

A note of caution: The results of Study 3 suggest we should temper these theoretical arguments regarding "fit". Interestingly, those in the Unsettling Climate tend to be more satisfied and committed than those in either the Stifling or Status Quo Climates. These findings suggest that even employees who seek to avoid uncertainty, recognize the need for someone in the organization to deal with it. In fact, those employees in the Unsettling Climate may actually be pleased that the organization embraces uncertainty, even though they do not feel personally capable and/or willing to do so. This interpretation is consistent with literature about the role management plays in moderating the employees' uncertainty levels (Peterson et. al., 1995).

Third, the UMM and related scales help explain the process by which employees and organizations manage uncertainty. Past researchers have usually focused on people's general level of tolerance for uncertainty (e.g., Budner, 1962). While helpful, this approach sheds little light on the uncertainty management process. In contrast, the studies reviewed in this article suggest that there are three distinct but related phases in the management of personal and organizational uncertainty.

Employees first must choose whether or not to perceive the uncertainty latent in the environment (i.e., Perceptual Uncertainty). Next, they must decide if they are going to process it (i.e., Process Uncertainty). Finally, they must determine how to respond to

uncertain situations (i.e., Outcome Uncertainty). No doubt, these stages often occur concurrently. But the stages are not necessarily contingent on one another. The research suggests that a person may not be very adept at perceiving uncertainty but may, in fact, process it rather well. Likewise, a person might be adroit at perceiving the uncertainty in the environment but be helpless in dealing with it.

In a similar fashion, organizations may decide to avoid or embrace the latent environmental uncertainty (i.e., Perceptual Uncertainty). They may choose to encourage or discourage discussion of uncertainty (i.e., Expressed Uncertainty). Finally, they may choose how to act in the uncertain environment (i.e., Outcome Uncertainty). The ability to effectively manage any single aspect of this process is not necessarily related to the others. Some organizations are quite effective at perceiving uncertainty but do not know how to appropriately respond. Others put on conceptual blinders to uncertainty but respond quite well once they are aware of it.

Fourth, the UMM suggests that communication plays a different role on the individual and organizational levels. In our first study we included a number of communication-related items (e.g., "When I do not know something, I admit it"). Based on our analysis, we hypothesized a communication-oriented factor (i.e., Expressed Uncertainty) on both the employee and organizational levels. We were unable to confirm the existence of such a factor on the employee level in the second study. There are several possible explanations. Perhaps we posed the wrong questions. But it is more likely that communication acts as an uncertainty management tool in a more subtle way than most people are likely to report. This notion is consistent with Beach and Metzger's (1997) research. They discovered a number of ways in which "claiming insufficient

knowledge" or admitting uncertainty helps people attain their often-unstated interpersonal objectives. The subtle and casual way people discuss their doubts, confusions, and ambiguities may explain why people believe that their intuitions (i.e., Process Uncertainty), not their conversations, are the primary way in which they process uncertainty. Another possibility is that communication is such a pervasive aspect of the entire uncertainty management process, that it is impossible to clearly delineate the precise role.

In contrast to the employee level, a clear communication factor emerged from the data on the organizational level. In a sense, the organization's communication practices roughly parallel the "process" factor on the individual level. People process their own uncertainty by relying on their intuition, while organizations process uncertainty by allowing people to talk about their doubts, uncertainties and confusions. This can occur formally, such as in a meeting or informally through the casual use of e-mail systems. Stifling such discussions inhibits the organization from embracing uncertainty. For instance, rigid meeting agendas tend to focus on decisions that need to be made rather than on the uncertainties that need to be worked through.

Fifth, the UMM and related scales can be used to establish a research agenda focused on understanding the role of communication in managing personal and organizational uncertainty. The UMM suggests that we need to understand not only how uncertainty is reduced but also how a healthy degree of organizational uncertainty can be maintained and effectively processed. Communication scholars and organizational theorists could further investigate what specific activities, procedures, and protocols foment proper uncertainty management processes. Theorists from various fields could

provide further insight about the curious findings regarding those employees in the Status-Quo Climate. Evidently, the old assumptions about people desiring homeostatic states (e.g., balance theory, cognitive dissonance theory) are not particularly helpful. Apparently, harmony between personal and organizational styles is not always desirable. Practitioners might be able to provide insightful commentary regarding these issues.

While the four climates discovered in this research are intuitively appealing, there is much we need to further understand. For instance, how do employees communicate in the various quadrants? What stories do they tell? And how do they make sense out of organizational events? There are also questions about how employees acclimate in different ways and communicate with one another. How, for instance, do employees from a Stifling Climate communicate with those in the Unsettling Climate? At another level of analysis, there are questions about how management should communicate with employees in the four quadrants. For example, effectively communicating to employees in the Stifling Climate might require one type of strategy, while employees in the Unsettling Climate require another. Clearly communication practices play a unique, if not well understood, role in the proper management of organizational uncertainty. Our future goal is to explore this role in more depth.

IBM's lead counsel once said, "We buy from competitors. We sell to the same competitors. We sue competitors. We've got complex relationships" (Morris, 1997, p. 80). If executives are mired in such complexity, then employees must be even more confused. Yet, IBM is still one of the most admired and profitable businesses in the world. This is exactly the kind of environment most organizations, large and small, must learn to master. They do so by embracing, not ignoring or reducing, the uncertainty. Employees,

even those who desire stability, recognize the necessity of thriving in an uncertain environment. Learning how to discern the possibilities, make decisions and communicate, in a probabilistic world, not in an artificially certain one, is the only way that employees and organizations can, in Robert Rubin's words, accomplish "anything significant".

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Table 1: Issues Linked to Tolerance of Uncertainty

People with High Tolerance for Uncertainty Tend to	People with Low Tolerance for Uncertainty Tend to
<ul style="list-style-type: none"> • Be less dogmatic • Be less ethnocentric • Be less "generally" conservative 	<ul style="list-style-type: none"> • Be more dogmatic (Bochner, 1965) • Be more ethnocentric (Block & Block, 1950) • Be more "generally" conservative (Sidanuis, 1978)
<ul style="list-style-type: none"> • Perceive ambiguous stimuli as desirable and challenging • Rely less on authorities for opinions 	<ul style="list-style-type: none"> • Avoid ambiguous stimuli (Furnham, 1995) • Rely more on authorities for opinions (Bhushan, 1970)
<ul style="list-style-type: none"> • Be more self actualized • Be more flexible • Prefer objective information 	<ul style="list-style-type: none"> • Be less self actualized (Foxman, 1976) • Be more rigid (Budner, 1962) • Prefer information supportive of their views (McPherson, 1983)

TABLE 2: Personal Uncertainty Scale Items and Factor Loadings

Item	Factor 1 (Process)	Factor 2 (Outcome)	Factor 3 (Perceptual)
4. I'm comfortable making a decision on my gut instincts.	.80		
8. I'm comfortable using my intuition to make a decision.	.75		
13. I'm willing to make a decision based on a hunch.	.71		
25. I'm comfortable deciding on the spur-of-the-moment.	.69		
7. When I start a project, I need to know exactly where I'll end up. (-)		.76	
24. I need a definite sense of direction for a project (-)		.73	
12. I need to know the specific outcome before starting a task. (-)		.72	
21. I don't need a detailed plan when working on a project.		.67	
15. I actively try to look at situations from different perspectives.			.78
9. I'm always on the lookout for new ideas to address problems.			.64
5. I actively look for signs that the situation is changing.			.63

TABLE 3: Work Environment Uncertainty Scale Items and Factor Loadings

Item	Factor 1 (Expressed)	Factor 2 (Perceptual)	Factor 3 (Outcome)
35. My organization doesn't want employees to admit that they are unsure about something. (-)	.79		
31. In my organization, being unsure about something is a sign of weakness. (-)	.78		
43. My organization doesn't encourage employees to discuss their doubts about a project. (-)	.70		
50. My organization discourages employees from talking about their misgivings. (-)	.66		
33. My organization wants to know all the alternatives before making a decision.		.75	
45. My organization actively looks for signs that the situation is changing.		.68	
29. My organization is always on the lookout for new ideas to address problems.		.68	
37. Even after my organization makes a decision, it will reevaluate the decision when the situation changes.		.67	
49. My organization wants precise plans before starting a job or project. (-)			.87
47. My organization doesn't need a detailed plan when working on a project.			.81
40. My organization needs to know the specific outcome before starting a project. (-)			.78

TABLE 4: Correlation Between Personal Uncertainty Scale and Work Environment Uncertainty Scale With Selected Variables

Scale	Personal Unc. Scale Correlation With	Work Environment Unc. Scale Correlation With
Intolerance of Ambiguity	-.40 **	-.02
Social Desirability	.05	.15 *
Gender	-.07	-.02
Age	-.05	.01
Tenure in Organization	.05	.07
Management Level	-.23 **	-.07
Comfort With Uncertainty Item	.39 **	-.02
Job Satisfaction Item	.10	.49 **
Commitment to Organization Item	.12	.43 **
Org. Concern With Employee Satisfaction Item	-.01	.64 **

* p<.02, n= 239

** p<.001, n= 239

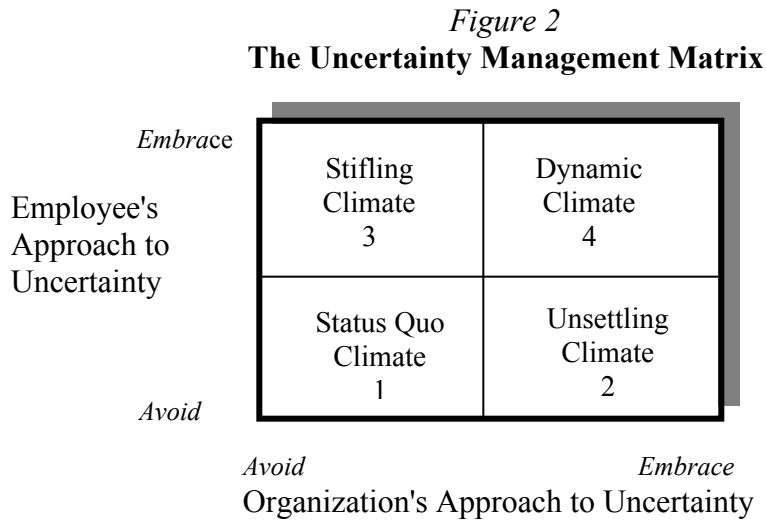
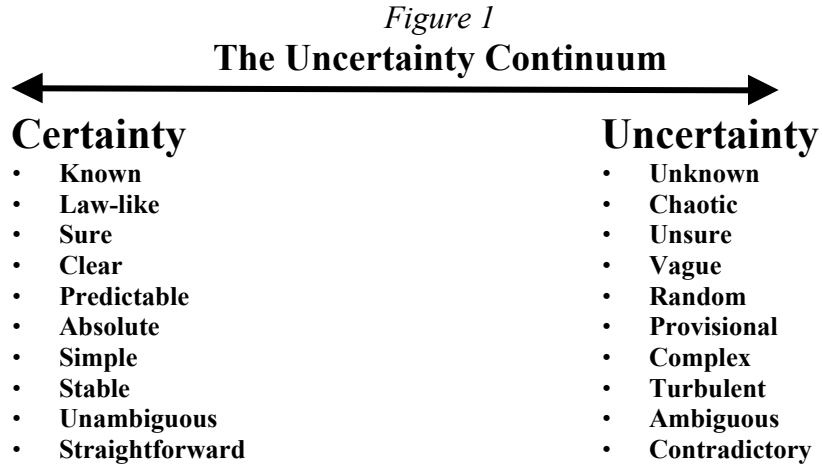


Figure 3
Summary of Study 3 Results

Employee's Approach To Uncertainty	<i>Embrace</i>	Stifling Climate <ul style="list-style-type: none"> • % of Respondents = 21.4% • Job Satis. Level = 4.82* • Commitment Level = 5.51 • Comfort w. Uncertainty = 4.06 	Dynamic Climate <ul style="list-style-type: none"> • % of Respondents = 26.1% • Job Satis. Level = 6.13 • Commitment Level = 6.4 • Comfort w. Uncertainty = 4.23 	
	<i>Avoid</i>	Status Quo Climate <ul style="list-style-type: none"> • % of Respondents = 30.7% • Job Satis. Level = 4.47 • Commitment Level = 5.56 • Comfort w. Uncertainty = 3.49 	Unsettling Climate <ul style="list-style-type: none"> • % of Respondents = 21.8% • Job Satis. Level = 5.92 • Commitment Level = 6.4 • Comfort w. Uncertainty = 3.14 	
	<i>Avoid</i>	Organization's Approach to Uncertainty		<i>Embrace</i>

* Designates mean score based on a 1 (low) to 7 (high) scale.

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