

# Natural Hazard Research

THE ROLE OF EMOTION IN ORGANIZATIONAL  
RESPONSE TO A DISASTER: AN ETHNOGRAPHIC  
ANALYSIS OF VIDEOTAPES OF THE EXXON VALDEZ ACCIDENT

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PREFACE

This paper is one of a series on research in progress in the field of human adjustments to natural hazards. The Natural Hazards Working Paper Series is intended to aid the rapid distribution of research findings and information. Publication in the series is open to all hazards researchers and does not preclude more formal publication. Indeed, reader response to a publication in this series can be used to improve papers for submission to journal or book publishers.

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SUMMARY

This paper discusses the role of emotions in disaster response. Expressed emotions may serve to modify or control the behavior of organizational members and thus affect formal patterns of behavior in a functional, open system organization. In addition, they may exert a positive or negative influence on cognitive processes affecting organizational performance.

The Exxon Valdez oil spill provides the context for the discussion. After describing the research method and the research instrument used to collect data, this paper focuses on examples of observed emotional behavior as captured on videotape—specifically, on the periods of "working through" and "relative completion of response" (the final periods involving stress response to serious life events). The behavior is examined in relation to organizations, not individual victims.

Expressed emotions are found to be related to diverse organizational goals. The study also supports previous findings that indicate that victims of natural disasters are often perceived as victims of events beyond their control, whereas victims of other types of disasters are often perceived as being partially responsible for their fate.

A model is presented that illustrates how emotion affects organizational response to, and the ability to cope with, disasters, and future research issues are suggested.

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## INTRODUCTION

Today, organizations are experiencing increased turbulence in their environments due to a variety of economic, political, and technological factors. Growing instability increases the probability of the organization facing a crisis. Organizational response to such occurrences follows numerous courses.

This research focuses on behavior within organizations following the occurrence of a technological disaster. The objective is to document features of post-event activities observed in several organizations on videotape and to conduct comparative analyses of the observed communication processes in these organizations.

The goal of this research is to better understand organizational response to disaster incidents. We need a better understanding of organizational issues in order to manage rare, potentially catastrophic events that disrupt entire communities.

In its first section, this paper reviews the literature with respect to the role of emotions in organizational decision making. The second section presents the specific case setting, the Exxon Valdez accident. The third section explains the research method and its application. The final section discusses the results and future research directions.

## ROLE OF EMOTIONS

In order to appreciate the role of emotions in a disaster response environment, it is important to understand affect, or emotional display, during nondisaster situations. Emotional behavior is not only related to stressors produced by disaster (Horowitz, Wilner, and Alvarez, 1980). The concept of work feelings that emerge from the process of ongoing work activity is relevant in this context (Sandelands, 1988). Work feelings reflect the way work activity is experienced and are intrinsic to the work experience and not something extra. Words that express feelings are used for a variety of purposes, one being to com-

municate a particular state or experience. In this research, these "feeling words" aid in understanding the expression of organizational goals during disasters. It is important to understand that these work feelings are present prior to any additional behavior or responses that disasters may elicit.

Rafaeli and Sutton (1989) have examined the feelings that people display on the job - particularly expressed emotions that may affect other people and may serve to control or influence the behavior of others. The parameters studied were the context, intensity, and diversity of communications.

Feelings and emotions are related concepts with distinct differences. Feelings are "mild, everyday affective experiences and represent pervasive, global, generalized affective components or states that influence seemingly non-affect related events" (Isen, 1984, p. 185). Emotions are more intense and have physical as well as mental manifestations. Feelings are more general and occur quite frequently, often in response to seemingly small everyday occurrences. They can occur without intense emotion. Emotions interrupt our thoughts and behaviors, are directed at particular objects or events, such as a disaster episode, and are characterized by intensity of affect. This research focuses on expressed emotions in disaster response and recovery situations.

Emotion is broadly described as any movement of the conscious mind or agitation of the feelings or sensibilities. Emotion is also defined as "the feeling of the bodily changes that occur in response to our awareness of an exciting situation" (Warburton, 1979, p. 432). Emotions serve as the mechanism that individuals exercise to interface with the outside world. They mediate between the external environment's impact upon our senses and our response to such pressure. Individual states are conveyed to others through multiple methods of expression. This research capitalizes on the important role of emotional expression in communication and relies on videotape to examine multiple channels of expression and interpret communicative behavior.



Emotion is a confusing topic, difficult to define and study. Although emotions display much that is familiar, there are problems in describing their characteristics. Emotions are not easily put into words due to their complex, dynamic qualities. These difficulties are compounded by a resistance to acknowledge the presence of emotions in organizational life and a preference within the scientific community for rational models of behavior. However, emotions are well suited for examination using nonverbal means, a feature that this research exploits. This study recognizes emotion as embedded in a rich and complex physical and social context and draws upon the use of emotional communication behaviors that reflect organizational goals during the response to a disaster.

To keep the discussion focused, three categories of disasters are delineated: natural, technological, and social (Kreps, 1986). Examples of natural disasters include earthquakes, hurricanes, floods, droughts, and tornadoes; technological disasters involve events such as oil spills, toxic releases, or pollution; and social or human-caused disasters can include epidemics, economic depression, civil unrest, terrorism, and war. An important distinction supported by the results of this study is that in natural disasters the persons affected are often perceived as victims of events beyond their control, whereas in other types of disasters affected individuals are often perceived as being particularly responsible for their fate. Studies have shown that the major burden of crisis management in developed societies has shifted to risks arising from technological development and application, as focused upon in this research (Kasperson and Pijawka, 1985). However, the conclusions reached in this paper are applicable to disasters of any type. Related research has focused on disaster classification schemes (Berren et al., 1989), disaster factors (Berren, Beigel, and Ghertner, 1980), and types of technological hazard events (Kasperson and Pijawka, 1985).

Specific psychological reactions to disaster are inferred by social scientists from stories describing human behavior in disasters, other anecdotal reports, and case histories. Most people do show some signs of emotional disturbance as an immediate reaction to a disaster, and these responses tend to appear in stages (Drabek, 1986). Characteristic stages include the period of impact, which continues until the initial stresses of the disaster are no longer operating, the period of recoil, in which awareness, recall, and emotional expression gradually return, and the post-traumatic period, which includes responses such as dreaming, anxiety, depression, and psychosomatic reactions (Singer, 1982; Thompson, 1986). The psychiatric literature has identified phases of stress response to serious life events: the event and immediate coping, outcry, denial experiences, intrusion experiences, working through, and relative completion of response (Shore, 1986). The behaviors studied in this research involve this final period.

Not including the effects of long-term stress, specific psychological reactions to a disaster include anger, guilt, defensive behavior, fear of losing one's mind, and abnormal behavior resulting from medical problems and panic (Kasperson and Pijawka, 1985). Specific aspects of crises can arouse acute anxiety and other strong emotional feelings such as fear, shame, anger, and aggressiveness (George, 1986). Psychoanalytically oriented research based on interviews indicates that most people do show some signs of emotional impairment in characteristic phases as an immediate response to a disaster and anger appears to be the most common reaction. However, reviews of actual experiences by social scientists have challenged this viewpoint and show that human beings respond remarkably well in an adaptive, responsible manner to extreme stress (Fritz, 1968; Dynes and Quarantelli, 1977; Drabek, 1986). Psychological stress is the anxiety or fear an individual experiences in a situation that he or she perceives as posing a severe threat to one or more of his

or her values (George, 1986).

Different types of disasters have varying effects on the experiences of victims as examined through psychological symptoms and social processes (Frederick, 1980). The victims of human-induced violence have been found to experience guilt about the plight of other victims and about not preventing the event, identification with the aggressor, reluctance to return to the scene of the event, feelings of loss and rejection by other members, and doubt by others about the genuineness of complaints. Moreover, mental health impacts may be found among both victims and helpers.

The behavior of oil spill victims is likely to exhibit some of these characteristics. However, the responses may vary based upon individual differences, such as age, sex, ethnicity, and personality (Drabek, 1986). Individual reactions to organizational decisions are examined here as individuals represent or act as spokespersons for their organizations.

The study of individual reactions to disasters has led to the development of a taxonomy of psychological reactions that represent phases of psychological distress to a disaster (Aptekar, 1990). The first stage is characterized by the display of anxiety and confused thinking. The second phase starts when people begin to take control mentally and try to give themselves more power over the situations that had made them powerless. As people reorganize their thinking, they seek explanations for past stressful events, and they thus may attribute the event to divine intervention, distort the memory of the disaster, or simply deny the magnitude of the disaster and their response to it.

With the passage of time and the consequent ability to assess losses, victims begin to express anger. This is a delayed reaction, unlike fear, which is an early response. The anger response is accompanied by uncertainty, a sense of helplessness, and an accumulation of frustration. The final stage of coping after the expression of anger is finding a resolution to one's

problems and learning to accept the new losses; life moves on, no matter what form of help might be available. These phases of response and recovery develop uniquely with each occurrence of a disaster. Again, our focus, which relates to the third phase of this taxonomy, is primarily on organizations, not individual victims, expressing emotional responses in the context of the Exxon Valdez oil spill.

Psychological responses have both positive and negative effects on the process of cognition that affects organizational decision making. Emotion in a crisis environment may intensify these effects. Positive effects that give functional support to decisions include providing stability through consistency over time and increasing confidence in and commitment to a course of action (Schwenk, 1986). Some of the negative effects include defensive avoidance, hypervigilance, truncated time span, tendency to irrational procrastination, cognitive rigidity, reduction of the range of options considered, and diminished creativity (Post, 1989). The increasing complexity, ambiguity, and uncertainty of problems that occur in turbulent hostile environments further hampers the decision making process, which has become a central organizational activity (Huber and McDaniel, 1986).

Decision making under disaster conditions is a difficult process at best. Dror (1988) discusses the effects of facing adversity, compressed time, mass media images, allocation of limited resources, uncertainty, strain and stress, and group processes. Effects of stress on the performance of complex cognitive tasks of decision making are also identified by George (1986). These include impaired attention and perception, increased cognitive rigidity, shortened and narrowed perspective, and shifting the burden to the opposition. In the process of making strategic decisions on disaster-related issues, organizational decision making typically involves expending greater resources, centralizing authority, and generating a greater

volume of causal explanations (Dutton, 1986).

The nature of an individual's emotional state is related to individual expectations of an event. For example, if accurate information is available so that a person can expect an event that may elicit emotions, emotional behavior can be reduced. The less accurate the expectations of an event, the greater the likelihood that emotional behavior will occur. In crisis situations, with increasing stress and strain in organizations, such reliable information may not be available, thus creating ambiguity and uncertainty. Hence the advent of a crisis situation and our interpretation of the event plays a critical role in the onset of emotions.

Why is it important to observe emotional behavior during crisis situations? Expressed emotions in organizational life may serve as a form of communication that has powerful effects on other people (Rafaeli and Sutton, 1989). Emotions that are expressed may serve to modify or control the behavior of other organizational members, which in turn may affect formal patterns of behavior in a functional, open system organization. The emotions displayed by organization members occupying different roles may also increase or decrease the chances that goals will be reached that are desirable from the organization's perspective. Thus, the expression of emotion by organization members may, as a whole, exert a positive or negative influence on cognitive processes and ultimately organizational performance.

Emotions can be examined on videotape to establish the intentions and influence of organizations in the context of technological hazards. How do the communication patterns in these media influence decision making in a disaster environment? Traditionally there has been a discounting or neglect of emotions as a source of valid information and a corresponding emphasis on logic as a "cognitive bias." However, diverse disciplines such as operations research and organization theory now suggest that there has been a shift from logical rational models of decision

making to a more holistic, less analytical approach to human behavior, recognizing the influence of emotions on communicative behavior patterns. Decisions are often made in ways that do not seem to "make sense" by normal standards. Does emotion play a role in these decisions?

We study disaster events because these are settings in which the occurrence of emotion is likely and in which it can be observed (Summerfield and Green, 1986). Our goal is to understand the emotional content of the communication behaviors observed and to link the emotional appeal to the desired outcomes of organizations and to decision making processes present in a disaster environment.

#### THE EXXON VALDEZ CASE

The event around which this research centers was one of history's largest oil tanker spills. On March 24, 1989, the supertanker Exxon Valdez, carrying 53 million gallons of North Slope oil, ran aground off Bligh Reef in Prince William Sound near Valdez, Alaska. The hull and holding tanks were torn and 11 million gallons of crude oil spilled from the ship, eventually affecting plant and animal life. The Exxon Corporation and the Coast Guard's regional response contingency team responded with skimmers, support services, and cleanup crews in an attempt to confine the spreading oil and avoid environmental destruction (Harrald, Marcus, and Wallace, 1990).

Although the possibility of such a disaster had been discussed extensively, preparation for an oil spill of this nature and magnitude was inadequate. The Exxon Valdez oil spill is considered America's most costly industrial accident and an environmental disaster of unprecedented proportions. Issues such as responsibility and treatment continue to be debated today, and this experience provides continued opportunities for learning. Again, the purpose of this paper is to explore emotion and its effects during organizational response to a disaster.

The research draws upon data from several media representations of the Exxon Valdez oil spill produced within the first six months following the disaster. These videotapes are the Exxon Corporation's "Progress in Alaska," the U.S. Coast Guard's "The First Forty Days," produced by Raycox Productions, the Cordova District Fisherman United's "Voices of the Sound," produced by the Film Center for the Environment, and Public Broadcasting System NOVA's "The Big Spill," produced by the WGBH Educational Foundation.

Because these are different organizations, their missions with regard to the oil spill vary as reflected by their individual representations of the event. Each organization offers the opportunity to understand and interpret their organizational agenda or what they wish to convey to the viewer through their videotape and their responses in the context of the event itself. More specifically, upon close examination of these videotapes, it appears that the message portrayed by the Exxon Corporation is that of a caring family of workers responding quickly and laboring constantly on a massive problem. Their efforts demonstrate that they were sparing no effort in spreading dispersants, testing water, and cleaning animals and beaches. Although this environmental problem was extremely large, the company appears to feel that the environment and animals will be clean in time.

The U.S. Coast Guard presents itself as operating efficiently through a sense of duty in the U.S. coastal waterways despite complex logistics. Their aim was to quickly mobilize forces and coordinate necessary equipment - similar to a complicated staging operation in wartime.

The message conveyed by the Alaskan fishermen videotape varies dramatically from those of Exxon and the Coast Guard. The video demonstrates feelings of vulnerability, betrayal, and loss of a way of life as the fisherman attempt to appeal to our emotions and persuade us to spread their message to others.

Finally the objective of the NOVA videotape is to raise issues and present an informed point of view. Although the our original intention was to examine and utilize NOVA's "The Big Spill" videotape, it did not represent the views of any organization involved in the disaster response and therefore was deemed inappropriate for further scrutiny.

#### RESEARCH METHOD

This research is exploratory. Its objectives are to investigate videotape reconstructions of prior disaster incidents and search for signals and clues supporting the actual occurrence of emotions, to use a qualitative measurement scheme such as ethnographic analysis, and to analyze the results to assess the efficacy of the research method on comparable situations.

Ethnography is the study of human behavior in its natural context. This qualitative research method, literally "folk description," involves observing alien worlds and making sense of them. Ethnographic methods have been developed to facilitate data gathering in informal, unstructured, and sometimes unpredictable situations (Forsythe and Buchanan, 1989). Qualitative research is concerned "with the meaning rather than the measurement of organizational phenomena" (Daft, 1983, p. 539). In addition, this research approach does not involve a commitment to specific kinds of data, lines of research, or theoretical interests. Such social investigation is guided by heuristics or rules of thumb and not rules (Strauss, 1987). Ethnographic analysis techniques allow a combination of participant observation with interviewing and the use of documentary materials including audio and visual recordings such as videotapes. Meyer (1990) advocates the use of visually displayed data to represent information and measure organizational variables. In our study, emotions are inferred from reactions and responses to the disaster situation.

This ethnographic approach recognizes that in addition to not knowing which answers are needed, the right questions to ask



are also unknown. Thus, the method requires skill to probe thoroughly, to link verbal responses with selected nonverbal cues, and to encourage a relaxed and open sharing of views (Mariampolski, 1988). "Ethnographers are less interested in knowing exactly what comes next and more taken with understanding what just occurred" (Agar, 1986, p. 16). The resultant data can demonstrate complex attitudes, rich detail, and unanticipated findings. This anthropological field technique is well suited to the gathering and interpretation of information about the existence of emotion in disaster response situations.

#### Application of Ethnographic Analysis: Research Process

The method of ethnographic analysis provided an appropriate means to gather information about organizational behavior for this project. The initial step was to systematically consider the material itself from which the secondary observational data could be drawn and to develop a framework for its description and categorization.

Videotape as a source of qualitative field research data has several advantages. Tapes permit increased accuracy in recording actual behavior (over written reports), the ability to immediately replay a segment for feedback and reflection, the ability to simultaneously capture rich information beyond words such as subtle nonverbal behaviors, and ability to record important spatial and physical structures affecting communication. In addition, several rounds of data collection are likely to yield improved data - especially useful when trying to operationalize ill-structured concepts such as emotions. In this situation, the videotapes were already in final form, eliminating the problem of intrusion into the research process through the presence of the researcher and his/her equipment (Gottdiener, 1979). For this research, the study of videotapes proved a much stronger method than traditional reporting mechanisms for examining displays of emotions. With videotape, it was possible to search for extra cues and meaning that would otherwise be unavailable.

Nevertheless, there are deficiencies with using videotapes for social science research (Niebuhr, Manz, and Davis, 1981). The videotapes were produced for other audiences and unknown purposes, and the scope and type of available data were limited. The severe preselection of source material allowed the researcher no choice or control over the stimulus situation or the variables to be observed. It was not possible to interview subjects, assess their feelings or physiological responses, and discover such things as preferences, attitudes, or problem solving techniques. These observational methods may therefore unduly influence our judgment, as we become more aware of subtle aspects of interaction missed in the actual situation (Street and Foot, 1989). Moreover, such techniques can involve legal and ethical questions concerning invasion of privacy and violation of privileged communication.

Technically, the processes of interpreting and coding observational data from videotapes, developing a script, and producing a videotape product are time consuming and costly and require expertise. More significantly, videotapes may not represent spontaneously occurring emotion but rather present a reconfiguration or re-enactment of prior events. Nonetheless, for this study, the medium of videotape presents a functional mechanism to retrieve evidence of emotional states and also a medium for presenting the analysis and results of the research product.

Our goal is to understand the emotional content of the communication behaviors observed in these videotapes and to link the emotional appeal to the desired outcomes of organizations and to decision making processes present in a disaster environment. The choice of specific emotions for study followed a review of the emotion recognition literature on the subject of expressed or displayed emotion and the knowledge of which of these were most likely to be observed in a crisis environment. The most basic and universal emotions selected for observation were joy, sadness, anger, and fear (Scherer, Wallbot, and Summerfield, 1986). After

examining the data for all emotional indicators, it was decided to eliminate fear, which was inadequately supported by the data in the videotapes. Fear was seldom expressed on the videotapes, since these videos were developed several months after the incident. Emotional names derived from cluster analysis were used in the examination of the videotapes (Shaver et al., 1987). We were not concerned with observing the emotional parameters of intensity, duration, or frequency, or in identifying combinations of emotions.

The research attempted to work with categories of emotional behavior that were simple, observable, and that could be studied directly. Emotion is measurable by three parameters (Eysenck, 1975). Physiological reactions include galvanic skin reaction response, heart rate, EMG (electromyographic) measurements and brain wave measurements. Introspective or verbal assessment records the feelings as spoken by the subject. Finally, behavioral observation measures actual human behavior through display or expression. Again, our interest here is in the measurement of emotions on videotape through visual examination to identify indicators of emotional behavior.

Different emotions may have different effects. The videotapes were observed not only with distinct emotions in mind but also using several observational techniques. Emotion can be inferred from videotape in several ways. The most obvious is from the language of the message or the actual spoken word. This approach, reflects a representational model of communication, which assumes that behavioral states in a speaker are necessarily represented in the symbolic content (face validity) of his messages (Mahl, 1959).

In addition to the content of the verbal text, there are other characteristics of vocal behavior that provide clues to emotions. As Scherer says, there is "little doubt that emotional expression is communicated via non-linguistic or para-linguistic cues" (1981, p. 212). This alternative viewpoint, an instrumental

model, emphasizes the instrumental behavioral action of language in gratifying needs and implementing attitudes (Mahl, 1959). These vocal or nonlexical behaviors carry emotional meaning and include tone of voice, change of pitch, and the use of strong emphatic terms that convey the feelings of the speakers. Vocal indicators of emotional states vary widely for different emotions, and this observation aided in deciphering specific emotional indicators. For the emotions of joy and sadness, acoustic parameters were pitch level (high, low), pitch variability (large, small), loudness (loud, soft), and tempo (fast, slow) (Scherer, 1981). Again, as Scherer states, there is "little doubt that emotional states do affect voice and speech patterns and that listeners are generally able to correctly infer the affective states of the speaker" (1981, p. 214). In addition, these voice and speech patterns offer a fruitful source of information because they are an inherent part of every message and are always present wherever a message exists.

A third category of observations includes nonverbal behavior or body language. Nonverbal (nonvocal) communication can be as important as the spoken word ("one picture is worth one thousand words"). Nonverbal communications are facial expressions, eye gaze, pupil size, posture, gestures, appearance, and interpersonal distance.

Finally the time and space context of external stimuli, such as props and settings, are a source of observable clues (Dyer, 1982). These forms of noticeable visible expression may have different effects on the viewer.

With these observational techniques in mind as valid representations or surrogate measures of emotional communication behaviors, indicators were systematically developed that related an emotional classification to a video observation technique. As an example, for the emotion of joy and the speech content observation classification, words such as "encouraged," "delighted," and "success" were interpreted to demonstrate this communication

behavior. Vocal behaviors for the same emotion were a more rapid speech rate, a higher pitch level, and a manner of speaking that expressed the qualities of confidence, cheerfulness, eagerness, or pride. Similarly, a nonverbal behavior that conveys joy is the smile that is more completely described by movement of the lip which comes back and up, existence of nasolabial folds, cheeks raised, eyelid wrinkles, and eyes narrowed. Cues from the setting that portray happiness are lightness and airiness, the addition of music, and abundant wildlife activity. These visual depictions, movements, sounds, and effects serve to suggest or reveal actors' emotions through their communication behaviors.

The process of applying the ethnographic analysis method followed several discrete steps.

- 1) The basic emotions were identified complete with operationalizations from the emotion recognition literature.

- 2) Techniques were selected for measuring observable incidences of emotion on the videotapes.

- 3) Visible and audible indicators were identified for each emotion.

- 4) Videotapes were searched and analyzed for evidence of specific indicators and notations were made on time and content with comments. These became the source data from which examples for the final videotape were selected.

- 5) These examples of emotion were re-examined, sorted, and counted by keeping organization goals in mind.

- 6) A draft of the narrative was composed forming half of the split script for the videotape.

- 7) A videographer combined the narrative with video scenes, graphics, and narrator passages, then developed the final video.

Thus the analysis of the videotapes depends upon the source of the videotape, the type of emotion depicted, and the observational technique or measurement. These dimensions are represented in Figure 1 which provides a framework or research instrument for the detailed investigation of the videotapes.

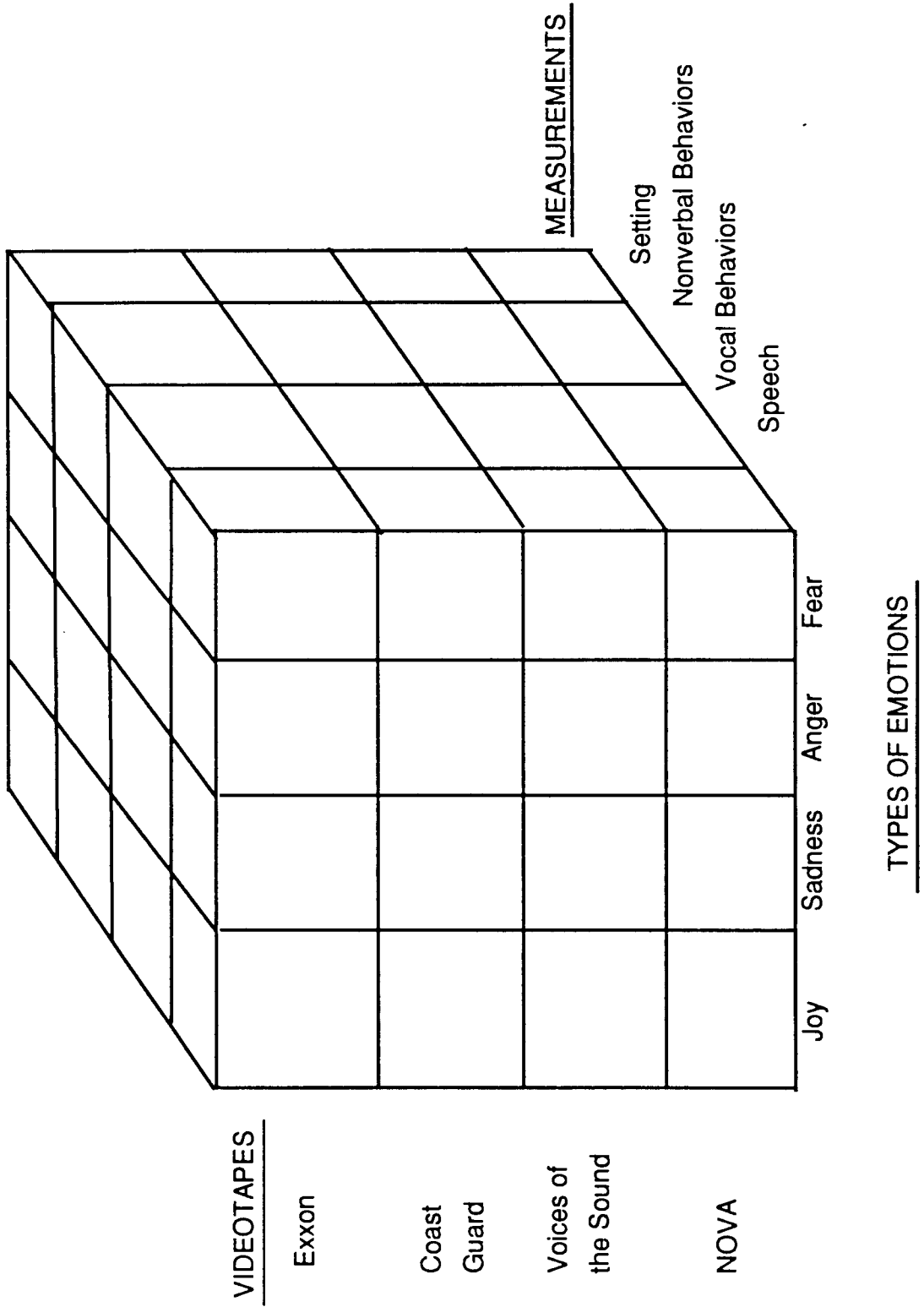


Figure 1. Videotape Analysis Framework

### Examples of the Analysis

After identifying the emotions, specifying observational techniques, and selecting measurement indicators for each emotion, the analysis proceeded with the fine-grained analysis of each organization's videotape. Transcripts with timing markers provided the verbal text and identified the speakers. These furnished the background for the detailed examination and analysis of each videotape. Again, because of the flexibility of the medium it was possible to replay segments quickly, react, and make notations. Each indicator was classified by organization, by emotion, and by observational technique as shown in Figure 1, considering the goals and objectives for each entity. Segments of the videotapes representing the emotions of joy, sadness, and anger supply the data for our study and are illustrated below.

Joy or happiness for the Exxon Corporation is operating efficiently and effectively on a massive problem. These statements drawn from the Exxon Corporation's "Progress in Alaska," with speakers and appropriate timing markers in minutes are illustrative:

It was a monumental effort to get the million barrels off. That was a great success story for everybody, for Exxon, and for the Coast Guard people who were on there working. That was great. (Exxon, McCall, 2.25 min.)

This statement was followed by Chairman Rawl's remark,

It was fantastic seamanship to put three other large Exxon tankers up against one that was stranded on a rock and get a million barrels of oil off of it. (Exxon, Rawl, 2.34 min.)

These statements exude confidence, their tone is positive, and the tempo is upbeat. In addition, Rawl adds emphasis to his words with his right hand gesturing and pointing.

Other examples of Exxon's joyous feelings include the following statements made in succession by three cleanup workers:

Here you can see progress every day. You look back on the beach and you see it shining instead of that dull crude look. Its progressive. (Exxon, Vincent, 9.09 min.)

We had a pretty good morale booster last night when they told us how many barrels we collected and I think they're really getting a surprise tonight. (Exxon, Christensen, 9.19 min.)

We've seen a great deal of improvement, apparently three to four times as much oil was recovered today than has been recovered, you know, any of the last days out. (Exxon, Ellis, 9.27 min.)

These remarks are positive, their delivery is fast paced, and the speakers maintain direct eye contact with the camera, indicating joy or pleasurable emotions.

Again, messages offer information not only through their content but also through their delivery:

And my opinion is those fish are going to come back and they're going to be clean. We're going to have a nice fishing season and there won't be a problem. (Exxon, Chrystal, 6.50 min.)

Our environments are not going to be destroyed and the environment will come back to the places that are damaged and our standard of living will return to normal and their way of life so to speak will come back and I'm confident in Exxon, we'll take Exxon at their word. They say they're going to be responsible and until they prove otherwise, I'm going to believe them. (Exxon, Chrystal, 11.17 min.)

This Valdez councilman, an unexpected spokesman for the Exxon Corporation, conveys assurance through his language, his alert posture, his direct eye gaze, and his grinning expression. The encouraging words are appropriate for an organization wishing us to believe they are doing all that is possible to mitigate the problems created by the oil spill.

The messages presented by the U.S. Coast Guard in "The First Forty Days" representing joy are similar to those of the Exxon Corporation:

There wasn't enough equipment, yet its hard to visualize how many places in the world would be able to get even that much equipment, two skimmers and each skimmer had a thousand gallon bladder. We got ten million gallons in the water. We got two skimmers each with a thousand gallon bladder. But its hard to visualize any place in the world, Puget Sound, San Francisco Bay, New York Harbor, Baltimore Harbor, etc., that would be able



to bring to a spill thirty miles from the coast of town, equipment that would be any more significant than what we had here. (Coast Guard, Yost, 4.42 min.)

Admiral Yost reinforces our image of efficient Coast Guard operations with his hand gestures, use of emphatic terms, intensity of eye gaze, and body language to convey a tone of authority and control. The Coast Guard's message is that of a rapid response and the marshaling of a large work force and many pieces of equipment in a warlike effort:

The presence of the Coast Guard was everywhere, providing oil-spotting missions, delivering the people and equipment needed to oversee the response effort and get the job done, offering additional protection during the Vice-President's shoreline inspection at Smith Island, assisting in all of the marine operations from setting moorings to aiding the fishing fleet off Kodiak in attempting to break up large oil masses and disperse the oil. (Coast Guard, narrator, 19.35 min.)

At the end of the first forty days following the spill there were hundreds of ships and boats, dozens of helicopters involved in the cleanup effort. (Coast Guard, narrator, 27.40 min.)

These statements, showing joy among the Coast Guard, lead us to infer that the Coast Guard is performing its job well.

Among the Alaskan fishermen happiness is reflected in the "Voices of the Sound" through the panoramic vistas of Prince William Sound wild and teeming with life. The first six minutes of this videotape show whales, sea lions, sea otters, birds, ducks, and deer in all their glory. Video techniques such as closeups, zooming in, slow motion, and the use of mood eliciting new-age music contribute to our impression of the significance of natural resources to the survival and cultural identity of the native Alaskan people. In this dramatic sequence, the existence of life as represented by the Alaskan wildlife is the ultimate or universal symbol of joy.

But the communication of the emotion of sadness is the prime message of the Alaskan fishermen's video. The scene of untamed wildlife changes abruptly to a silent, black, still

picture of the dark Valdez harbor at night. The use of emotion-laden language helps to support the fishermen's feelings of unhappiness, resentment, and irritation, and appeals to the viewer's emotions. Adjectives are used describing the oil as pouring, boiling, gushing, and spewing. The accident is characterized as the "worst nightmare" of "unprecedented impact." Loaded verbs are "afflict," "espouse," and "appeal." And nouns that represent emotions in words include "garbage," "catastrophe," and "heart." The use of language like this serves to arouse our sympathy for these hurting people.

The concerns, hardships, and losses of the Alaskan native people are further displayed:

The loss of jobs, the loss of the way of life, and all the intended expectations of perhaps a generation of Cordovans are at risk. The people are afraid and they're frustrated. (Voices, Moore, 8.10 min.)

In this scene, the Cordova City manager is dressed informally in a pullover sweater, not in a suit (as is Exxon's Rawl) or in a uniform (as is the Coast Guard's Yost), symbolic of the absence of an artificial layer of rehearsed staging. The form of dress is an additional clue to the emotional content present in the videotapes.

Now I don't know how you compensate for this sort of thing, this lifestyle. They don't measure the lifestyle in dollars and cents. They don't have those values and it doesn't mean that much to them, but they are affected. (Voices, Olsen, 9.30 min.)

As George Olsen, a Tatitlik spokesman speaks there is anguish, remorse, and a sense of hopelessness and helplessness as he attempts to address the social impact of the oil spill. His voice is weak and the tone is quiet, soft, and low indicating sadness and frustration.

What do we do with this lifestyle and how will these people that are hurt by this be compensated? (Voices, Olsen, 10.40 min.)

These statements by the Alaskan fishermen appear to be unrehearsed and sum up the perceived feelings of uncertainty about

their fishing industry. Also, the manager's voice is hesitating, shaky, and cracking – reflecting his inner emotions of sorrow, unhappiness, and grief. The accompanying visual shows frail, greying structures and wooden crosses contributing to a feeling of tradition and history of the native Tatitlik peoples.

The use of visual cues from the setting, however, provide the most poignant effect enhanced through the use of foreboding, ominous music. There is a slow zooming view of a dead sea otter followed by a picture of a struggling bird. The image of dead animals and waves of black oily mousse are in direct contrast to the earlier introductory footage with lively animals and reflects the stark contrast between sadness and joy.

The feelings expressed by the Alaskan fishermen go beyond sadness to anger and feelings of rage, bitterness, disgust, and contempt. All are expressed through language and visual presentation:

I think that the federal people that came here didn't get out and get on the beach and look at what we've seen. They could not possibly go back and have the mellow attitude that they seem to have if they'd looked at this. (Voices, Devens, 11.18 min.)

I don't know how in hell anybody is ever going to clean all of this up. (Voices, Devens, 13.42 min.)

We say the pipeline helps our national security. I would say that this oil spill that we just dumped on ourselves, the largest oil spill in North American history, in the finest marine area in North America, did more damage to the United States than anything the Russians did to us. The pipeline should never have come into Prince William Sound. (Voices, Grimes, 14.34 min.)

We did not spill Exxon's oil. We did not spill Exxon's oil to create jobs for ourselves. We had jobs and let me tell you all of us liked them a lot better than what we're doing now. (Voices, McCarty, 17.02 min.)

The videotape attempts to portray the fishermen's attempt to give themselves more power over the situations which had made them powerless.

Even though the overall meaning, for the Coast Guard was

that of efficient operations and quasimilitary control, nonetheless evidence of sadness, sorrow, or suffering was observed,

Yea, its Valdez back. We should be on your radar there. We've fetched up, hard aground, north of Goose Island off Bligh Reef and we're leaking some oil and we're gonna be here for awhile. (Coast Guard, Hazelwood, 0.54 min.)

The captain's radio voice conveys a tone of sadness by slow speech in a monotone and with little pitch variation. Visions of thick waves on the shoreline, blackened rocks on the beaches, and dead animals offer other clues.

Not surprisingly, the only organization not displaying pictures of dead animals was the Exxon Corporation, which faced enormous public exposure due to this oil spill accident. Despite attempts to portray responsible and effective cleanup efforts, the videotapes convey mixed messages. The tone of the Exxon videotape is generally positive, referring to the outcomes of efforts to do the job quickly and well. But the presentation is an example of emotional dissonance, in which there is a lack of fit or a clash between what is said and how it is said (Rafaeli and Sutton, 1989).

The oil companies and the fishermen and whoever was working out there done a fantastic job of protecting those hatcheries. (Exxon, Wagner, 6.31 min.)

Although this charter boat skipper's words are in praise of Exxon his eyes are cast downward avoiding the camera and his nonverbal behavior indicates that he'd rather not be on camera.

In another example, an Exxon environmental scientist supports Exxon:

The results of these tests are very positive. We are not seeing any mortality of very sensitive life stages. This includes animal species, intermediate plankton life, shrimp, and then fish growth studies. So from a toxicity standpoint, we're very encouraged that indeed we have not had substantial effects on the water quality or aquatic life. (Exxon, Maki, 10.16 min.)

This speaker's eyes dart above and to the sides of the camera indicating denial, in contrast to his spoken words. Is the

message of this Exxon scientist credible?

These are examples of the type of discourse, behavior, and other forms of communication that show emotional responses through the medium of videotape. Each example is best viewed in the context of the organizational goals and objectives during the disaster response to the Exxon Valdez oil spill. In many cases words are inadequate to convey the complete picture, and viewing these media directly offers the best opportunity to understand the propositions of this research.<sup>1</sup>

#### RESULTS AND CONCLUSIONS

In the prior section we identified examples of observable emotional communication behaviors. These were identified in view of the organizational goals and objectives as displayed in the videotapes and in the context of the public knowledge of the Exxon Valdez oil spill. These videotapes show controlled, rehearsed behaviors within a scripted activity, not spontaneously occurring emotion. Nonetheless they are a valuable source of emotional communication messages and appear to be deliberate attempts on the part of the organizations involved in the response and recovery efforts to inform the audience about the oil spill problems.

After all the data were identified, they were categorized and mapped in table form and the expectations were validated (Figure 2). Here we can see that in Exxon's videotape there were six examples of the emotion joy as observed by the content of speech. Considering all measurements for joy including vocal behaviors, nonverbal behaviors, and setting cues, there were 17 examples out of a total of 39, including the Coast Guard and Alaskan fishermen videotapes. About half of these (20/39) were attributed to the scenes of wildlife from the "Voices of the Sound" tape. If data points attributed to animals are eliminated,

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<sup>1</sup>These results are available in videotape format from the senior author.

	Speech	Vocal Behavior	Non-verbal Behavior	Setting Clues		%
<b>JOY</b>						
Exxon	6	1	8	2	17	17/39
Coast Guard	0	0	1	1	2	2/39
Voices	1	0	0	19	20	20/39
	<hr/>					
	7	1	9	22	39	
	<hr/>					
	6	1	2	0	5	5/33
Exxon	2	1	2	0	5	5/33
Coast Guard	2	1	1	4	8	8/33
Voices	6	1	1	12	20	20/33
	<hr/>					
	10	3	4	16	33	
	<hr/>					
<b>ANGER</b>						
Exxon	1	0	0	0	1	1/16
Coast Guard	0	0	0	0	0	0
Voices	12	2	1	0	15	15/16
	<hr/>					
	13	2	1	0	16	

Figure 2. Results of Observation of Videotapes

the actual number of data points for Exxon exhibiting joy becomes 16/19 or 84%. This is expected given our perception of the essence of Exxon's message - that they're doing a good job, responding quickly and effectively.

Counts of emotional indicators for sadness and anger show the highest proportion for the Alaskan fishermen - 20/33 and 15/16 respectively. These high numbers reflect the presumed organizational goal of the Alaskan fishermen to use affect to appeal to our emotions and tug on our heartstrings. Are viewers led to believe by the selection and use of facts and illustrations by the Alaskan fishermen, that their ideas are good because the Alaskan fishermen are plain folks "of the people," or have the fishermen presented their ideological message as propaganda or card stacking to give the best possible case for their cleanup program?

The Coast Guard videotape yielded relatively little information on emotional behavior. A largely objective account of the Coast Guard activities was presented, involving an impersonal explanation of their operations. Compared to the Exxon and Alaskan fishermen videotapes, no animals were shown, file photographs were inserted and they presented few communication behaviors in support of the emotion of joy or anger. Perhaps this government enterprise has display rules mandating that the expression of anger or any emotion is handled with discretion.

A chi-square analysis was performed to assess whether the data indicate that there is a statistically detectable or significant relation between designated categories of emotions and types of organizations. The relevant question is whether or not the expression of emotions are different between organizations as observed on these videotapes. Therefore the null hypothesis is that there is no association or relationship between the displayed emotions and the organizations, and the alternate hypothesis is that there is a difference between the displayed emotions and the organizations. The calculated chi-square statistic of

87.99 has a p-value less than 0.001. Therefore, the null hypothesis is rejected, and the conclusion is that there is an association or lack of independence between emotions and organizations as displayed on these videotapes. This test does not indicate, however, anything about how strong the apparent relation among emotions and organizations might be.

The ethnographic analysis result contrasts the differences in indicators and in emotions expressed. The findings supporting joy (Exxon) and sadness and anger (Alaskan fishermen) correspond with what we would expect. Perhaps these extremes relate to well-established hostilities between the Exxon Corporation and the Alaskan fishermen, and the oil spill incident served to rekindle old wounds.

Organizations did respond emotionally to the subjective experience of the oil spill incident as shown by these videotape segments. Do these videotapes reflect a sincere effort to genuinely express an organization's position and perspective in a forthright manner or is their purpose to create a positive public image? Do these organizations have the power to disseminate or promote particular ideas? Is the language free from external bias that might cloud the viewer's thinking? Here, people in organizations play roles as advocates choreographing the public discussion. Information on public issues is received second hand. These videotapes may therefore orient us toward recognizing some exigencies (circumstances) and ignoring others. Do we understand how these media influence, by their selection and transmission of signs and arguments, our comprehension of various elements of the oil spill response, the degree of environmental destruction or the extent of the cleanup effort? With their power to choose what will and will not be covered, do these organizations serve a screening or gatekeeping function, deciding which events will get through the gate and which will be shut out (Cooper, DeVito, and Denton, Jr., 1989)?

We conclude through examination of these videotapes that or-



ganizations respond emotionally to such events as oil spills and that this response affects how they subsequently communicate their goals. Words, vocal behaviors, nonverbal behaviors, and setting convey their aims and agendas during the response and recovery phases following a disaster.

If organizations express emotions during times of crises is there a need for concern on how best to allow for the use of emotion? How does the existence of emotion affect the decision processes and organizational behavior? Can we prescribe guidelines to capture the positive energies elicited by emotions?

Other research in this area explores the relationship between emotions and organizational decision making in response to a disaster (Carley et al., 1990). The model in Figure 3 shows how emotion affects organizational response to, and the ability to cope with, disasters. There are two important links between emotion and cognition and groups. In terms of cognition, emotion can stimulate the need for adaptive effort; it can interrupt less salient activity and produce arousal; it can interfere with cognitive activity; and it may foster premature closure and responses (Folkman, Schaefer, and Lazarus, 1979; Hamilton, 1979). Through cognitive coping processes there also develops an effort to regulate (in reverse) the emotional response itself. Research on the capacity of emotion to interfere with cognitive processing has focused, for example, on the study of test anxiety, on the restriction of cue utilization, and on the positive and negative effects of anxiety.

A second link important to our research is that between emotion and group behavior. One of the reasons to form groups is to more adequately satisfy individual needs, such as safety and security, that occur in a crisis. (Additional reasons include task accomplishment, problem solving, and proximity and attraction [Szilagyi and Wallace, 1987].) Another view is that emotions that are expressed or displayed serve as a form of communication between individuals in organizations (Rafaeli and

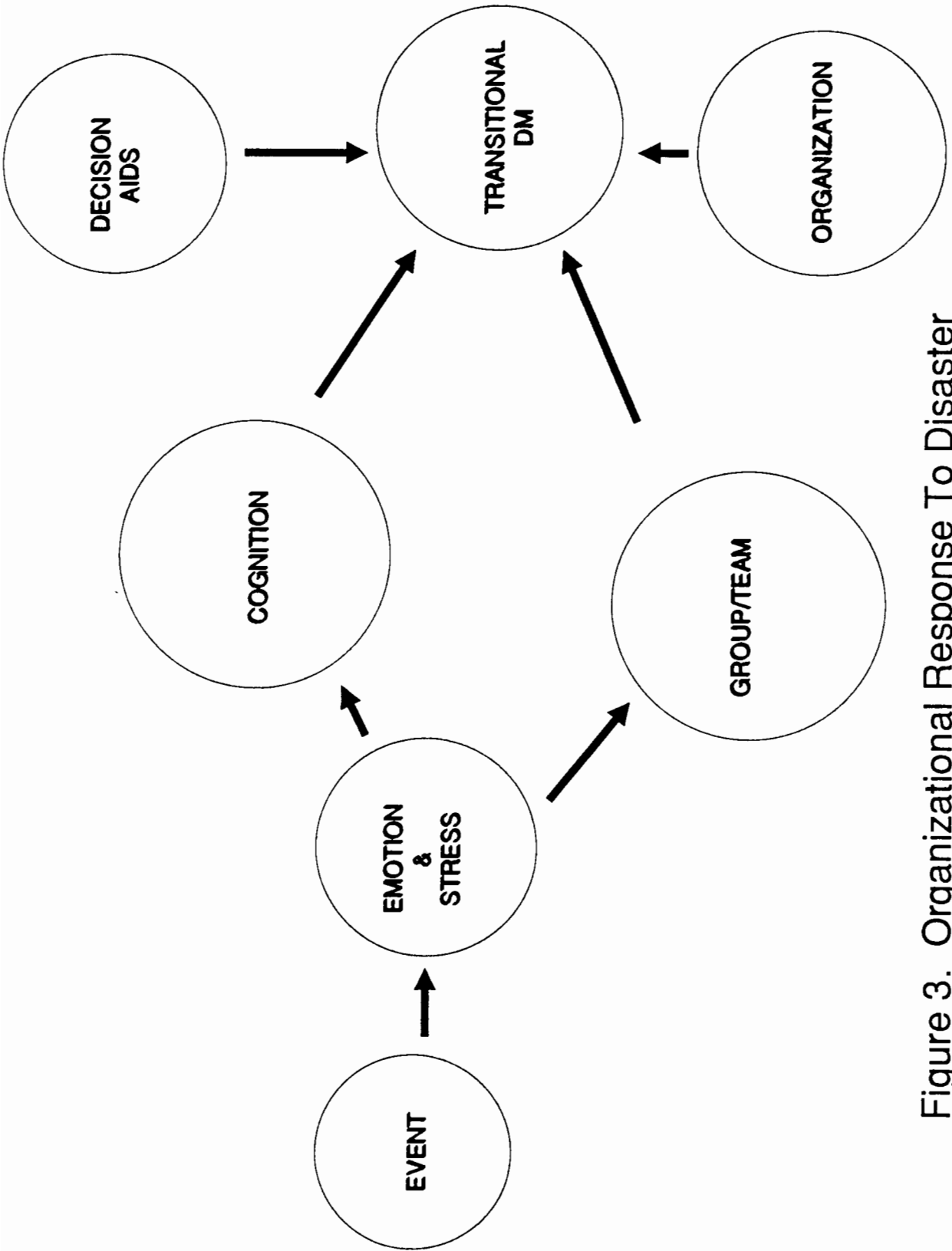


Figure 3. Organizational Response To Disaster

Sutton, 1989). Crisis situations engender an environment that is conducive to the formation of groups that can meet newly created needs. Research has shown that at such times concerned individuals gather to exchange information and ideas (Forrest, 1973). Thus, group affiliation or identification is a collective behavior that occurs when people are exposed to external danger (Janis, 1963).

Clearly, emotion influences both cognitive processes and the formation of groups or teams to manage decision making. Emotion is also of critical importance because it can lead to irrational behavior (Simon, 1987). Strong emotion can result in illogical or irrational processes that reduce cognitive capacity and therefore actually increase stress. Thus, stress interacts with cognition to elicit counterproductive behavior.

In a crisis an alternative approach to understanding post-event activities and issues is to recognize the potential impact of emotion on cognition, and, therefore on decision making quality. A reduction of the time and effort devoted to response and recovery can then be attained by improved design of organizational processes (Smart and Vertinsky, 1980) and increased information processing (Belardo, Karwan, and Wallace, 1984).

Organizations present their own unique characteristics through their culture, functions, and goals as seen in these videotapes. These elements underlie the increased requirements on information processing needed during the stages of disaster management. Specific combinations of these elements may be more effective than others in facilitating the process of change during the organizational transition.

Extensions of this research will provide opportunities to generalize beyond the decision making discipline. Realization of the existence of emotion has implications for nondisaster situations such as those created by competition, innovation, takeovers, and mergers. In addition, it is possible to broaden this line of inquiry to other organizational processes such as com-

munication. All organizational processes affected by increasing change and complexity can benefit from the results of this mode of research.

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