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A Case Study Analysis of Organizational Crisis Communication During Hurricane Katrina

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A CASE STUDY ANALYSIS OF ORGANIZATIONAL CRISIS COMMUNICATION

DURING HURRICANE KATRINA

by

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Abstract of a Dissertation
Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
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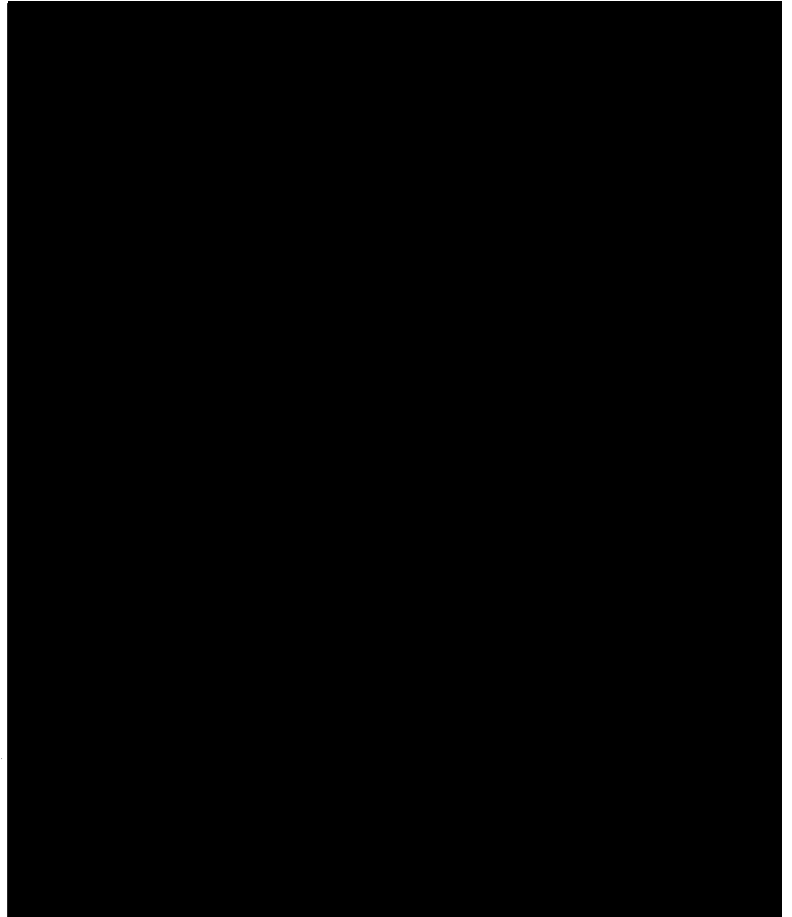
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ABSTRACT

A CASE STUDY ANALYSIS OF ORGANIZATIONAL CRISIS COMMUNICATION

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by Rebecca Nell Woodrick

May 2009

This study analyzed an educational organization's crisis communication with its employees regarding the devastation caused to the organization and to employees by hurricane Katrina in 2005. This study drew upon literature regarding communication in crisis and in particular, natural disaster crisis, to ascertain to what degree employees felt the organization engaged in characteristics of High Reliability Organizations. A case study approach employing both qualitative and quantitative data was utilized.

The data revealed that the organization was perceived by employees has having adequately communicated before and after Katrina. Data further revealed that the organization engages in behaviors consistent with practices of High Reliability Organizations. This study was designed to add to a limited body of knowledge regarding effective crisis communication practices of employers with employees during natural disasters.

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I thank all friends and relatives who endured almost eight years of incessant whining on my part as I took this journey. Thank you for not disowning me in the process. There are multiple individuals who served as therapists, cheerleaders, my own personal meals-on-wheels, and especially those who lent a shoulder on which to lean and cry more than once. You know who you are, and please know that I appreciate you very much.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Organizations depend on communication for survival. It is not a far reach to describe communication as the lifeblood of an organization. The day-to-day operation of an organization, whether for-profit or not-for-profit in nature, depends upon a constant flow of effective communicative interactions from employee to customer, employee to employee, organization to the public, and in numerous other dyads which further illustrate the necessity to communicate effectively within an organization. How communication occurs outside the confines of the day-to-day routine becomes of paramount importance to the organization's survival when crisis occurs. What is communicated during and after a crisis, and to whom, can determine whether or not the organization survives, and if so, whether or not it will be perceived as viable, post-crisis. Organizations experience crisis in multiple forms. In the most general terms, organizations encounter crises in the same ways as individuals: crises which are a function of human behavior, or crises that are a function of nature, the "act of God" variety. Within these very broad categories one finds a plethora of types: man-made crises that are a function of human mental error, for example, or man-made crises created as an act of deliberate harm. What distinguishes natural disasters from man-made disasters? Further, what difference does such a distinction make to an organization? An understanding of the basic differences is key as one analyzes communication in times of crisis.

In the most general terms, disasters arise from events of an environmental nature – i.e., acts of God – whereas crises are based in human error combined with outside influences, whether of the physical or social environment. Kreps (1984) provided a

sociological basis for teasing out these nuances when he suggested that disasters are community-based events that, as a ripple effect, in turn create crises in organizations that comprise the community. For example, an earthquake creates disaster in a town. Organizations that must respond to that disaster, in turn, experience crisis as a response. They must respond to what is created when disaster meets design: the natural event informs the design which the organization has created to enact a response. This sociological perspective implies a distinction between disaster as an event-of-nature which spawns crises within organizations, whether organization is perceived as an incorporated community, a disaster response entity, or a for-profit corporation. Quarantelli (1988) distinguished natural disaster from organizational disaster when he categorized natural disasters as collective stress situations that have community-wide impact, with community serving as a sociological term akin to Kreps'. In other words, like Kreps, Quarantelli's research focused on the need to examine organizational response to community disaster. Seeger, Sellnow and Ulmer (1998) further delineated natural disaster from man-made disaster by reframing organizational disaster as organizational crisis, based on the assumption that natural disasters are a function of nature's hand, so to speak, not human hand.

The nature of a natural disaster-created crisis varies in significant ways from crises created as an outgrowth of human behavior. In most basic terms, natural disaster crises are uncontrollable. Humans do not possess the capacity to control Hurricanes, floods, tornados, or earthquakes. Humans – organizations – can only control response to such. An organization in crisis due to a natural disaster must negotiate a unique set of challenges, and must do so in a way that will provide the greatest chance for

organizational survival. In the wake of natural disaster-related crises, the very survival of one's employment force takes on paramount importance.

Within organizations, then, the way in which the crisis is addressed will be significantly informed by the man-made or act-of-God nature of the crisis. This research project explores the communicative challenges an organizations faces during natural disaster crisis, to what degree significant differences exist in response types in this circumstance, and how organizations may most effectively communicate with members during times of natural disaster crises. Additionally, this study will apply the High Reliability Organization perception scale to an organization that survived a natural disaster crisis, to ascertain the degree to which crisis communication affects employee perceptions of efficacy and reliability.

On August 29, 2005, category 5 Hurricane Katrina hit the United States Gulf Coast, with the brunt of its force hitting the states of Alabama, Mississippi, and Louisiana. The President's Report on the Federal Response to Hurricane Katrina (Townsend, 2006) provided details that help capture the enormity of the disaster. By the time the Hurricane was downgraded to lower levels of intensity, then to tropical storm status and finally into floods and tornados, 1,300 people had lost their lives. Beyond the loss of life, entire communities disappeared, levees in New Orleans, Louisiana broke and flooded the entire Ninth Ward district, and economic devastation reached the billion dollar mark. The scope of life, property, and economic loss continues to be assessed.

Explanations regarding why Hurricane Katrina exacted such a high cost in human life and livelihood likely will be debated for years to come, with blame assigned and yet culpability never fully determined. Historians will analyze what factors led to tangible and psychological inadequacies that rendered hundreds of thousands of citizens helpless

in the face of the natural disaster that was Katrina. However, what is not debatable, but simply stands on fact, is the magnitude and scope of the Hurricane itself.

Hurricane Katrina packed winds of up to 130 miles per hour, created wind surges of 27 feet, and ultimately impacted square footage roughly the size of Great Britain. In Mississippi alone, almost 80 miles of coastal property were destroyed. The resulting floods and wind damage caused a loss of life in the greater New Orleans metropolitan area of approximately 1,100 lives. Of the 1,100 killed, the vast majority consisted of the elderly, the infirm, and the poor. Beyond the approximately 1,100 persons known to have died as a result of Hurricane Katrina, as of 18 months after Katrina hit, approximately 2,000 people from the Gulf Coast were still reported as missing. This almost incomprehensible scope of destruction made Katrina, de facto, the most destructive natural disaster in United States history (Townsend, 2006).

The chaos caused by Hurricane Katrina was not limited to loss of human life and of geographical destruction. All communication systems across the three states most heavily affected were virtually destroyed or incapacitated for multiple days, even weeks. Thirty-eight 911 emergency call centers, along with three million telephone customers' land lines, were rendered useless by the Hurricane. Cell phone service proved to be sporadic at best; television communication was likewise compromised. Subsequently, usual avenues of communication were rendered useless. Therefore, for those business organizations in the geographical region affected by Katrina that did survive, implementation of effective crisis communication became essential for viability.

Statistics regarding Hurricane Katrina's impact on the economy of the Gulf Coast reflected devastation almost beyond comprehension. Mississippi and Louisiana clearly sustained the worst economic blows. The Brookings Institute, one year after Katrina,

confirmed that basic infrastructures necessary to conduct business were obliterated (Katz, Fellowes, & Mabanta, 2006). Almost 30 miles of vital business route U.S. Highway 90 along the Mississippi Gulf Coast was destroyed. Bridges that once connected the business communities of Biloxi to Ocean Springs, and Pass Christian to Bay St. Louis were destroyed (Gulf Coast Business Council, 2007). In New Orleans, the Interstate 10 bridge between Slidell and New Orleans, a vital traffic link for surrounding states and for suburban communities into New Orleans, collapsed. Additionally, for an extended period of time, only emergency vehicles could access the Lake Ponchartrain Causeway.

According to statistics gleaned from the President's "Lessons Learned" team and from The Institute for Southern Studies (Kromm, 2006), Hurricane Katrina's blow to the economic viability of the Gulf Coast region took the following forms:

- Destroyed or left uninhabitable 300,000 homes;

- Created an overall estimate of damage totaling $200 billion;

- Created a drastic increase in unemployment rates in Louisiana and Mississippi, from 6% pre-Katrina to 12% immediately after Katrina;

- Along the Gulf Coast, caused a drop in wages earned by an estimated $1.2 billion in the third quarter alone of 2005.

The concept of "lessons learned" from Katrina applied to all facets of life and livelihood. Katrina provided the opportunity for virtually every academic discipline of scholars to assess and adjust as needed. When one considers the various ways in which Hurricane Katrina impacted the Gulf Coast, the painfully obvious common element is lack of viable communicative resources. Residents no longer had electricity to access key forms of communication, nor roads to travel to work, nor a physical location to which to return to work. Within the context of this new reality, the academic discipline

of organizational communication had the opportunity to learn lessons. Absent the usual avenues of communication, how did organizations attempt communication, how effective were those attempts, and what forms of organization communication occurred that heretofore had not been used? Scholars of organizational communication may discern that an outgrowth of Hurricane Katrina is the opportunity to study communicative endeavors, running the gamut from confirming the efficacy of standard practices to charting new methods that arose from necessity.

Organizations typically identify a variety of groups as stakeholders: customers, the general public, shareholders, and employees. The form of communication most effective for each of these constituencies may vary in times of crisis. The nature of the crisis will inform what kind of crisis communication should (or can) be accessed. Coombs (1999), for example, illustrated the way in which crisis type drives the decision about how, and to whom, communication will be disseminated. Coombs generalized organizational crisis type into the two categories of man-made and natural disaster. His typology of man-made crises, however, included eight specific areas: malevolence, technical breakdowns, human breakdowns, challenges, mega damage, organizational misdeeds, workplace violence, and rumors. Within the realm of these eight typologies, much research exists in the area of effective crisis communication with each of the constituencies identified above, save one: communication with employees. What distinguishes natural disasters from man-made disasters? Further, what difference does such a distinction make? An understanding of the basic differences is key as one analyzes communication in times of crisis. In the most general terms, disasters arise from events of an environmental nature – i.e., acts of God – whereas crises are based in human

A dearth of information exists across the significant areas of scholarly research regarding effective crisis communication with employees in times of natural disaster-related crises. The areas of scholarly research that lack extensive employee crisis communication studies include communication studies, organizational management, public relations, and to some degree, psychology and counseling. Most recently, however, in a post-9/11 world, scholarly research has renewed its interest in, and analysis of, the "what, why, when and how" of communication with employees in times of crisis, whether man-made or of the "act of God" variety. While some differences do exist between effective communication with employees in the wake of natural or man-made disasters, the depth of research on employee communication in times of natural disasters is shallow. An explanation of what we do know about employee communication in the wake of man-made disaster and how that knowledge is applicable to natural disaster communication is explored in the next chapter. However, this research projects will focus only on key aspects of communication with employees around the event of a natural disaster-induced organizational crisis. In doing so, the expectation is that we will gain insight into what man-made crisis communication is applicable to nature disaster communication, as well as discover what forms of communication with employees may be uniquely useful for natural disasters.

The purpose of this study is to determine how a higher education organization in the Katrina-affected area was perceived by its employees as having engaged in communication with them around the crisis created by Hurricane Katrina. This study will further determine to what degree employees of the organization perceived it to be a High Reliability Organization (HRO) in the wake of a natural disaster-induced critical incident. An HRO is defined as one that operates in a continual high-risk environment, yet does so

with minimal crisis interruption (Weick, 1988). Organizations that conduct business with mindfulness of crisis provide a measure against which less risk-prone organizations can be studied. More specifically, HRO's provide a basis for identifying best practices for low-risk organizations that find themselves in crisis through not fault of their own. The degree to which an organization's employees may perceive it as operating in a state of high reliability may base that perception, in part, on communicative efforts. This research project seeks to determine if such a correlation exists. Finally, this study will determine what factors lead employees to perceive their employer as having successfully engaged in organizational learning in the context of a natural disaster- induced critical incident.

The degree to which organizations can learn survival strategies that include effective communication with employees holds the potential for economic impact for the inevitable future natural disaster crises which the United States and other countries will face. Such organizations can serve as a model for other organizations striving to engage in organizational learning. This study will add to the limited body of knowledge regarding how and why an organization that was directly affected by Hurricane Katrina was able to remain functional, and to what degree – and how – they communicated with employees, post-crisis. Information gleaned from this study will provide a perspective by which to assess efficacy of current models of crisis communication, and potentially expand upon current research on intraorganizational communication in organizational, crisis, and business management communication field.

The study employs a case study approach using a mixed method quantitative and qualitative research approach that blends results of focus groups and a written survey. A

detailed analysis of the viability of a mixed method research approach is provided in Chapter 3. The following research questions provide the basis for the study's direction:

RQ1 a: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on length of employment with the organization?

RQ1b: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on employee work location in relation to the disaster?

RQ1c: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on pay type?

RQ2: To what degree do employees perceive their employing organization to be an HRO in the aftermath of a natural disaster-induced crisis?

RQ3a: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on length of employment with the organization?

RQ3b: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on employee work location in relation to the disaster?

RQ3c: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on salaried or hourly employment status?

The following chapter details the theoretical basis for the research. Chapter 3 describes the methods by which responses to the questions will be gathered and analyzed. Chapter 4 will systematically present the results of this study, and Chapter 5 includes discussion of their implications for the field.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This section summarizes the history of crisis communication study within the academic realm of organizational communication. In doing so, it explicates several major theories of crisis communication in particular. Additionally, this chapter provides a summary of what scholars in the study of crisis communication have determined regarding organizational communication with employees during and immediately after a natural disaster-related crisis occurs. Two theories in particular related to organizational crisis communication are identified and explained in terms of natural-disaster crises: High Reliability Organization (HRO) practices, and Organizational Learning. HRO and Organizational Learning theory both provide a framework from which employer crisis communication with employees can be assessed for success and adaptability for other organizations. Organizational learning theory provides a basis for determining employees' perceptions of a values-based renewal of the organization. Organizational learning as a theory is an overarching context in which events in the life of an organization can be assessed, analyzed and from which adaptations to operation can be based. Organization learning theory is not limited to analysis of crisis events only; t is provides a context in which any event can be viewed. It is, however, a particularly useful theory to apply to organizations that have experienced crisis, whether man made or not. In the situation in which an organization has experienced crisis and remained viable, organizational learning theory provides the framework for analysis that instructs what that organization is, and what it might become. The High Reliability Organization scale, in particular, becomes a means by which organization learning occurs, within the context

of internal perception. The HRO provides one set of lens through which analysis of the degree of organizational learning can be assessed. An HRO is, by definition, an organization that engages in active learning. The link between learning and mindfulness in an HRO is a strong and deliberate one. Because by its very nature an HRO engages in learning, the HRO scale helps determine to what degree another organization is a learning one. Specifically, what is learned about how employee communication was received, both literally and perceptually, can be compared using practices of an HRO that have articulated into scale form, for the purpose of providing comparison. It provides an avenue by which an organization can determine if application of organizational learning theory produces anticipated results.

Organizational communication with employees, both in times of crisis and otherwise, occurs in a variety of forms. The nature of the organization typically dictates the various channels utilized for communication. Formal internal channels of communication may include oral communication such as individual interactions, subgroup meetings, or organization-wide settings. Formal internal communication in written form often appears in memos, newsletters, emails, and letters. Paralleling formal communicative channels are the informal methods of intraorganizational communication. Information disseminated orally in social settings, individual discussions, as well as informal written channels, can impact organizational actions just as formal methods do. Informal channels, in fact, may serve as a more prevalent and powerful means of communication than more formal channels can, particularly in moments of crisis. Beyond the confines of the organization, communication channels such as media access, telephone service, and general public word-of-mouth can potentially impact, both positively and negatively, how organizations channel information to employees, and with

what degree of success. The nature of a crisis, therefore, often requires that an organization utilize communication channels not ordinarily used with employees. The need to access formal and informal communication channels, both internally and externally to the organization, will likely require flexibility and creativity when communicating with employees in times of crisis.

Crisis Communication Defined

How can an organization determine when it is in crisis? What does it mean to engage in crisis communication as opposed to other forms of intra- and inter-organizational communication? One of the earliest scholars to combine the concept of crisis with communication is C. F. Hermann, who, as a doctoral candidate in Northwestern University's political science program, identified the phenomenon of crisis in organization with a communicative response (1963). He offered a definition of organizational crisis in which an action of some type, either internal or external to the organization, threatens the identifying values of the organization, presents a restricted amount of time to respond to it, and is unexpected by the organization. This seminal definition of an organizational crisis is crucial because it speaks to three key components of crisis: threat, restricted response time, and the element of surprise. While subsequent research has reshaped this definition to parse out important nuances, these three components remain basic to the shared definition of crisis even today.

The roots of crisis communication within the discipline of speech communication are found in the traditions of apologia. Apologia was the earliest form of crisis communication. As a distinct rhetorical genre it began with Socrates and the Greek culture's belief in the right of a male citizen to address his accusers in defense of self. Ware and Linkugel (1973) argued that this public defense evolved over time into a

recognizable type of public address, one consisting of predictable phases of accusation followed by advocacy of one's reputation. Verbal self-defense within the parameter of apologia became the basis of political genre that even recently, scholars recognize as classic apologia. Contemporary politicians even today engage in the types of apologia that Ware and Linkugel identified: denial, bolstering, differential, and transcendence.

Denial involves an attempt to simply dissuade one's audience from the belief of guilt or responsibility. Often the "sell" of denial hinges upon the concept of intent—whether or not an action was taken is not necessarily called into question. What is challenged, however, is the motive, if one even existed. Bolstering, on the other hand, is the strategy used by the accused to reinforce a perceived positive commonality with one's audience, in an attempt to deflect from the action in question. Effective bolstering requires the audience to soften its judgment against the accused, based on that feeling of a common bond, heritage, or background. Differential apologia employs a subtle but distinct difference in approach from bolstering, in that differential apologia, in essence, asks the audience to suspend judgment until the action in question can be considered in a context. Like bolstering, the accused is not asking his audience to ignore the action, but to reconsider in light of a commonality (bolstering) or a particular perspective (differentiation). Transcendence, as well, does not ask the audience to ignore what has occurred, but to place the event into the context of a larger setting in which the particulars of the event lose power. Transcendence as a form of apologia is often used as a means of inviting the audience to see the indictment against one's self as an indictment of a larger societal idea, norm, or behavior. Hence, the guilt of the accused may be softened in light of a perceived attack upon a broader scope, be it a concept or a community.

Downey (1993) suggested that a pivotal moment for apologia as a rhetorical device occurred in the United States in the 1960s and 1970s, with the advent of mass media and its influence on American culture, thought, and opinion. This new era created a larger stage for individuals to take their case, as it were, to a larger court of public opinion. In this process, Downey asserts, apologia further developed into yet a more refined form of self-defense. This form which emerged included two key alterations: the concept of full disclosure as a means to merely reframe events, and outright avoidance of any responsibility for the event in question. The latter strategy, in particular, is predicated upon the assumption that "the less said, the better." In other words, minimal explanation may lead to minimal discussion.

Against this background of apologia as a distinct genre within the speech communication discipline, the field of communication studies owes a debt to scholars in other academic areas for initial research on the concept of crisis communication. Much of the literature devoted to this topic is gleaned from research in the disciplines of organizational management and public relations. These two disciplines transferred the concept of personal accountability, a la apologia, to the realm of organizational communication. Only within the past two decades that scholars readily identifiable with traditional programs of communication studies have emerged as leaders in the field of crisis communication research.

One finds, for instance, that the "grandfather" of crisis communication as a field of study hails from a business management academic background. I. I. Mitroff first began publishing on the concept of effective crisis management in the late 1980s. Because of his business management perspective, his research focuses primarily on the corporate communicative response to crisis. His definition of a crisis reflects how 25

years of corporate development significantly refined Hermann's earlier, more simplistic

definition. Specifically, Mitroff and his colleagues Shrivastava and Udwadia (1987)

identified a crisis as disasters that are precipitated by people, organizational structures,

economics, or technology that cause extensive damage to human life and/or to social

environments.

Of note is the significant addition of the elements of technology and of social

environment. Mitroff and his colleagues are credited with the development of the

systems approach to crisis management in organizations (Mitroff, Pauchant, &

Shrivastava, 1998). Crisis researchers perceive this theory as one of the defining ones of

the field. Mitroff defined the corporate crisis as a normal event within the organization

which collides with the complexity of the organization and with human error, creating a

significant threat to the goals of the organization. By normal, Mitroff and his colleagues

see crisis as an inevitable and often helpful evolution of an organization. While

unwelcome, an organizational crisis highlights weaknesses of the organization, forces

error correction and ultimately identifies the group's strengths, both in systemic and

human resource terms.

Seeger, Sellnow and Ulmer (1998) define organizational crisis as "a specific,

unexpected and non-routine organizationally based event or series of events which create

high levels of uncertainty and threat or perceived threat to an organization's high priority

goals" (p. 233). This definition encompasses the danger to the organization's viability,

coupled with an extraordinary loss of control.

As Mitroff was applying a systems approach to crisis communication, Karl E.

Weick was applying his theory of *enacted sensemaking* (1988). This approach suggests

that if an organization is to respond appropriately to crisis and in turn provide appropriate

communication around the crisis, the organization must analyze the crisis through a sensemaking view. Crises, according to Weick, are defined as events with low probability but high consequences that threaten the viability of the organization. This view interprets the crisis event from a premise that people enact the environments that constrain them. In the context of crisis, this perspective suggests that once the event has occurred, the emerging sensemaking that people around the crisis make of it should be the determining factor in how the organization shapes its subsequent communication. This theory assumes that a systems approach to the crisis would not become evident until those affected by the crisis have formed their own context for the crisis. In short, the organization cannot anticipate what events will be born, so to speak, as a result of the events that people themselves set into motion as a result of the crisis itself. Actions in crisis, maintains Weick, are always a little further along than an understanding of the crisis. This perspective does not suggest that the organization, then, is impotent to respond in times of crisis. Rather, it asserts that the most effective communication will be based on response to how those persons involved in the crisis make sense of the crisis' influence on them and the organization.

Theories of Crisis Management

In the mid-1990s, a new theory of managing crisis through effective communication emerged in the form of *impression management strategies* as defined by Allen and Caillouet (1994). Their research marks the emergence of crisis communication as a field of specialization in traditional communications academic scholarly journals. Impression management strategy posits that corporations, when in crisis, become actors that consciously engage in strategic communication that will acknowledge and address the complexity of communication required for appropriate response. Crisis within

organizations requires communication that reinforces the legitimacy of the organization. This legitimacy is established through apology, ingratiation, excuses, or justification. This theory and these categories build upon the research of Ware and Linkugel (1973) which addressed verbal defense in political discourse. Their categories, in turn, emerged from Socrates' theory of apologia. Allen and Caillouet have further expanded the verbal defense concept to categorize organizational response to crisis. Each of these strategies takes one of two forms: an attempt to absolve the actor by the challenger, or an attempt to invoke only a mild rebuke and strong forgiveness from the challenger. Apology, justification, and excuses fall into the first category and openly admit fault. Allen and Caillouet indicate that the most effective form of impression management involves ingratiation. They define ingratiation as the attempt to minimize the damage of the crisis on the organization by emphasizing the positive qualities, traits, and actions of the organization. The organizational actor thereby re-establishes those characteristics their constituents perceived as positive about the organization prior to the crisis. Ingratiation involves a reframing of the event to emphasize the organization's conformity with normal expectations – of behavior or standards – that a first reading of the situation would offer. This approach can legitimately be defined as the precursor to the concept of damage control or spin control in organizational communication.

Benoit (1995) established the basis for organizational *image restoration discourse* when he analyzed the restorative strategies of public persons who had suffered some form of reputation damage. He worked from the premise that human beings, by nature, work hard to reduce or repair real or perceived damage to self-image. Benoit further refined apologia by suggesting that not only is it human nature to protect one's public image, doing so actually occurs inevitably. This inevitable protection of reputation is

based upon four realities. Benoit asserts that modern humans work in a highly competitive environment, one that invites constant analysis of usefulness of people, products or ideas. Any perceived slight to one's reputation, then, could cause an immediate drop in one's public stature. For example, a misstep by a politician can cause an immediate drop in public opinion polls. Additionally, events beyond one's control often occur that cause a blow to one's reputation. A missed deadline at work may be a function of malfunctioning computer systems, but the effect on one's professional reputation may be damaging anyway. Further, a negative change in image can occur simply because one is human, and humans make mistakes (an alarm clock does not ring because it was not set to go off, a meeting is missed, and an image of punctuality is damaged). Finally, Benoit suggests that basic human nature pulls us toward image restoration because, as individuals in a multicultural, pluralistic society, differences of opinion over priorities, values, and goals may hinder reputations. Individuals sharing work space may make assumptions about a co-worker's belief system that are based on inaccurate information, but the end result is still a diminished reputation.

Benoit (1995) suggested that to effectively incorporate this theory, one must accept two components to a complaint: that the accused is held responsible for the attack, fairly or not; and the action which caused the complaint is considered offensive by the accuser. Image restoration theory is concerned only with message options to crisis. In legitimate ways, Benoit's theory can be perceived as a revision of attribution theory in the context of crisis communication as described by Coombs. For example, image restoration strategy employs strategies similar to attribution theory: denial, evasion of responsibility; reducing offensiveness of the event; corrective action; and mortification. One key difference, however, is that image restoration discourse strategy is concerned

less with the context in which the crisis occurs than is Coombs' use of attribution theory. A detailed explanation of Coombs' attribution theory, and the role of context in his use of the theory, is discussed shortly.

In 1997, Benoit expanded upon the theory of image restoration as a way for organizations to approach their response strategies in times of crisis. The basic human desire to protect self-image parallels an organization's basic need to create, maintain, and, when necessary, restore positive public image. One key difference between individual and organizational image restoration, however, is the amount of financial, legal, and other types of resources that can typically be invested in the process of organizational crisis response. And, though image restoration remains the goal, the organization may find that more audiences must be considered in image restoration than an individual may face. A corporation, as an example, may have image restoration issues in the face of crisis that involve the general public, stockholders, and employees. Image restoration may well involve key nuances in message content to each distinct group.

Another theory emerged in the mid-1990s regarding how an organization should communicatively respond to a crisis, this time with distinct emphasis on how the public's perception of the organization can be shaped, post-crisis. This emphasis concerns itself almost not at all with internal response to the crisis, and expands its concept of response past stockholders to include the general public at large. Coombs (1995) proposed a theory of crisis response based on *attribution theory*. Attribution theory asserts people feel a need to judge an event in terms of locus, stability, and controllability. Stated another way, the public will want to judge or determine if the organization in crisis brought it upon itself through an internal weakness, or if an external force was at play. Second, attribution theory in crisis management requires that the organization address the

stability factor (i.e., if the cause of the crisis is a one-time occurrence or is a constant presence). Third, this theory suggests the public will want to know to what degree, if any, the organization can control the crisis-inducing event.

Coombs (1995) expands upon attribution theory in crisis communication to suggest five types of crisis response strategies that speak to the three factors of attribution theory listed above. Those five types, with accompanying examples, are as follows: 1) nonexistence strategies (denial, intimidation); 2) distance strategies (denial of any intent, or minimizing damage); 3) ingratiation (praising others, bolstering); 4) mortification strategies (repentance); and 5) suffering strategy (seeking sympathy). Coombs defines these five types as the most common strategies used by an organization to help the public reshape or reframe the crisis, to help the public determine where responsibility lies. Further, Coombs suggests the more an organization can reframe for the public so that the crisis lies outside its locus of control, the more forgiving the public will be toward an organization. Coombs' application of attribution theory to crisis communication requires that these five types of strategies be considered within the context of the organization's crisis history, the type of crisis at hand, the strength of any evidence about the organization's role in the crisis, and how well the organization has performed, overall, in the eyes of the public. Each of the five serve at least one of three purposes: to convince stakeholders there really is no crisis (denial, for example); to see the crisis as less negative than a first assessment would suggest (minimizing damage); or allow the stakeholder to see the organization through a more positive lens, with the "help" of the crisis (such as the use of ingratiation).

Early in the 21st century, Seeger (2002) introduced *chaos theory* as a framework for organizational response to crisis. This theory is, without a doubt, one of the more

intriguing theories in play in the communication field. It converges the social sciences with the so-called "hard" sciences such as physics and mathematics, in that it requires a view of organizations as the interplay of dynamic tensions within complex systems within a system. Seeger proposes that chaos theory unifies a variety of academic disciplines with one meta-theoretical framework for research. One can grasp the viability of chaos theory as a communicative approach to crisis within Seeger's assessment that this theory seeks to identify predictive understanding of events, but without relying solely on causal patterns. Chaos theory suggests the inevitable bifurcation that accompanies crisis can allow organizations to evolve into a higher level of order. This presumably better level of organizational order births emergent self-organization. In Seeger's view of organizational crisis, the participants in the organization engage in a natural process in which order re-emerges out of the chaotic state.

Chaos theory further suggests this self-organization takes place through fractal sets, or naturally-occurring self-repeating patterns. The concept of strange attractors round out Seeger's definition of chaos theory, and speaks to the way in which typically unrelated entities come together, as if by a magnetic force, to create alliances that form the basis from which organizations can provide crisis communication. Seeger suggested that chaos theory is "tailor made" for communicative response to natural disaster crises. Acts-of-God crises such as floods or Hurricanes, he suggested, almost inevitably cause a breakdown in communication in organizations due to loss of power, telephones, and computers. In the absence of traditional order, persons in organizations will re-organize themselves, followed by the next predictable step of formation of alliances (or, in Seeger's terms, strange attractors). Faith-based groups with radically different philosophies band together to provide aid; governmental organizations work

cooperatively with other organizations that typically would be perceived as competitive for scarce funding.

   Euphemism as crisis response defines yet another recent crisis management strategy that has emerged in the past decade. Stein (1998) offered euphemism as a strategy that, while often implemented by organizations in crisis, is not, in his opinion, one to be emulated. Euphemism as crisis response refers to the practice of organizations to minimize damage and/or responsibility in crises by phrasing response in such a way as to appear to be direct in communication when in fact evasiveness is at play. Stein described this approach as sinister, in that as the public to which organizations speak we find ourselves mesmerized by the play of words that seeks to re-write events. For example, making enormous personnel cuts that displace thousands of workers is re-defined as "RIF," an acronym for Reduction-In-Force that sounds less traumatic than "massive loss of jobs." Another example is the use of the phrase "human collateral" in reference to numbers of persons killed as a result of war or other combative conflicts. Stein suggests the philosophy implicit in euphemistic response to crisis is that some thing(s) must die for other(s) to live. The appeal is to a survival-of-the-fittest, with the intended audience being safely included in the group of the "fittest."

Organizational Learning Theory

   Organizational learning theory provides a context in which entities can assess to what degree they gain organizational wisdom in the wake of a crisis. Seeger and Ulmer (2003) provided a generalized definition of organizational learning stating that it occurs when an organization accommodates experience and information. Crisis, they suggest, can provide the opportunity for an organization to gain wisdom from the experience of the crisis itself, if the organization is so inclined, as well as equipped and able to access

such learning. Cohen and Sproull (1996) further defined the parameters of organizational learning in the context of three factors: does organizational learning create knowledge within the organization that is procedural or declarative; are the results of the learning retained in the minds of the individuals who comprise the organization, or in the interactions between those individuals; and, does the learning reinforce current practices, or does it provoke change? They place no value on either option, but instead suggest that true organizational learning occurs when each of these three criteria are met.

Levitt and March (1996) and March et al. (1991) defined organizational learning in the context of different categories than do Cohen and Sproull. They perceive organizational learning as routine-based, history-dependent, and target-oriented. Organizational learning, within this definition, is confirmed only when historical experiences are incorporated into the life of the organization by means of changes in practice and procedure. The cognitive, in other words, needs to be manifested in behavior. Additionally, the learning is based on the organization's history, its own experience of a phenomenon that leads to the behavioral change. Finally, organizational learning is target-driven. In this context, the way in which the organization uses acquired knowledge ultimately defines knowledge; it is based upon a utilitarian value to the organization.

A particularly attractive feature of organizational learning theory is the opportunity it provides for organizations to reframe perceptions of failure. Sitkin (1996) suggested failure, as traditionally defined by an organization, is a necessity for effective organizational learning. He suggested that learning through failure allows for the idea that what was once perceived as failure by an organization, albeit on a small scale, actually provides the basis for learning in a positive mode. Small failures provide

opportunities for trial runs, if you will, of how the organization might respond if crisis arrives in the form of failure on a much larger scale. The absence of organizational behavior defined as failures may, in fact, illustrate lack of organizational awareness, and hence, less likelihood of the ability to effectively adapt to crisis.

March, Sproull, and Tamuz (1991) expanded upon what constitutes organizational learning pointing out that organizations, in reality, have fairly infrequent opportunities from which learning can be gleaned. True opportunities for organizational learning present themselves so infrequently that the opportunity for direct experience of the "lesson learned," so to speak, will appear less frequently than learning indirectly appears (i.e., by watching a competitor deal with a crisis in such a way that learning occurs from indirect experience). They eloquently captured the dichotomy of organizational learning within the assumption that true opportunities for learning occur infrequently, describing organizational learning as" how organizations convert meager experience into interpretations of history by experiencing infrequent experiences richly" (p. 2).

It is March et al.'s (1991) concept of converting meager experiences into an opportunity for rich opportunities of organizational learning that most succinctly justifies how organizational learning is an "equal opportunity," equally accessible theory of organizational learning in times of crisis. This theory can work particularly well for those organizations that do not operate in an environment of constant high-risk moments. In this way, organizational learning as a theory complements the concept that high reliability organizations (HROs) provide a useful basis from which non-HRO organizations can assess learning.

High Reliability Organizations

Weick and Sutcliffe (2001, 2007) coined the phrase "High Reliability Organization" to reference those organizations that operate on a day-to-day basis in an environment where risk and hazard are ever-present and threatening, and yet where the organization experiences accidents or incidents at a lower-than-expected level. The High Reliability Organization (HRO) is characterized not only by the high risk environment in which it operates, but in the manner in which the organization functions day-to-day. The successful HRO thrives in a state of constant heightened awareness of failure. Examples of organizations that are easily recognizable but perhaps not often considered in terms of high reliability include aircraft carriers, air traffic controllers, nuclear power plants, and military special operations. HROs share five characteristics that are consistently, vigilantly practiced. Successful HROs engage in the following common practices, such as:

- track small failures;

- resist oversimplification;

- remain sensitive to operations;

- maintain capabilities for resilience;

- take advantage of shifting locations of expertise.

An examination of each of these five characteristics reveals the nuance behind the phrasing Weick and Sutcliffe assigned to effective HROs. *Tracking small failures* refers to the habit of carefully watching for, monitoring, and analyzing small failures. In this manner, HROs differ from non-HRO organizations in that small failures are assumed to be warning signals of potentially larger problems that can escalate into crisis. HROs approach problems or glitches not in terms of "how small" or "how reparable" is this

scenario, as much as they approach them in terms of "what larger problem looms beneath the surface of this smaller glitch?" *Reluctance to simplify* speaks to the effective HRO's insistence on keeping an alert eye on the larger picture of the organization. While it is true that simplification allows an organization to focus on several key issues, use of this strategy long term as the predominant management plan reduces the opportunity to keep all aspects of the organization at front-and-center. HROs maintain that the tendency to simplify, while useful on a short-term basis, misses the early warning signals and other methods by which self-assessment and risk assessment can be retrieved. *Remaining sensitive to operations* complements resistance to simplification in that sensitivity to operations keeps the components of the well-managed operation constantly in sight. Management in HROs appreciates the need not only for sensitivity to the systemic operations of the organization, but also to the relationship of those operations to the people who actually perform them. A beneficial by-product, then, of ongoing awareness of the sensitivity to the human operation of the actual services is an increased likelihood that employees will inform management of potential failures before they materialize. The fourth common HRO characteristic, *commitment to resilience,* indicates an inner organizational commitment to persevere and remain viable even if inevitable threats to the well-being of the organization emerge. Weick and Sutcliff (2001) aptly summed up the HRO's commitment to resilience by stating, "The hallmark of an HRO is not that it is effort-free but that errors don't disable it" (p. 14). The fifth HRO characteristic, *deference to expertise,* speaks to the respect for, and inclusion of, input from organizational members at all levels of the operation. An effective HRO has less interest in a rigid reporting structure than in an environment which invites, encourages, and rewards input from members. These members, through daily routine and practice of their

crafts, are perceived as experts as a result of their training or experiences. Venette (2003) pointed out individuals closest to an identified problem will typically possess information as useful to decision-making as any other source of input, sometimes more so. In fact, when that inherent input based on experience is ignored, employees may tend to perceive themselves as less knowledgeable, and expect management to provide knowledge at a level that it may, in fact, not possess. Further, an organization that leaves employees out of the equation when seeking high reliability mindfulness runs the risk of creating just the opposite effect of benign mindlessness among employees (Novak, 2006). Employees who do not expect the opportunity to give input will, over time, potentially slip into a routine of inattention to risk-reducing detail.

If HROs operate in a constant state of high intensity, high-risk environments with "exciting" settings such as combat zones and aircraft carriers, of what could more "mundane" organizations such as law firms and lumber companies take note? They should take note because, in all organizations, in one form or another, crisis will occur. The value of HROs to lower-risk, lower-intensity organizational settings is that the habits honed by HROs serve as real-life, real-time examples of crisis planning, implementation, and practice. Any organization is one crisis away from destruction. One foreign object found in a food product, one poorly executed maintenance routine, one ignored safety check, one act of sexual misconduct, or one category five Hurricane can cause enormous harm – including destruction – of an organization.

It is important to note, however, that proponents of the HRO concept do not assert that an organization must obtain and nurture all five characteristics of an HRO as listed above. While the very nature of environmentally intense HROs require the presence of these shared attributes, less risk-prone organizations have the flexibility to observe, learn,

and adapt those practices that make the most sense for them. Indeed, Vogus and Welbourne (2003) suggested those organizations not typically needing to operate in total "HRO mode" will gain the most use from adoption of the concept of "mindfulness" in the effective HRO. Weick and Sutcliffe (2007) defined mindfulness as "a rich awareness of discriminatory detail" (p. 32). Vogus and Welbourne maintained that mindfulness aptly combines the five characteristics into an easier-to-access concept for lower-risk organizations to implement. Practice of mindfulness allows the organization to keep the big picture in mind – including deference to expertise and understanding of operations – while attending to the smaller detail that may reveal a risk-laden scenario.

Vogus and Welbourne (2003) linked Weick and Sutcliffe's (2007) concept of mindfulness to Perrow's (1994) concept of tight coupling, speaking to the way that non-HROs may best gain useful practice from the study of HROs. The degree to which an organization is perceived as an HRO depends in some part upon the measure of loose and tight coupling in the organizational structure, a concept introduced by Perrow (1994). Perrow described organizations that engage in tight coupling as those that have no buffer between phases of operation, output, or process (p. 90). The organization's flow of business service or product creation is so intricately interwoven that the slightest variation of routine of one step immediately and potentially adversely affects the ensuing steps. Tight coupling can be found in highly structured linear organizations such as factories, as well as in highly structured complex organizations, such as a nuclear power plant.

Conversely, Perrow (1994) describes loosely coupled organizations as those enjoying a higher level of intra-organizational flexibility among functions, departments or steps in a process (p. 91). A departure from normal operating procedure in one area of

a loosely coupled organization will not necessarily cripple another area. The impact of such a departure may result in an impact on the rest of the organization along a continuum of no impact at all to direct impact. Loosely coupled organizations tend to be characterized by highly organized, multi-level areas of operation. A university serves as a good example of an organization that typically engages in loose coupling (p. 97). An interruption of the teaching process in the biology department with the unexpected absence of an instructor will significantly, directly, and immediately impact that department, with no – or scant – impact on, for example, the history department. However, the loss of electricity in the physical plant will likely create a significant, direct, and immediately felt impact on most, if not all, areas of the university.

It would be inaccurate to infer that, overall, loose coupling in organizations creates an inherent advantage over tight coupling. The nature of the organization, as well as its product or service, impacts the efficacy of loose or tight coupling. For example, Perrow (1994) pointed out that tight coupling allows for a more time-dependent response to crisis than does loose coupling. However, the degree to which the organization has prepared for, and engaged in, appropriate crisis management response impacts the degree to which crisis creates failure in organizations that engage in tight coupling, not the tight coupling itself. On the other hand, Seeger (2002) maintained that organizations engaging in tight coupling do tend to experience accidents more often than loosely coupled organizations (p. 13). They theorize that the inflexibility of tightly coupled organizations inherently limits the options for effective crisis response. Conversely, then, they assert that loosely coupled organizations enjoy a level of ambiguity and flexibility that allows for creative response to crisis, which in turn increases the chances of averting failure.

The HRO organization provides a framework in which the theory of organizational learning can be placed. In this fashion, an organization, post-crisis, can assess to what degree the infrequent experience of a crisis provided opportunities for learning. Further, the HRO model can provide the foundation from which to assess learning. Organizational learning theory within a context of HROs provides the framework and the checklist by which an organization can assess what has been gained from the incident of crisis. The organization that experiences a natural disaster-related crisis is, arguably, the most likely candidate for the effective blending of organizational learning within the tenets of HROs. Natural disaster-related crises are fairly infrequent for the average organization, if "infrequent" can be assumed to mean an occurrence of less than once per year.

Organizational Crisis Communication with Employees

What does the literature say about effective communication with employees during and after organizational crisis? Surprisingly little. A review of more than 20 scholarly articles pertaining to organizational communication and crisis revealed only seven articles that addressed, either directly or indirectly, the role of internal communication for an organization in crisis. What can be gleaned from the literature regarding if, when, and how to communicate with employees during organizational crisis is reviewed here.

Billings, Milburn and Schallman (1980) explored the element of surprise that is part-and-parcel of crisis, and the high level of emotional response that crisis situations tend to evoke in employees. They discussed the concept of emotional inoculation, a coping mechanism that is triggered by an organizational event that meets the definition of a crisis and for which there was no warning. A "shorthand" definition of emotional

inoculations refers to the high level of stress and anxiety which an unanticipated event in the life of an organization creates in an employee, in the absence of any information that may have been present prior to the event. In other words, when the employee has access to information about potential crises, whether of high or low probability, he is caught off guard and experiences a sense of loss, threat, and anxiety in the face of an organizational event. Billings et al. suggested in their research, published fairly early in the history of crisis communication research, that planning and anticipation of possible crisis events on the part of organizations can help lessen the probability of anxiety and stress on the part of employees when crises inevitably occur.

Mitroff et al. (1987) acknowledged the importance of providing coping mechanisms to employees as commentary on their systems approach to crisis management. They describe the coping phase in terms of drawing a close, tight net around the crisis event, and in the process, implementing pre-determined crisis management teams. These teams, Mitroff suggested, should focus on emotional responses of employees within organizations in crisis. He reminds organizations that predictable human emotional response to crisis such as denial, depression, and anger are often difficult to manage, especially in the absence of planning for crisis.

Pearson and Mitroff (1993) also urged organizational review of crisis management response to determine to what degree, if any, employees' feedback has been sought regarding needs and skills in relation to whatever equipment or technology is involved in performing one's job functions. These kinds of considerations, they maintained, become of paramount importance when crisis occurs. Lack of regard for the opinion and advice of employees who are "hands on" with organizational materials, tools, and equipment can create significant increase in employee stress during periods of crisis.

If such considerations have not been taken into account, an employee's sense of personal accountability in a crisis is usually heightened. Subsequently, then, organizations also, Pearson advised, engage in "no fault learning," which is to say, avoidance of placing blame for the crisis on an individual employee, except in scenarios of deliberate bad faith action.

Weick's (1988) sense making model of crisis management is based in large part on the role of employees in the enactive perspective. In fact, the human response to crisis is the absolute basis of Weick's enactment perspective. New realities are put into motion only in the enactment phase of response to crisis. He further suggests the concept of "tenacious justification" on the part of the organization can be beneficial to employees, in that it can help generate meaning and order in the face of confusion, fear, and ambiguity. It can also provide a much-needed sense of order for the organization's personnel. Weick also pointed out the importance of sense-making for employees in a crisis-ridden organization in terms of developing a sense of capacity. If, after initial surprise has subsided, the organization can assist the employee in seeing how he has the capacity to assist in the face of the crisis, that sense of capacity can create difference. Stated another way, Weick suggested that a sense of capacity begets a sense of making a difference, which begets the much-needed sense of control which had been lost in the aftermath of the crisis.

In November 2001, after the horror of the September 11 attacks, Kiger (2001) presented research addressing the information gap regarding effective organizational communication with employees during and immediately after times of crisis. Key issues covered in his research included the need to communicate immediately with all employees, whether local or based halfway around the world. Further, traditional

avenues of instant communication such as e-mail, text messaging, and telephoning may not be functional. Kiger recommends a crisis response plan that includes continually updated contact names and telephone numbers of all employees, so that as soon as communicative tools are re-established, personal contact can be immediately implemented. Once that contact is initiated, Kiger maintained the communicative needs of the employee are quite often very similar to the communicative needs of other stakeholders. All constituent groups, employees in particular, want to know the status of co-workers, the status of their employment and benefits, and how they can help. Employees cannot hear too often that the organization will survive, that the chief operating officer is highly visible and in control, and that a planned response is already in operation. In short, employees need basic assurances that all will be well right now, next week, and beyond.

Seeger and Ulmer (2002) provided one of the more fascinating analyses of organizational crisis communication in which attention to employees in the organization intentionally drives the response to the crisis. Seeger and Ulmer, in an effort to provide an alternative to a defensive response to crisis, researched the responses in which two organizations made care for, and attention to, employees the basis on which all crisis response was predicated. Seeger and Ulmer cited Malden Mills and Cole Hardwoods as examples of organizations whose management chose to frame post-crisis discourse solidly in terms of potentially positive outcomes of negative events. In doing so, the owners of these two companies exhibited an astonishing degree of commitment to their employee groups as the basis on which new and innovative directions their businesses would take.

Both Malden Mills and Cole Hardwoods are independently-owned businesses that were destroyed by fires; Malden Mills in 1995 and Cole Hardwoods in 1998. Owners Feuerstein and Cole, respective owners of these business enterprises, each determined his business would re-build, would remain viable with competitors, and would do so by demonstrating, both verbally and in deed, a commitment to the employees and to the community in which the business was located. Both made immediate statements to the local community and communicated to all employees that the business would re-build, would remain in the local community, and that all employees would remain on payroll, with no interruption in benefits. The actions were perceived in the larger business world as an extraordinary business strategy gesture and action.

Seeger and Ulmer (2002) suggested that these actions demonstrated brilliant response to crisis, not just in terms of the evident care and commitment the owners demonstrated toward their employees. They suggest in the act of putting employee welfare first, the owners accomplished two goals simultaneously. First, they clearly demonstrated that employees are stakeholders in the business, thus widening the understanding and scope of what it means to speak immediately to one's stakeholders, post-crisis. Additionally, they took the emphasis off the typical negative reaction to a crisis – in each case, a devastating fire – and placed the emphasis squarely in terms of a positive, humanitarian, and innovative entrepreneurial event.

Further, Seeger and Ulmer (2002, 2003) proposed that these acts speak to the moral imperative of organizations to respond in an ethical manner to their employees during times of crisis. They described the imperative as post-crisis organizational virtue, in which the values of the organization's sense of social responsibility are either revealed or reinforced. The social responsibility of reaching out to one's workforce is measured

by a variety of standards, including types of outreach offered, immediacy of communication, quality of communication and reassurance – when it can be given – that the organization still has a future that includes the workforce. Seeger and Ulmer (2003) expanded upon the concept of virtuous organizational leadership by offering three kinds of communication-based responsibilities in which organizational leaders should engage in times of crisis. They include: a) communicating values that create a moral climate; b) communicating in a way that invites thorough knowledge of organizational operations; and c) maintaining openness to signs of problems. The third "must have" form of communication is consistent with Weick and Sutcliffe's (2001, 2007) earlier delineated theory of HROs. As well, it emphasizes a contemporary societal expectation of social responsibility, *a la* creation of a moral climate, which may likely extend to social responsibility in the face of natural disaster-related crisis.

Events within the past seven years in American history have emphasized the imperative Seeger and Ulmer (2003) suggested that a moral imperative exists for organizations to respond to their employee stakeholders with the same level of care and investment as they do for their public stakeholders such as stockholders, customers, or clients, and the general public or community where it is located. Recent national events have painfully illustrated that in times of crisis, the federal government's level of response has created a lowered level of expectation among Americans. A new reality has emerged, and that reality can best be described as an acknowledgment of its citizenry that the United States government cannot be counted on to fully anticipate, provide for, and protect its citizens in crisis incidents of a national scale. The terrorist bombings of the United States Pentagon and the New York World Trade Center towers in September of 2001 were followed in fairly short order by the destruction wreaked on the southeastern

United States by Hurricane Katrina. Both of these national crises illustrated all too painfully the inability of the federal government to intervene in effective ways. Benson (2006) noted that some government officials themselves, in the wake of Hurricane Katrina, articulated the shortcomings of the federal government regarding adequate response. These officials urged local communities to acknowledge and address the need, therefore, for communities to prepare themselves accordingly.

Heath (1997) stated that during times of crisis, audiences are more attentive to messages from the organization. Heath also proposed that this heightened attentiveness provides an opportunity for the organization to demonstrate a commitment to effective communication, and a commitment to taking responsible action. With an organization's employees defining one type of audience to which that organization should attend, the opportunity for enacting demonstrable commitment becomes crucial to surviving crisis.

The results of research by Sanchez et al as early as 1995 spoke to the need for business organizations to engage in proactive response to employees in the wake of a natural disaster. Like research previously cited, their analysis of the ways in which corporations responded to Florida-based employees in the wake of Hurricane Andrew confirmed that responding as a responsible employer parallels response as a responsible member of the larger community. Employees in the aftermath of a natural disaster are consumed with meeting basic needs: where will I live, what and how will I eat, how will I survive?

Harvey and Haines (2005) concluded that companies that participate in the recovery of the communities in which their employees live are likely to reap intangible benefits. They determined that how the management of a company interacts in the recovery process is just as important as what they do. An employee is likely to attach a

positive emotional response to an employer's involvement in their and their communities', recoveries. In short, the why, the how, and the what of the organizational interaction with the recovering community are often positively significant to the employee.

<center>Maslow's Needs Hierarchy</center>

Maslow described a hierarchy of needs that humans seek to meet in an effort to reach full human potential (1954). Maslow described this potential as self-actualization. Self-actualization is based upon stages of physiological, emotional, and psychological needs that must be met, and in a certain order, for human self-fulfillment to be achieved. A broadly generalized explanation of the hierarchy of needs suggests the basic physiological needs must be met before the luxury, so to speak, of emotional and psychological needs can be addressed. An understanding of both Maslow's definition and description of basic physiological needs provides a context in which to assess effectiveness of crisis communication.

Maslow (1954) stated all humans are motivated by needs specific to us as humans: the need for food, safety, protection, and care. It is upon these basic survival needs that other needs are formed and ultimately met. When these basic needs are not met, the acquisition of them becomes of primary, overriding importance. All other needs are pushed aside; psychological and emotional needs become irrelevant in the face of unanswered basic survival needs. Further, Maslow asserted, a person's vision of what his future entails changes dramatically in the threat of loss of basic survival needs. Social, professional, and emotional aspirations become virtually irrelevant when humans are deprived of safety, food, shelter, and care. Maslow suggested there is, even within the

context of physiological needs, yet another level that he describes as the safety needs: security, stability, protection, and ultimately, freedom from chaos and/or anxiety.

The degree to which employers can assist their workforce in addressing those basic survival concerns will impact the degree to which the communities in which they live regain normalcy as well. Stated very explicitly, organizations exist in communities comprised of humans who, in times of crisis, experience an overwhelming need to have basic survival needs met. Maslow (1954) suggested that any act that helps humans regain equilibrium, after temporary loss of basic human survival needs, will be perceived as a beneficial psychological gain. Thus, the organization that takes definitive steps to assist employees in regaining psychological equilibrium through a reordering of food, safety, and shelter exercises both good citizenship and good employee relations. What benefits the employee benefits the community in which he lives. In times of crisis, this concept moves beyond a "good will building" public relations concept into a literal life-or-death reality.

Similarly, Schouten et al. (2004) saw the role of business organizations as integral members of their communities. According to Schouten et al, when high levels of commitment to the work force are communicated by the employer to the employee, the organization becomes a stabilizing force both in the lives of employees and in the larger community. The workplace typically serves a significant organizing force in the lives of adults. Not only does one's employment provide wages, it provides other tangibles such as medical insurance and retirement pensions. Equally important, the workplace provides intangibles such as structure, stability, and opportunities for interpersonal relationships and support. Therefore, Schouten and colleagues contended, the stability employers offer to employees, particularly in the wake of a disaster, ultimately also serves as a stabilizing

force for the larger community in which the organization is placed. This assessment parallels research by Seeger and Ulmer (2002) regarding the societal and ethical role of the organization in times of crisis. Hoffman's (2006) research found the level of social support one finds in place in the aftermath of a natural disaster – specifically, a flood – correlates with positive psychological outcomes measured in those persons who experienced the disaster firsthand. The emotional support that often is intertwined with the social support found in the work place can greatly aid the disaster victim in his return to a sense of stability and normalcy.

<div align="center">Impact of Employee Characteristics</div>

An analysis of organizational crisis communication provides an opportunity to discern to what degree, if any, varying factors among a common group impact the way in which communication is both received and perceived. Employees, for example, share the commonality of the same employer. However, variances exist within that employment status; employees differ in a variety of ways, including age, sex, race, number of years of employment and for some organizations, work site location. Allen (1995) addressed the variant of race in an organization to emphasize the need for organizations to be cognizant of, and build upon, differences that can enrich an organization, if those differences are viewed as enriching the organization instead of limiting it.

Rosenfeld, Richman and May (2004) analyzed the impact of information adequacy to job satisfaction as it relates to work location. Their research determined that both levels of job satisfaction and satisfaction with information adequacy are, in fact, impacted by one's work location. Two types of employees, those in the office and those "in the field," were surveyed regarding information adequacy, and differences were, in fact, confirmed. This study confirmed the importance of organizational communication

analysis within the context of employee differences imposed by the organization itself. In this case, the imposed factor is location.

On the other hand, Cheney, Zorn, Planalp and Lair (2008) speak to the need for organizational communication scholars to more fully explore and define the impact of variances within a work force over which the organization has no impact. They urge further research regarding to what degree meaningful work for employees is impacted by multiple differences, such as ethnicity, nationality, gender and class. The rapidly changing global nature of businesses, and thus work forces, requires organizations to continually assess variances in work force demographics that may require adjustments in communication strategies. Information adequacy perceptions by employees ultimately will be impacted by variables both inside and outside the scope of the organization. The organization may determine from what location, for example, an employee works – telecommuting, local office, "in the field," etc. – but cannot fully control the variables that further inform employee satisfaction with communication: age, sex, race, or even religious beliefs. Effective communication strategies, therefore, require careful consideration of all factors impacting how an employee will perceive information.

Each organization's unique qualities determine what characteristics may impact organizational crisis communication. For example, organizational cultural issues may be impacted by for-profit or non-profit status, the kind of educational qualifications required for employment, or the degree to which the organization is diversified by geographical locations, including cyberspace-based work sites. An effective organizational study will require an understanding of the individual characteristics, and their nuances, that comprise an organization.

For this particular case study, analysis focused on three characteristics of the employment pool at the time of the crisis that may have impacted perceptions. Those three variables include number of years of employment with the organization, work site location in relation to the disaster and pay type. Given the non-profit nature of the organization analyzed, as well as the primacy of an educational mission for the university, these characteristics provided a basis for meaningful comparison.

Within an organization, differences of employee perceptions may exist based on length of employment. For an institution of higher learning, length of employment is often a resulting function of two of the three variables highlighted in this study: employment length and pay type. An inherent stratification among university employees exists by the mere nature of the organization, based on the fact that tenured professors tend to stay at one institution throughout the length of their careers – thus creating a long term employment relationship with one organization – and they are typically paid on a salaried basis. On the other hand, the majority of non-teaching employees who support the educational mission of a university may experience greater turnover of personnel, absent the job insurance of tenure. Further, the majority of these non-teaching employees are often paid on an hourly basis instead of salaried.

Additionally, institutions of higher learning are frequently multi-site organizations. These multi-site organizations usually identify a "home" campus at which the higher level administration is housed, and which becomes the landmark campus of reference for the university. Satellite campus-based employees may possess varying views of the organization based on physical distance from that main campus, which in turn could hold implications for effective organizational communication practices.

Summary

This study will examine the degree to which one organization, in the aftermath of a natural disaster crisis, enacted organizational learning. It will also determine to what degree attributes of High Reliability Organizations were used, and with what degree of success, based on feedback from employees. The concept of organizational learning and the degree to which it is manifested utilizing a High Reliability Organization perception scale yielded the following research questions:

RQ1a: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on length of employment with the organization? RQ1b: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on employee work location in relation to the disaster? RQ1c: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on pay type? This data will provide information about internal crisis communication with a group of stakeholders seldom studied in the literature; namely, how employees perceive employer's efforts to communicate with them. The data will allow the opportunity for response of employees to the organization. In doing so, strategies for improving upon internal crisis communication efforts can be assessed and, if appropriate, improved.

RQ2: To what degree do employees characterize their organization as an HRO in the aftermath of a natural-disaster induced crisis? Information regarding whether or not an organization is perceived by employees as having utilized HRO characteristics in response to a natural disaster crisis will greatly broaden existing uses of the HRO scale. Amending the HRO characteristics in a survey form in order to describe an organization that typically does not operate in a high risk environment will test the feasibility of

applying the HRO scale to less high-risk organizations. In doing so, an organization has the potential to ascertain if organizational learning has occurred, from the employee perspective of risk management.

RQ3a: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on length of employment with the organization? Such data will provide insight into the degree to which a longer term employee/employer relationship affects an employee's perception of the organization. Ascertaining if perceptions vary based upon employee length of service informed to what degree, if any, an organization may need to adjust operations. This information will be especially helpful to organizations that value positive employee perceptions of high reliability.

RQ3b: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on employee work location in relation to the disaster? To what degree the geographical location of the workplace impacts an employee's perception of organizational reliability may prove particularly insightful when a multi-site organization assesses communication efficacy in times of natural disaster crises. What proves to be effective at one location may or may not show statistical significance in comparison with other sites. Similarly, data may reveal there is no significant difference based on geographical location, and therefore crisis communication strategies do not need to be location-sensitive. Such information may potentially provide an organization with the impetus to adjust risk management procedures – and dissemination of such – based upon the needs of various work sites.

RQ3c: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on salaried or hourly employment status? The federal government distinguishes, for purposes of fair labor standards, between employees who

are paid an hourly wage and those employees who are salaried. Hourly wage employees are eligible for overtime pay from an employer, unlike the salaried employee who is paid a flat wage, no matter what amount of time is required to accomplish a task or project. Subsequently, the quality of relationship between an employer and these two types of employees may differ in intangible ways. An employer, then, may find that the type, scope, and frequency of communication with an employee in times of natural disaster crisis vary based on the way in which the employee is compensated. Such a finding may potentially provide a rationale for further assessment and possible adjustment of employee relations strategies, based on compensation status.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the procedures used to collect and analyze data for the purpose of addressing the research questions listed below. It provides rationale for the research procedures selected; information regarding the organization surveyed; how the procedures were implemented with the sample population; and how the data was analyzed.

Mixed Method Approach

This research employed a mixed method research design in case study form, analyzing an educational organization; specifically, a dual campus, mid sized public university located in the southeast. Detailed explanation of this approach follows.

Tashakkori and Teddlie (2003) defined mixed methodology as the use of both the quantitative and qualitative research paradigms within the same study. The use of mixed methodology research has caused much debate in recent decades regarding its appropriate place in social sciences research. However, contemporary research scholars endorse the concept that a blending of the two methodologies, in certain research arenas, is both appropriate and even necessary to obtain the most vigorous assessment of the research question.

Morse (2003) succinctly provided a cogent rationale for the implementation of mixed method design in reminders that the ultimate goal of social science research is to obtain the most complete picture possible of human behavior and experience. There are times, then, when implementation of both quantitative and qualitative research design in a study will help us reach more quickly the understanding we seek in our research endeavors. Mixed method research design can prove to be especially powerful when

analyzing extraordinary events, such as a natural disaster, when the combination of self-reported survey responses about the event is incomplete without grasping the details and stories about self-reported responses to the experience. In short, the "what" question of the experience of the event necessitates asking the "why" and the "how" in a way that quantitative research design cannot readily capture. Conversely, the "why" and the "how" cannot be ascertained until the "what" is defined by the quantitative research design. A key component of the success of mixed method research design, according to Morse (2003), is the need for a clearly defined dominant method in the research design, with additional methodologies supplementing the goals of the dominant method.

Contemporary communication scholars have utilized a mixed method research design approach with success. Venette (2003), for example, used a mixed methodology with a quantitative survey followed by oral interviews to determine risk communication perceptions of employees in a high reliability organization. Venette, Lang, and Coyle (2003) employed a combination of an electronic survey with focus group discussions to study risk communication as argument, analyzing student perceptions of responsible drinking.

The current study utilized a quantitative research design as the primary form of data collection, using qualitative methodology to enhance understanding of the data that were collected quantitatively. For this study's research purposes, qualitative data was gathered via both individual and focus group interviews. Based upon feedback gleaned from those two sources, a written survey was administered to provide quantitative data.

This study addressed the following research questions:

RQ1a, RQ1b, and RQ1c: RQ1 a: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on

length of employment with the organization?; RQ1b: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on employee work location in relation to the disaster?; and RQ1c: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on pay type? This question assessed in what ways employees responded to an organization's communication in response to Katrina, in general terms that allow clarity about overall level of satisfaction, regardless of how those responses correlate to characteristics of a high reliability organization. The primary source of data for these three RQ's was qualitative data gathered in focus group meetings and in open-ended questions in the written survey. The data was then reflected in the wording of the written survey, providing a quantitative measure for the RQ's. These RQ's were addressed in writing both by closed and by open ended questions on the survey. One-way ANOVA analysis was conducted, as was frequency distribution using chi-squared analysis.

RQ2: To what degree do employees characterize their organization as an HRO in the aftermath of a natural-disaster induced crisis? This question employed the characteristics of a high reliability organization in survey form (in both hard copy and online options) to determine to what degree, if any, employees perceived the organization as an HRO, and further, to provide data regarding why the organization was or was not perceived as such around the event of Hurricane Katrina. The primary source of data for this RQ was a quantitative, in the form of a written survey.

RQ3a: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on length of employment with the organization? This RQ assessed the degree to which employment longevity correlates with perception of

organizational reliability based on communication during natural disasters. RQ3a was also explored with a quantitative method through a written survey.

RQ3b: How do employee perceptions of organizational reliability, following a natural disaster-induced crisis, vary based on employee work location in relation to the disaster? Data related to this RQ was gathered through the quantitative tool of written survey and with qualitative data gathered via focus group interviews.

RQ3c: How do employee perceptions of organizational reliability vary based on salaried or hourly employment status? RQ3 was addressed in a quantitative survey method, with a comparison and regression analysis between self-reported pay status and responses to those survey questions that relate to HRO characteristics.

<div align="center">Case Study Approach</div>

Yin (2003) aptly stated the rationale for the decision to use a case study approach for analyzing the research questions presented in this study: "In general, case studies are the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (p. 1). Certainly, the event that was Hurricane Katrina fell outside the control of the employees of the organization that was studied. Equally, the investigator's ability to control what, how, and why communication with their employer affected these employees was also outside the realm of their control. The focus of the study – assessing crisis communication efficacy within the organization – remained contemporary. Though the initial event of Hurricane Katrina occurred more than three years ago, the assessment of the crisis communication actions taken remains relevant, so that "lessons learned" can be fully ascertained for use in the event of another

Hurricane or other form of natural disaster. And, it cannot be denied, surviving a category five hurricane is about as "real life" a context as one can find.

The case study, as Sypher (1997) saw it, allows the communication scholar to appropriately blend theory with practice. Sypher spoke of the flexibility the case study approach offers, particularly in its epistemic role. Sypher maintained case studies provide multiple ways by which scholars can acquire useful data, applying four basic categories based on case study focus: epistemic, rhetorical, skill enhancement, and narrative. The epistemic approach suggests case studies provide a new way of knowing. The rhetorical approach of a case study assumes an argument is inherent in the study; that some form of evidence will emerge that informs a particular point of view. The skill-enhancement approach speaks to the assumption we learn from observing. Therefore, the investigator as communicator learns simply by observing, independently of whatever else may emerge from the data. Finally, the narrative approach to case studies suggests the value of the story rests, first and foremost, in the power of the story that emerges.

This case study approach is successfully utilized across all social science disciplines. Recent examples include Miles' (2007) use of the case study method to analyze one immigrant's experience in the United States as he negotiated a new cultural environment, particularly in his place of employment. Grantham (2007) also adopted a case study method to assess communication strategies employed in a recent corporate takeover of one multinational company by another one.

This current study consisted of three key components. One involved individual interviews with persons in the organization who implemented employee communication before and after Katrina. These interviews helped ascertain what written and/or ad hoc communication plan was implemented; individual perceptions of the efficacy of those

plans; and reflections about the personal impact of attempting to initiate employee communication from a professional sense of responsibility. The three focus groups allowed for a "test drive" of the written survey's first draft. The feedback received from this group proved invaluable in terms of understandability, readability and scope. Equally important, the focus groups allowed for the chance to learn what key topics relative to communication had not been included in the initial survey draft. Having input from employees at various work sites tremendously increased the richness of the survey, since it provided perspectives from multiple viewpoints, other than basic geographical differences. The final component of the case study involved the distribution of a written survey which combined both quantitative and qualitative questions.

Qualitative Research Design: Interviews

Qualitative data was obtained in two ways: individual interviews with persons within the organization who played a vital role in the organization's crisis communication during and after Katrina, and focus group interviews with employees who were on payroll during Katrina. Five employees were interviewed in one-on-one meetings during which the investigator took written notes, recording the impressions and recollections of the interviewee's role in communicating with employees during the time period surrounding the Hurricane. Those interviewed included the university's human resources director; two public relations administrators at the gulf coast campus; a public relations administrator for the Hattiesburg campus; and the director of the Hattiesburg campus physical plant. Through a series of questions that focused on the communicative process right before and right after Katrina, the following themes emerged regarding organizational communication decision-making and subsequent action:

- lack of a viable frame of reference regarding how to prepare, given the enormity of the category 5 hurricane;

- lack of a viable frame of reference regarding how to respond, given the enormity of the category 5 hurricane;

- sense of helplessness to accurately warn and inform employees, once the severity of the storm became evident;

- sense of helplessness to respond and communicate, in the days immediately after Katrina hit, due to unprecedented loss of normal communicative channels;

- sense of guilt for being unable to "do more."

Information gathered from theses interviews, combined with the basic question which comprised the HRO perception scale, formed the basis of the written survey that was distributed to employee focus groups.

The focus groups were identified from the list of employees who were on payroll during Katrina, with a goal of providing the greatest balance of support staff, administrators and faculty.

Additionally, campus location was a factor in the creation of the list of employees invited to participate, as was gender and ethnicity. To that end, three focus groups were formed: one from the Hattiesburg campus, one from the Gulf Park/Long Beach campus, and one at the Gulf Coast Research Laboratory. A total of 33 employees participated. Each participant was assured anonymity, both in the written invitation to participate, as well as verbally before the focus group discussion began. Sessions lasted approximately one hour, with two of the sessions being held over the lunch hour and one being held mid afternoon. Participants had received a draft of the survey approximately one week prior

to the focus group meeting. They were asked to bring the survey to the meeting, and to be prepared to offer verbal and/or written suggestions. A scribe was present at two of the three sessions.

Common suggestions, themes and concerns that emerged from the focus groups included the following:

- confusion about whether the respondent should think of the organization in terms of the entire institution or in terms of geographic work location;

- expansion of the list of ways in which information was received, both before and after Katrina;

- a desire to have ample opportunity, via open ended questions on the survey, to provide feedback about individual perceptions of the university's communication with employees during the crisis;

- clarification of time frames when responding to "before" and "after" questions – i.e., how many days, weeks, etc constituted those concepts.

Additionally, participants in each focus group took the opportunity to discuss personal experiences and impressions regarding the university in the aftermath of Katrina, whether or not related to the topics addressed on the survey. The need to keep the focus group on task was a challenging one. However, the discussion did illustrate the potential for the HRO perception portion of the survey to capture opinions about non-communication related topics that emerged in the focus groups. Issues of the role of individual employee input in decision-making and perceptions of the university's interest in being prepared for crisis, for example, were part-and-parcel of the HRO component of the survey.

Quantitative Research Design: Survey

The primary quantitative research design form consisted of a written survey, which was distributed to participants in both electronic and paper form. Venette's (2003) "High Reliability Organization Perception Scale" served as the basis for the questionnaire. Barrett, Novak, Venette, and Shumate (2006) tested the scale for reliability, factor structure, and validity and found it to be supported in each of these categories. Surveys have been effectively used in previous crisis communication research. Blendon, Benson, Desroches, and Weldon (2003) used opinion surveys to determine who the public trusts, and in what form they prefer to receive information in times of national crisis. Procopio and Procopio (2007) focused on internet communication in their study of effective use of messages during times of crisis. Barrett et al. (2006) used a survey in their validity and reliability testing of Venette's HRO perception scale.

The HRO scale was modified to clearly identify for survey participants that perceptions about the university were being gauged. The modification, therefore, was a slight one that involved clarifying that the "organization" referenced by the HRO scale was the employer, the University of Southern Mississippi. The choice to use the phrase "The University of Southern Mississippi (USM)" instead of delineating by work site was a deliberate one. The rationale for choosing the institution as a whole as the target for garnering employee perceptions, rather than specific sites, reflected the research goal of remaining consistent with organizational terminology use. Since perceptions and opinions may have varied among employees based on work site, the survey provided open-ended questions that allowed for the chance to share opinions about individual work sites.

Research Design

The design of the research instrument illustrates the advantage of focusing on one organization in a highly detailed manner. This study utilized the high reliability organizational perception scale as validated by Barrett, Novak, Venette, and Shumate (2006). Barrett et al.'s perception scale is itself based on Venette's (2003) employee HRO perception scale. Though this scale relies exclusively on the collection of quantitative data, the format allows for a logical adaptation to the needs of an organizational survey that will gauge both quantifiable impressions and equally-important qualitative impressions. The impact of natural disasters on the employees of an organization necessitates an understanding of the emotional, psychological, and even physical impact of that disaster. The very nature of a natural disaster means the organization cannot control or manipulate the locus of the crisis. Therefore, the impact on employees – and hence, on the organization – requires inquiry into subjective feedback which can then be transformed into useful data. Adapting this level of detailed, intricate examination allowed the purpose of the research to remain narrowly focused and therefore more likely to yield adaptable information for employers. The results of such an intricate analysis can then be used as the basis for future research, such as the analysis of differences, if any, between different types of for-profit and non-profit employee perceptions of organizational communication during natural disasters.

Qualitative research design has been successfully used in previous research conducted to assess communication around the issue of crisis. Hale, Dulek, and Hale (2005) used interview research design for the response stages of crisis situations as determined and implemented by crisis decision makers. Mebane, Termin, and Parvanta

(2003) also used interviews as a means of analyzing how and why reporters

misinterpreted data from the Centers for Disease Control and Prevention regarding

anthrax threats. Meredith, Eisenman, Rhodes, Ryan and Long (2007) used interviews to

collect data regarding perceptions that some African-Americans distrust public health

warnings concerning preparedness for bioterrorist attacks.

<div align="center">Description of the Organization and the Participants</div>

The University of Southern Mississippi, founded in 1910, employs 2400 benefits-

eligible faculty and staff, and serves approximately 16, 000 students at two main

campuses: Hattiesburg in Forrest county, and Long Beach in west Harrison county.

Employees are also located at additional coastal sites that include a research laboratory in

Ocean Springs, and teaching sites at Keesler Air Force Base and in Jackson County. The

University of Southern Mississippi markets itself as a national university for the Gulf

South. Funding for The University of Southern Mississippi is derived from state support,

student fees, private donations and federal grants. Thus, the Gulf Coast communities in

which the university is located have a strong investment in the University of Southern

Mississippi economically, culturally, and socially. The role of the university within the

communities in which it is located speaks to the intricate mutual dependence that

Katrina's impact only served to heighten.

<div align="center">Participants</div>

The participants in the survey and interviews were identified, with assistance from

the Department of Human Resources, from those current employees who were on payroll

in August 2005 at any of the campus locations listed above. The 1673 employees who fit

this criterion were invited to participate in the survey process via email. The email

provided a link to the survey, which was administered by a research group at North

Dakota State University. Additionally, employees in jobs that typically do not require computer access were invited to participate in the survey process at employee meetings. Hard copies of the survey were distributed at staff meetings; 52 employees participated in this fashion.

A total of 843 employees completed at least part of the survey, creating a fifty per cent participation rate. Seven hundred participants responded to all questions. Eighty-five per cent of respondents were Hattiesburg-based employees; 8 per cent were Long Beach/Jackson County/Keesler Air Force base employees; 7 per cent were Gulf Coast Research Laboratory employees, and the remaining 36 surveys came from employees at Stennis Space Center, comprising less than 1% of the surveys returned. Table 1 shows the percentages of participated employees from each site who met the survey population criteria.

Table 1

Percentages of Participated USM Employees from Each Site

Location	Percentage	Number
Hattiesburg	68.8%	580
Gulf Coast*	11.86%	100
GCRL	7.71%	65
Stennis	3.08%	26
No response	8.54%	72

*includes Long Beach/JacksonCounty/Keesler Air Force Base

The Survey

The survey consisted of basic demographic information allowing participants to identify the following characteristics, in addition to the work locations as listed above:

- number of years of employment with the University of Southern Mississippi (USM) at time of Katrina;

- whether wages are earned on an hourly or salaried basis;

- age;

- race;

- sex.

The ten questions forming the HRO perception scale were modified as follows to meet the specifics of the organization and crisis being addressed:

1. My opinions are taken into account in the daily operations at The University of Southern Mississippi (USM).

2. My opinions are taken into account in long-term planning within USM.

3. My actions directly contribute to safeguarding USM's continued existence as a successful university.

4. My actions influence others to prevent significant mistakes at USM.

5. USM is very concerned about the possibility of making high risk mistakes that would jeopardize the organization.

6. USM is committed to correcting shortcomings that could jeopardize the organization.

7. USM emphasizes maintaining effective operations.

8. USM is committed to correcting shortcomings in their emergency response procedures.

9. USM's supervisors and managers accept an employee's suggestions about important issues when the employee has particular expertise in that area.

10. USM often over-simplifies when communicating about complex emergency response procedures.

All 10 items were used to form an index using a simple sum. As suggested by Venette (2003), reliability was calculated using Cronbach's α (α [633] = .85). Thus, reliability was determined to be suitable for the entire scale.

The remainder of the questions came from two sources. The first is the ad hoc crisis response plan the university implemented around the crisis of Katrina, to determine to what degree this plan met the communicative needs created by this particular event. The response plan was extracted from details of interviews with key administrators in the university who implemented the communication that was attempted. There was no written response plan. Employee focus group feedback provided the second source of questions, particularly the open-ended queries that allowed for individual stories to be conveyed.

Tables 2 through 8 show respondents' self-reported number of years of employment with the university, employee group, pay status, sex, race, age, and prior experience with a hurricane.

Table 2

Respondents' Self-reported Number of Years of Employment with the University

Number of years	Percentage	Number
Less than 10 years	39.97%	445
10 – 19 years	30.73%	259
20-29 years	12.45%	105
30-39 years	4.39%	37
40+ years	.59%	5
No response	11.86%	100

Table 3

Respondents' Self-reported Employee Group

Group	Percentage	Number
Staff	57.41%	484
Administrator (faculty and non faculty)	8.66%	73
Faculty	25.74%	217
No response	8.19%	69

Table 4

Respondents' Self-reported Pay Status

Pay type	Percentage	Number
Salaried	65.60%	553
Hourly	25.86%	218
No response	8.54%	72

Table 5

Respondents' Self-reported Sex

Sex	Percentage	Number
Female	58.36%	492
Male	32.50%	274
No response	9.13%	77

Table 6

Respondents' Self-reported Race

Race	Percentage	Number
White	86.36%	665
African American	10.39%	80
Hispanic/Latino	1.43%	11
Native American	0.78%	6
Asian	1.04%	8

Table 7

Respondents' Self-reported Age

Age group	Percentage	Number
18-25	0.36%	3
26-35	12.22%	103
36-45	20.05%	169
46-55	33.21%	280
56-65	21.35%	180
66-75	3.56%	30
75+	0.00%	0
No response	9.25%	78

Table 8

Respondents' Self-reported Prior Experience with a Hurricane

Experience	Percentage	Number
Yes	69.04%	582
No	21.59%	182
No response	9.37%	79

Survey Data Description

The combination of quantitative and qualitative questions allowed for the collection of data to address the RQ's listed previously. The pairing of RQ and survey data is as follows:

RQ1a, RQ1b and RQ1c data were collected from responses to survey parts I and II. Each section addressed perceptions of communication efforts before Katrina-specifically, one week prior -- and after Katrina -- specifically, up to one month after the Hurricane hit. A checklist of possible methods of communication was listed; respondents were asked to indicate all ways in which they received communication from the university. Respondents were then asked to rate their perceptions of the efficacy of those communication efforts by way of a Likert scale rating which addressed adequacy of conformation from the university regarding Katrina. This same format of a checklist, followed by a rating of adequacy, formed the basis of parts I and II which became the basis for determining response to RQ1, a-c. Additionally, the last question of the survey allowed for an open-ended 'last call for feedback" opportunity for respondents to address any issue about Katrina and their employer. The total of qualitative data provided for a more complete picture of what did and did not work well in terms of communicative efforts, as well as other outreach efforts. The three open-ended survey questions prompted a response rate which reflects that 26.3% of all respondents provided feedback for question #14; 38.8% of all respondents provided feedback for question #15, and 25.6% of all respondents provided feedback for question #17.

Finally, open-ended questions 14 and 15 allowed respondents to identify actions (communicative or otherwise) that the university undertook both prior to and right after Katrina hit. Two hundred-twenty two participants provided written responses to item 14,

which requested the following feedback: "Please describe anything USM did for you, as an employee, that you found particularly helpful right before Katrina hit." Three hundred-twenty seven participants provided written responses to item 15. Two hundred-sixteen participants responded to item 17, which allowed participants to respond to this question: "Is there anything you would like to say about Katrina and USM's response to the hurricane, that has not been included in this survey? If so, please do so here." Two coders tallied comments into the following categories for item 14:

- time to deal with personal concerns (home, family)

- facilitated safety: closed campus early, etc.

- kept employees informed on the storms' status/severity

- did nothing for me prior to Katrina

- n/a; nothing to add/say here.

Comments were tallied into the following categories for item 15:

- provided food/meals

- distributed ice/water

- assured me of job security

- allowed time for personal concerns

- got my paycheck on time

- provided temporary housing

- provided assistance (other than housing)

- other.

Comments were tallied into the following categories for item 17:

- USM communicated poorly with me

- USM communicated adequately with me

- gratitude for what USM did do

- lack of adequate follow-up from Hattiesburg-based admin(i.e., slow to respond, inadequate response, etc.)

- no/nothing/no response

- other.

Training with the two coders involved a review of the open-ended questions, the list of generalized categories, and need to remain alert for each unit of measure to contain more than one category of response. The coders were given a random sample of 30% of responses from each question to individually code. Intercoder reliability was then calculated using Scott's pi (Scott, 1955). Pi is the appropriate measure of reliability in this instance as the data is nominal (i.e, placed into categories that have not been ranked ordered) (Venette, 2006). The calculated reliability coefficients for all three of the open-ended questions were acceptable. For questions 14, pi equaled .78; for 15, pi was .74; and for questions 17, pi totaled .64.

.   RQ2 data were collected from responses to the organization-specific HRO questions found in Part IV. Part IV provided the data which most specifically addresses employees' perceptions of HRO characteristics regarding the university, post-Katrina. The HRO questions led to the creation of an HRO score, the results of which formed the basis for analysis of HRO perception.

RQ3a data were collected from responses to the HRO scale in part IV. They were correlated with responses found in demographic data regarding numbers of years of employment with the university. One-way ANOVA analysis was conducted, as was frequency distribution using chi-squared analysis.

RQ3b data were collected from responses to the HRO scale in part IV. They were correlated with responses found in the demographic data regarding employee work site location. One-way ANOVA analysis was conducted, as was frequency distribution using chi-squared analysis.

RQ3c data was collected from response to the HRO scale in part IV. They were correlated with responses found in the demographic data regarding employee type, based on whether wages were paid on an hourly or salaried basis. One-way ANOVA analysis w as conducted, as was frequency distribution with chi-squared analysis.

Also in relation to RQ3a, RQ3b, and RQ3c, ordinal regression analysis was performed to determine the relative contribution of the following variables to respondents' perception of USM as an HRO:

- number of years of employment

- Work site location

- Employee type

Items 10 and 12 were included in the analysis to ascertain the relative contribution of perceptions of information adequacy to perception of high reliability.

Finally, item 17 allowed respondents the opportunity to provide feedback regarding any aspect of the organization's interaction with them around the event of the hurricane that was not addressed elsewhere in the survey.

The described methodology has allowed for the collection and interpretation of data, findings from which are presented in the next chapter.

CHAPTER IV

RESULTS

This chapter presents the findings from the data gathered. To review, the data were obtained from a written survey which was in turn based upon input gathered from individual interviews and employee focus groups. The findings are detailed here, with specific findings for the research questions addressed below.

The first eight questions of the survey sought basic demographic information: work location when Katrina hit; number of years of employment at the university; staff or faculty designation; hourly or salaried pay status; gender; race; age and prior hurricane experience. This information was summarized in the previous chapter.

Pre-Katrina Information Adequacy Perceptions

The first three research questions were as follows: RQ1a: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on length of employment with the organization; RQ1b: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on employee work location in relation to the disaster; and RQ1c: How do employees characterize their organization's communication in response to a natural-disaster induced crisis based on pay type. Questions 9, 10, 11, 12, 14, 15 and 17 were designed to ascertain ways in which the university communicated with employees and to what degree, based on those methods used, the communication was perceived as adequate. A list of possible information sources remained the same for "prior to" and "after" Katrina, for purposes of comparison. Email access is the exception to the list, as it is not listed as an option for information source up to one month after Katrina. Table 9 illustrates the frequency of responses to question nine options. Information received from

co-workers, email announcement, and TV announcements received the highest

percentage of communication type received prior to Katrina. Question 10 asked

respondents to indicate to what degree they found communication from the university,

prior to Katrina's arrival to be adequate.

Table 9

Ways Received Information One Week Prior to Katrina

	Yes (%)	No (%)
Email	374 (44.4%)	469 (55.6%)
USM Website	247 (29.3%)	596 (70.7%)
Dept. Meeting	173 (20.5%)	670 (79.5%)
Dept. Memo	90 (10.7%)	753 (89.3%)
USM Announcements		
TV	268 (31.8%)	575 (68.2%)
Radio	158 (18.7%)	685 (81.3%)
Newspaper	126 (14.9%)	717 (85.1%)
Landline Phone	84 (10.0%)	759 (90.0%)
Cell Phone	120 (14.2%)	723 (85.8%)
Info. Co-Worker	385 (45.7%)	458 (54.3%)
Other	56 (6.69%)	787 (93.4%)

Note: N = 843

Table 10

Perception of Pre-Katrina Information Adequacy Scale

	Frequency	Percent
Strongly Disagree	85	12.7
Disagree	97	14.5
Somewhat Disagree	80	12.0
Neutral	119	17.8
Somewhat Agree	68	10.2
Agree	150	22.5
Strongly Agree	69	10.3
Total	668	100.0

Table 10 illustrates the degree to which respondents found information from the university about the hurricane in the days prior to Katrina's arrival as adequate.

A one-way ANOVA was calculated to compare perception of information adequacy one week prior to Katrina (M =3.07, SD = 1.94) to number of years of employment, work location in relation to the hurricane and pay type. No significant differences were found based on number of years of employment (F [6] = 1.61, p = .14), M =2.65, SD = .93; work location in relation to the hurricane (F [6] = 1.06, p = .38), M =1.44, SD = .84; or based on pay type (F [6] = 1.83, p = .09), M = 1.72, SD = .45.

Chi square was performed to analyze the distribution of responses to perception of information adequacy one week prior to Katrina crosstabulated with the number of years of employment. Results did not indicate that the distributions were significantly different (x^2 = 29.02, p= 52). Chi square was performed to analyze the distribution of responses to perception of information adequacy one week prior to Katrina crosstabulated with work

location in relation to the hurricane. Results did not indicate that the distribution was significantly different (x^2 [18] = 23.52, p = .17). Chi square was also performed to analyze the distribution of responses to perception of information adequacy one week prior to Katrina crosstabulated with pay type. The data failed to support significant differences in the distributions (x^2 [6] = 10.94, p = .09).

Tables A1 through A4, located in Appendix D, provide the data from which the analysis was drawn.

Post-Katrina Information Adequacy Perceptions

Questions 11 and 12 sought perceptions of information adequacy after Katrina hit. The survey requested more detailed information about types of information than did the pre-Katrina questions. This more detailed response opportunity allowed respondents to provide in depth three particular types of information compared – adequacy of job security information, paycheck retrieval and return-to-work date – to be analyzed in comparison with three separate characteristics: whether an employee receives a paycheck biweekly or monthly (i.e. salaried employee); work location of the respondent; and number of years of employment with the university. Tables A5–A13 in Appendix D illustrate the findings.

Information Adequacy, Post-Katrina, Regarding Job Security

A one-way ANOVA (M = 5.17, SD = 1.95) was calculated to compare perceptions of information adequacy up to one month after Katrina regarding job security based on years of employment, work location in relation to the hurricane, and pay type, No significant differences were found based on number of years of employment (F [7] = 0.48, p = .85) ; work location in relation to the hurricane (F [7] = 1.14, p = .34); and pay type (F [7] = 1.75, p = .09).

Chi square was performed to analyze the distribution of responses to perception of information adequacy regarding job security up to one month after Katrina crosstabulated with the number of years of employment. Results did not indicate that the distributions were significantly different (x^2 [35] = 25.18, p = .89). Chi square was also performed to analyze the distribution of responses to perception of information adequacy regarding job security up to one month after Katrina crosstabulated with work location in relation to the hurricane. Results did not indicate that the distributions were significantly different (x^2 [21] = 36.83, p = .02), nor were distributions significantly different based on pay type (x^2 [7] = 12.18, p = .10).

Information Adequacy, Post-Katrina, Regarding Paycheck Retrieval

A one-way ANOVA (M = 5.17, SD = 1.95) was calculated to compare perceptions of information adequacy up to one month after Katrina regarding paycheck retrieval based on years of employment, work location in relation to the hurricane, and pay type. No significant differences were found based on number of years of employment (F [7] =1.83, p = .08); work location in relation to the hurricane (F [7] = .85, p = .55); and pay type (F [7] = .99, p = .44).

Chi square was performed to analyze the distribution of responses to perception of information adequacy regarding paycheck retrieval up to one month after Katrina crosstabulated with the number of years of employment. Results did not indicate that the distributions were significantly different (x^2 [35] = 30.58, p = .68). Chi square was performed to analyze the distribution of responses to perception of information adequacy regarding paycheck retrieval up to one month after Katrina crosstabulated with work location in relation to the hurricane. Results did not indicate that the distribution was significantly different (x^2 [21] = 27.15, p = .17). Chi square was also performed to

analyze the distribution of responses to perception of information adequacy regarding paycheck retrieval up to one month after Katrina crosstabulated with pay type. The data failed to support significant differences in the distributions (x^2 [7] = 6.92, p = .44).

Information Adequacy, Post-Katrina, Regarding Paycheck Retrieval

A one-way ANOVA (M = 5.21, SD = 1.91) was calculated to compare perceptions of information adequacy up to one month after Katrina regarding return-to-work date, based on years of employment, work location in relation to the hurricane, and pay type. No significant differences were found based on number of years of employment (F [7] =1.84, p = .08); work location in relation to the hurricane (F [7] = 1.01, p = .43); and pay type (F [7] = .39, p = .44).

Chi square was performed to analyze the distribution of responses to perception of information adequacy regarding return-to-work date up to one month after Katrina crosstabulated with the number of years of employment. Results did not indicate that the distributions were significantly different (x^2 [35] = 31.72, p = .63). Chi square was performed to analyze the distribution of responses to perception of information adequacy regarding return-to-work date up to one month after Katrina crosstabulated with work location in relation to the hurricane. Results did not indicate that the distribution was significantly different (x^2 [21] = 29.55, p = .10). Chi square was also performed to analyze the distribution of responses to perception of information adequacy regarding return-to-work date up to one month after Katrina crosstabulated with pay type. The data failed to support significant differences in the distributions (x^2 [7] = 2.72, p = .91).

Information Adequacy: Qualitative Results

Questions 14, 15 and 17 were designed to allow qualitative data collection from respondents. Question 14 asked respondents to "Please describe anything USM did for you, as an employee, that you found particularly helpful right before Katrina hit." A total of 222 respondents (26% of survey respondents) provided comments. Comments fell into one of three categories: positive impressions or experiences to share; negative impressions or experiences to share; and simply a response of "nothing to add." The majority of comments (62%) indicated positive perceptions of communication or action on the part of the university prior to Katrina's arrival. Comments of a positive nature centered primarily on appreciation for the university's concern for employee safety; keeping employees informed about Katrina's status; and demonstrations by the university of regard and concern for employees – i.e., time to prepare one's home and family for the impending storm.

Qualitative Results: Positive Feedback, Pre-Katrina

The following statements are representative of the opinions expressed that were of a positive nature:

Honestly, did anyone think Katrina would be so devastating? I think it was the appropriate information for what everyone was expecting.

Suggested what to do with office contents in preparation for the storm, and informed us where to look for information concerning our return to work.

Closed the University in time, so I could get ready at home.

Made us more aware and letting us prepare our own belongings and personal

property.

Thus, subthemes which emerged from the comments of a positive nature were

appreciation for: evident concern for employee safety; keeping employees informed of

the storm's path and adequate time to attend to personal safety.

Qualitative Results: Negative Feedback, Pre-Katrina

However, 84 (38%) comments reflected negative assessments of actions taken by

USM prior to Katrina. The following statements are representative of the opinions

expressed that were of a negative nature:

Nothing; in fact, there was no communication that the university was closing until

the day the storm hit. My family and I evacuated prior to the storm; I canceled my

classes accordingly and well before the university communicated anything to the

staff, faculty, and (most importantly) the students.

Nothing. I left work Friday, expecting to return to work Monday, not hearing

anything about the strength of Katrina and that we were in the path.

Notice was short. We were asked to come in on Saturday and ready our areas.

Only two of us came, others were busy readying their homes. Earlier calls to

ready the campus would have been more effective.

Thus, subthemes that emerged from the comments of a negative nature included

lack of adequate warning time, and lack of any information at all. Many comments

simply stated "nothing." It is unclear if a response of "nothing" is a shorthand of sorts for

"nothing comes to mind," or "did nothing for me." Based strictly on a response to a

direct question, however, the answer must be taken at face value, and thus indicated that

for some of the participants, a response of "nothing" means "the university did nothing for me, as an employee, that I found particularly helpful prior to Katrina."

Qualitative Results: Positive Feedback, Post-Katrina

An opportunity for respondents to provide qualitative data regarding perceptions of USM's actions after Katrina hit is found in question 15 which asked respondents to: "Please describe anything USM did for you, as an employee, that you found particularly helpful right after Katrina hit." A total of 327 respondents (38% of survey respondents) provided comments. The majority of comments (83%) indicated positive perceptions of action taken by the university after Katrina hit. From the comments of a positive nature emerged themes of appreciation for the meals, ice and water distributed to employees by the university, and assurances from the administration of job security.

The following statements are representative of the opinions expressed that were of a positive nature:

Distribution of ice and water; reassurances to all employees that we would get up and running as quickly as possible; a strong sense of community concern and awareness was communicated; a strong sense that everything that could be done was being done.

I don't remember the date, but it was very encouraging when Thames made the announcement that everyone would continue to have a job.

Meals at the Commons for employees back at work were a great help.

Meals on GCRL campus, employment security (this was most important, as when you lose everything, it is reassuring to know you still have a job!)

Qualitative Results: Negative Feedback, Post-Katrina

However, 56 (17%) comments reflected negative assessments of actions taken by USM after Katrina hit. The following statements are representative of the opinions expressed that were of a negative nature:

Nothing. There was no official word from USM. I had to find out from coworkers when to return to work. I went back to work and my power was about for another month. I was still eating MREs and trying to teach classes.

I think that people on the Coast figured out a way to communicate. This was a Coast thing, not a Hattiesburg thing. We found authorities in Hattiesburg just not able to comprehend our problems and offering utterly stupid solutions. It went over like a lead balloon when Thames stated at the outside meeting at Long Beach, with phone lines down that we will put our courses online --- what online?? There was no online capability to most faculty houses for MONTHS. In fact one third of the faculty was with out even a house for months.

Communications were down, things were chaotic, finally getting word from one of the graduate students that the lab was still up, everyone was alive was the best news (but that didn't come from USM, I had no official communication from the University whatever). USM didn't play any helpful role until they started to expedite FEMA housing in the National Seashore Park for GCRL employees in October.

Very little. So many other organizations (e.g., public schools) received so much

more help than did USM. Even the Red Cross visited the Hattiesburg campus, but

NOT the Gulf Coast campus.

Subthemes that emerged from the comments of a negative nature include frustration with

minimal to total lack of any organized communication from the university; perception of

neglect/disregard for coast-based employees from administration on the Hattiesburg

campus; and inadequate response when assistance was, in fact, given.

<div align="center">Qualitative Results: General Comments</div>

Question 17 gave respondents an opportunity to provide feedback on any topic

relevant to the university's communication during Katrina by asking: "Is there anything

you would like to say about Katrina and USM's response to the hurricane, that has not

been included in this survey? If so, please do so here." A total of 216 respondents (25%

of survey respondents) provided comments. The majority of comments (69%) indicated

positive perceptions, and centered mainly on overall impressions about communication

from the university before and after Katrina.

<div align="center">General Comments, Positive</div>

The following statements are representative of the opinions expressed that were of

a positive nature:

When Katrina hit I had not even been working on campus for a month so I was

not very familiar with the campus and the way in which an emergency would be

handled. However, I know at that time that we did not have an emergency system

in place, so no one was aware what to do in case the hurricane did hit our area.

Since Katrina the University has setup their emergency system and I think it's a

huge step to get information out to as many people as possible about the daily

functions. I think USM is heading in the right direction of being an effective communicator to its Faculty, staff and students.

As a whole, I believe the University did the best they could given the situation. Until something happens for a first time it's hard to imagine what it could be like. Since then the University has taken many steps to opening up communications with the Emergency Notification and 2 way radios for certain vital departments. I feel we still have many areas that can be improved upon for emergency response but with limited funding it is hard to purchase everything that can be used to help.

I think that much improvement has taken place in communications infrastructure since Katrina, not just university-related but on a broader basis.

USM stepped up to the plate admirably in a situation none of us, experienced as we thought we were, ever expected to happen. Due to the relocation of the Gulf Park campus we were all crammed into very small spaces with few computers and a few purchased cell phones to share. The feelings of gratitude when seeing missing coworkers and the adrenaline rush to keep on moving in the face of disaster created a bond I believe will remain forever. We definitely learned a lot more about our co-workers and ourselves. A huge upside of the experience was learning more about how our jobs overlapped as we had to step up and help students in all situations rather than referring them to whoever normally would have helped them. We were definitely all in this together.

Southern Miss did an excellent job taking care of students and community members by opening the cafeteria and making rooms available.

Responses to the opportunity to give general feedback about any aspect of the Katrina experience produced positive subthemes focusing on: appreciation for efforts to offer tangible assistance such as food and ice; a sense of bonding in the face of an adversary; and appreciation for improved communication, post Katrina.

General Comments, Negative

Of the 216 responses to question 17, 67 (31%) were of a negative nature, and were, as with the positive comments, focused primarily on communication issues. The following statements are representative of the opinions expressed that were of a negative nature:

There was no communication whatsoever for a week or so after Katrina. I have seen nothing to make me think that USM is better prepared now.

After the storm, it seemed to take FOREVER for the administration to make any sort of public announcement, or to provide guidance to staff and others. No doubt much was in fact going on, but communications were poor. Later there seemed to be an inordinate amount of self-congratulation around how well everything was handled.

Questions 14, 15 and 17 were consistent in the topics, whether of praise or criticism, that respondents wanted to convey to the university. These topics include a continuum of intense gratitude to intense resentment. Gratitude centered primarily on issues of basic survival: time to prepare for Katrina's arrival; information regarding the status of the storm; help with food, ice, water and transportation after Katrina; and appreciation for the fact that no jobs were lost. The opposing points of view centered less on concrete items – food, clothing, job security – than emotional issues: perceptions of

lack of regard for costal employees; lack of adequate information after Katrina hit; lack of assistance with office recovery or relocation; and perceptions that top administrators in Hattiesburg did not – for some respondents, do not – comprehend the psychological as well as physical loss some employees suffered.

<div align="center">High Reliability Organization</div>

RQ2 asked: To what degree do employees perceive their employing organization to be an HRO in the aftermath of a natural disaster-induced crisis? Question 16 allowed respondents the opportunity to assess the university as a High Reliability Organization. The survey included the ten High Reliability Organization characteristics as created by Venette (2003) and adapted for this research project to reflect the nuances of the organization studied. Reliability was found to be high with Cronbach's alpha of .848; descriptive statistics for the ten HRO questions are presented in Table 11 (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, and 7 = strongly agree). Table 12 lists frequencies, and Table A14, found in Appendix D, indicates the frequency distribution based on possible total HRO scores ranging from 10 to 70.

The HRO ranges indicate respondents perceive the university as functioning in a High Reliability Organization mode at a percentage of 78.3%; 496 of 633 responses fell into the HRO range of high to very high in perception of the university. This percentage reflects a solid perception of appropriate crisis response and preparation reliability on the part of the survey respondents, three years after Katrina hit. Table 13 lists the overall HRO ranges.

Table 11

Descriptives for High Reliability Organization Scale

	N	Mode	Mean	SD	Range
HRO1	682	4	4.09	1.66	6
HRO2	676	4	3.93	1.64	6
HRO3	675	6	5.08	1.42	6
HRO4	674	6	4.72	1.42	6
HRO5	670	6	5.00	1.42	6
HRO6	676	6	4.91	1.45	6
HRO7	676	6	5.05	1.41	6
HRO8	676	6	5.47	1.19	6
HRO9	680	6	4.68	1.51	6
HRO10	674	4	4.02	1.34	6

Note: HRO1: My opinion/daily operations
       HRO2: My opinion/long-term planning
       HRO3: My actions/safeguard
       HRO4: My actions/influence
       HRO5: USM/concerned, high risk mistakes
       HRO6: USM/committed, operations shortcomings
       HRO7: USM/emphasizes operations
       HRO8: USM/committed, emergency response shortcomings
       HRO9: USM supervisors accept my opinion/area of expertise
       HRO10: USM oversimplifies info/emergency response procedure

Table 12

Frequencies for High Reliability Organizations Scale

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Total
HRO1	53(7.8%)	105(15.4%)	59(8.7%)	159(23.3%)	141(23.3%)	140(20.5%)	25(3.7%)	682
HRO2	61(9.0%)	103(15.2%)	80(11.8%)	165(24.4%)	131(19.4%)	112(16.8%)	24(3.6%)	676
HRO3	17(2.5%)	34(5.0%)	21(3.1%)	136(20.1%)	147(21.8%)	234(34.7%)	86(12.7%)	675
HRO4	27(4.0%)	37(5.5%)	31(4.6%)	175(26.0%)	175(26.0%)	189(28.0%)	40(5.9%)	674
HRO5	14(2.1%)	33(4.9%)	44(6.6%)	134(20.0%)	143(21.3%)	274(33.4%)	78(11.6%)	670
HRO6	14(2.1%)	43(6.4%)	58(8.6%)	110(16.3%)	166(24.6%)	217(32.1%)	68(10.1%)	676
HRO7	14(2.1%)	36(5.3%)	46(6.8%)	97(14.3%)	166(24.6%)	245(36.2%)	72(10.7%)	676
HRO8	5(.7%)	11(1.6%)	18(2.7%)	105(15.5%)	141(20.9%)	277(41.0%)	119(17.6%)	676
HRO9	25(3.7%)	46(6.8%)	59(8.7%)	156(22.9%)	156(22.9%)	178(26.2%)	60(8.8%)	680
HRO10	28(4.2%)	62(9.2%)	100(14.8%)	279(41.4%)	100(14.8%)	87(12.9%)	18(2.7%)	674

Note: HRO1: My opinion/daily operations
HRO2: My opinion/long-term planning
HRO3: My actions/safeguard
HRO4: My actions/influence
HRO5: USM/concerned, high risk mistakes
HRO6: USM/committed, operations shortcomings
HRO7: USM/emphasizes operations
HRO8: USM/committed, emergency response shortcomings
HRO9: USM supervisors accept my opinion/area of expertise
HRO10: USM oversimplifies info/emergency response procedure

Table 13

High Reliability Organization Ranges

	Frequency	Percent
Very Low (10-24)	14	2.2
Low (25-39)	123	19.4
High (41-55)	350	55.3
Very High (56-70)	146	23.1
Total	633	100

The first HRO statement asked respondents to indicate their level of agreement with the following statement: "My opinions are taken into account in the daily operations at The University of Southern Mississippi (USM)." A mean score of 4.09 with standard deviation of 1.66 indicates that a majority of respondents agree with this statement.

The second HRO statement asked respondents to indicate their level of agreement with the following statement: "My opinions are taken into account in long-term planning within USM." A mean of 3.93 with a standard deviation of 1.64 indicates that a majority of respondents do not agree with this statement, though by a slim margin.

The third HRO statement asked respondents to indicate their level of agreement with the following statement: "My actions directly contribute to safeguarding USM's continued existence as a successful university." A mean score of 5.08 with a standard deviation of 1.42 indicates that a majority of respondents agree with this statement.

The fourth HRO statement asked respondents to indicate their level of agreement with the following statement: "My actions influence others to prevent significant mistakes at USM." A mean score of 4.72 with a standard deviation of 1.42 indicates that a majority of respondents agree with this statement.

The fifth HRO statement asked respondents to indicate their level of agreement with the following statement: "USM is very concerned about the possibility of making high risk mistakes that would jeopardize the organization." A mean score of 5.0 with a standard deviation of 1.42 indicates that a majority of respondents agree with this statement.

The sixth HRO statement asked respondents to indicate their level of agreement with the following statement: "USM is committed to correcting shortcomings that could

jeopardize the organization." A mean score of 4.91 with a standard deviation of 1.45 indicates that a majority of respondents agree with this statement.

The seventh HRO statement asked respondents to indicate their level of agreement with the following statement: "USM emphasizes maintaining effective operations." A mean score of 5.05 with a standard deviation of 1.41 indicates a majority of respondents agree with this statement.

The eighth high reliability statement asked respondents to indicate their level of agreement with the following statement: "USM is committed to correcting shortcomings in their emergency response procedures." A mean score of 5.47 with a standard deviation of 1.19 indicates that a majority of respondents agree with this statement.

The ninth high reliability statement asked respondents to indicate their level of agreement with the following statement: "USM's supervisors and managers accept an employee's suggestions about important issues when the employee has particular expertise in that area." A mean of 4.68 with a standard deviation of 1.51 indicates that a majority of respondents agree with this statement.

The tenth high reliability statement asked respondents to indicate their level of agreement with the following statement: "USM often over-simplifies when communicating about complex emergency response procedures." A mean of 4.02 with a standard deviation of 1.34 indicates that a majority of respondents agreed with this statement.

HRO Perceptions and Mediating Factors

RQ3a asked: How do employee perceptions of organizational reliability, after a natural disaster-induced crisis, vary based on years of employment with the organization? A one-way ANOVA analysis was conducted (M = 3.05, SD = .71) based on length of

employment, employee work location in relation to the disaster, and pay type. Data

revealed no significant difference based on years of employment (F [3] = 1.63, p = 18).

RQ3b asked: How do employee perceptions of organizational reliability, after a natural

disaster-induced crisis, vary based on employee work location in relation to the disaster?

Data revealed no significant difference based on work location in relation to the disaster

(F [3] = 2.16, p = .09), and RQ3c asked: How do employee perceptions of organizational

reliability, after a natural disaster-induced crisis, vary based on salaried or hourly

employment status? Data revealed that three was no significant difference based on pay

type (F [3] = .09, p = .97). Tables A15, A16 and A17 list the data analyzed and are found

in the appendix.

<div align="center">Summary</div>

Information gleaned from the survey regarding perceptions of information

adequacy both before and after Katrina, particularly as that information related to job

security, paycheck retrieval and return-to-work date, revealed that number of years of

employment is a consistent factor in perception in almost all categories. Specifically,

employees who had worked for two years tended to be less satisfied with information

adequacy across all categories, when compared to all other respondents. However,

longer term employees – those who had worked for the university at least 20 years –

tended to indicate consistently stronger satisfaction with information adequacy in all

categories.

Qualitative data revealed overall positive perceptions of the university's

interaction with and outreach to employees. In all three sections, regarding information

received prior to Katrina, after Katrina, and general comments, respondents focused on

perceptions of communication efficacy and perceived levels of preparedness by the

university. Perceptions of pre-Katrina communication fell into general positive categories of appreciation for employee safety, ample time to attend to employees' personal and family needs, and attempts to keep employees apprised of the storm's progress. Generalized negative categories, pre-Katrina, included lack of adequate time to prepare for the storm, and inadequate information from the university. Perceptions of post-Katrina communication fell into similar generalized categories of appreciation for employee well-being in the form of basic supplies such as ice, food and water, and appreciation for assurances of job security. Negative perceptions included inadequate communication in any organized manner from the university, as well as a perception that Hattiesburg-based administrators did not adequately respond with assistance equal to the need for coastal sites. Reflections regarding pre-Katrina focused on what was conveyed when, and by whom, while reflections after Katrina also included perceptions of whether or not employees felt valued and cared for after the storm had hit.

Overall, respondents indicated a strong perception of the university as operating in a manner consistent with characteristics of a High Reliability Organization. HRO characteristic #2, which asks for perceptions of individual employee impact long term organizational planning, is the only characteristic where respondents indicated disagreement. The rate at which employees reported a perception that the university functions in a manner consistent with HRO's indicates a solid recovery by the organization. In particular, the way in which the university communicates operational readiness, according to respondents, suggests that organizational learning has in fact occurred in the aftermath of Katrina.

In the next chapter, conclusions, limitations and future research based on this data will be discussed.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

Summary

In the final analysis, this study revealed that the university, in the assessment of

its employees, responded to a natural disaster crisis in a manner consistent with best

practices of high reliability organizations. Further, employees indicated overall positive

perceptions of information adequacy from the university both before and after the

hurricane ravaged south Mississippi. Finally, what differences do exist regarding

information adequacy perceptions are within the power of the organization to effectively

address and adapt in a manner consistent with contemporary organizational crisis

communication theories.

Analysis of the data yields information that sheds insight on the ways in which

organizational communication around the event of a natural disaster crisis is perceived by

employees. Findings reveal what modes of communication are perceived as the most

helpful and, therefore, provide direction for what communicative strategies will prove

most effective. In this chapter, conclusions and implications from the data are addressed,

limitations of the research are discussed, and areas for future research are suggested.

It is worth noting the percentage rate of eligible employees who chose to

participate in the survey. A full 50% of those who were asked to complete the survey did

so. Only one reminder email was sent out, about four weeks after the initial call for

participation, resulting in a percentage of responses that allowed for research findings to

be gleaned from a solid number of participants.

Conclusions from the survey and implications emerging from it fall into three

categories: overall perception of communication from the university with employees

immediately prior to Katrina; overall perception of communication from the university with employees up to one month after Katrina hit; and overall perception of the university as operating in High Reliability Organization mode three years after Katrina. Following is a summary of each of these categories. Included in the summary by categories are implications based on the findings. Following is a discussion of limitations of the research, followed by identification of areas for future research.

<center>High Reliability Organization Assessment</center>

The data that addressed this particular research question indicate a majority of respondents perceive that the university operates in a manner consistent with nine of the 10 characteristics listed for a high reliability organization. A majority of respondents indicated some degree of agreement with the following HRO characteristics: employees' opinions are taken into account in the daily operations of the university; employees' actions influence others to prevent significant mistakes at USM; employees' actions directly contribute to safeguarding USM's continued existence as a successful university; USM is very concerned about the possibility of making high risk mistakes that would jeopardize the organization; USM is committed to correcting shortcomings that could jeopardize the organization; USM emphasizes maintaining effective operations; USM is committed to correcting shortcoming in their emergency response procedures; USM supervisors and managers accept an employee's suggestions about important issues when the employee has particular expertise in that area; and lastly, USM does not over-simplify when communicating about complex emergency response procedures. A finding of 9 out of 10 HRO practices to be perceived by respondents as part of the university's operational practice and procedure serves as a solid endorsement of preparedness perception. Given the enormity of the event that was Katrina, this robust percentage of

identified HRO characteristics implies that perception among employees that the university operates in a manner consistent with the best practices of organizations that operate in crisis readiness, day in and day out. Such a finding is significant in terms of, at minimum, impressions that the employees who survived Katrina hold about their employer.

A slim majority of respondents indicated that one characteristic of high reliability organizations does not accurately describe USM operations. The second HRO states, "My opinions are taken into account in long-term planning within USM." Assuming that the university desires to have employees perceive that their opinions are, in fact, taken into account in long-term planning, organizational learning can again occur if current opportunities for input are assessed and revised. Such a review would involve a review of how input is funneled into the more global goals and objectives of the organization, as well as if and how such input is incorporated at the level of individual units.

Weick and Sutcliffe (2001) would contend, however, that not all HRO characteristics must be manifested in an organization's operations for the presence of HRO practices to be acknowledged. Within this framework one HRO characteristic, with a relatively close percentage of disagreement by employees, does not negate the strength of the overall perception of the university as possessing HRO qualities. The parameters of Weick and Sutcliffe's (2001) research, combined with confirmation of the viability of HRO characteristics applicability as manifested by Venette's (2003) research, allow for the conclusion that the organization studied in this research has effectively integrated HRO characteristics into its daily operations, procedures and practices, as reported by the respondents who experienced Katrina while in this organization's employ. The modification of Venette's (2003) HRO scale proved to be satisfactorily applicable to the

university setting, as evidenced by both feedback from the focus groups and from the consistency of quantitative data in the survey which addresses HRO characteristics. The degree to which these HRO attributes were incorporated into the organization's daily operations and long term planning as a function of organizational learning, however, is a separate assessment, and is addressed below.

Implications for Communication, Pre-Katrina Quantitative Data

The data reveal rich information regarding what forms of communication proved to be most useful to employees in the days before Katrina hit. Respondents were asked to identify which forms of communication they accessed to receive pre-Katrina information. Respondents were offered communication forms that fall, generally, into three types: written information directly from the university (email, department memo, and university website), information disseminated via media (newspaper, TV, radio) and verbal communication (landline and cell phones; information from co-workers; departmental meetings). The top three forms of communication utilized by those respondents who did indicate getting information pre Katrina came from each the three general categories: email (written), information from co-workers (verbal) and TV (media). Among the employees who did seek or receive information from the university in the days before Katrina hit, three forms of communication emerged as the most accessed: information from co-workers, email, and the university's website, respectively. A total of 45% of respondents indicated that they received communication about the university from a co-worker, while 44% percent of respondents received communication from email. The next most frequently accessed form of communication pre-Katrina was TV, with 31.8% of respondents indicating information from this media outlet.

In no category did a majority of respondents seek or receive information. The inference one may draw from this fact is based partly in the general comments given from respondents when asked about their perception of adequacy of information received, with the timeline of Katrina's arrival in south Mississippi. Until two days prior to the arrival of the hurricane, most south Mississippians did not realize that Katrina was scheduled to make landfall in Mississippi. Further, confirmation that the path of the hurricane was scheduled to make landfall in Mississippi came over the weekend of August 27, 2005. Almost all university offices were closed and almost all employees were not on campus. The fact that most employees had left work on Friday, August 26, 2005, with no strong confirmation that Katrina would hit their work sites is a factor that must be taken into account when assessing organizational communication efforts and also the interest level by employees to obtain information. The university was, for all practical purposes, caught off guard by the speed with which imminent danger from Katrina changed. Consistent with March, Sproull, and Tamuz's (1991) theory that organization learning occurs infrequently, the university was initially unprepared for true organizational learning. March et al.'s (1991) theory of organizational learning in particular acknowledges that organizations, like a public university, do not typically operate in a state of high-risk alertness. Therefore, the opportunities for organizational learning are both meager (in frequency) and rich (in learning). Katrina proved to be a classic example of organizational learning from March et al.'s perspective.

A common theme regarding pre-Katrina communication in the three written comments sections indicated that some employees did not expect communication from the university nor did they seek any, because they did not realize that Katrina was headed their way. It is important to note, then, that the expectation for communication with

employees from the university may not have been as strong as might be assumed. In hindsight, the magnitude of Katrina's destruction is enormous. That knowledge beforehand was far less certain.

The percentage of respondents who indicated agreement that they received adequate information is almost exactly the same percentage who indicated disagreement. The uncertainty lies in the percentage of employees who either indicated they could not recall, felt neutral about the adequacy of information received, or who chose to simply not answer the question. This level of ambivalence may serve as another illustration of employee ambiguity about the expectation for communication that was indicated in written comments. In this sense, Heath's (1997) assertion that moments of crisis – even impending crisis – are moments for an organization to demonstrate effective communication, proved to be a mixed result for the university. The implications of Katrina were not fully realized before the hurricane hit, so the expectation of communication may not have been fully realized, as well.

The data do show, however, that the perception of information adequacy before Katrina hit varies according to number of years of employment with the university, work site location and whether one is paid monthly or bi-weekly. Employees who had worked at the university for 11 years or less when Katrina hit indicated higher percentages of dissatisfaction with information adequacy than did employees with 12 to 38 years or more of employment. Respondents who had been employed by the university for at least 21 years indicated the highest rate of satisfaction with information adequacy before the hurricane arrived.

Perceptions of pre-Katrina information adequacy also varied according to work site location. Employees of the Gulf Coast Research Laboratory in Ocean Springs

indicated a much lower rate of disagreement than did employees of the other three sites. Employees at Hattiesburg, Long Beach/Gulf Park/Jackson County/Keesler AFB and of Stennis Space Center reported similar levels of disagreement with information adequacy. Employees at each site but Gulf Coast Research Laboratory indicated almost evenly split perceptions of dissatisfaction and satisfaction. Employees of Gulf Coast Research Laboratory reported much clearer delineation of satisfaction with information adequacy.

Perceptions of pre-Katrina information adequacy also varied according to whether an employee receives a paycheck monthly (salaried) or bi-weekly (hourly). Salaried employees reported an almost 20% higher rate of satisfaction with information adequacy than did employees who receive a bi-weekly paycheck based on an hourly rate of pay. Hourly employees also indicated a higher percentage of neutral perception about information adequacy than did salaried employees.

There are implications for what forms of communication were more often accessed before Katrina hit. Information from co-workers and email emerged as the first and second most accessed sources of information, respectively, prior to Katrina. The strength of word-of-mouth as a communication sources indicates that a viable crisis communication plan for this organization should reflect the usefulness of this person-to-person contact. Weick's (1988) theory of enacted sensemaking is applicable to the university's pre Katrina endeavors in two key ways. Enacted sensemaking suggests that people enact the environments that constrain them. In the pre Katrina scenario, reliable information that is formally shared by the university did not occur in an organized word-of-mouth way. That is to say, not all departments held meetings on the Friday before the hurricane arrived, not all supervisors engaged in verbal communication with subordinates to clarify preparation plans, etc. In this void, then, informal word-of-mouth

communication provided the most accessed form giving and receiving information relevant to the storm. Additionally, enacted sensemaking is applicable to the pre Katrina information dissemination scenario in that it was only after the hurricane hit that a need for a systems approach to the crisis became evident. It is important to bear in mind that a key factors in pre Katrina communication was the unpredictability of the hurricane's path, and its arrival on a weekend.

Based on the constraints listed above, a viable communication plan for the university today would include strategies that recognize the need to clearly articulate plans, identify to whom the information should be given, and clarify to whom these designated messengers speak. The high use of email also speaks to the ease and reliability with which employees turned to this form of communication from their employer, to seek and receive information. Email use is of primary importance to a large group of employees, but it must be reiterated that email access is not universal and its delivery is not predictable. Nevertheless, such an addition to a crisis communication plan will provide yet further evidence that organizational learning has occurred.

There are also several implications for the findings related to perceptions of pre-Katrina information adequacy. Employees who had been employed at the university two years or less may have had more concerns about job security simply because their experience with the university as an employer was more limited than colleagues with more years as a university employee. If concerns did exist about job security, newer employees may have feared a "last hired, first fired" approach if jobs were to be eliminated. Given the fact that the longer one had worked at the university when Katrina hit, the more satisfied respondents tended to be, there are implications for the university's future communication strategies in terms of assurances to newer employees. One may

also imply that an employees' understanding of how and under what conditions the university cuts positions increases with the number of years of employment, thus lowering concern about job loss. In other words, the employer and the employee form a type of relationship in which the employee feels more certain about ongoing job security as years with the university accrue.

Coombs' (1995) attribution theory provides a lens through which the perception differences based on tenure with the organization may be viewed. A key component of attribution theory in crisis management requires the organization to address the stability factor. Though Coombs talked about attribution theory from a public image perspective, the concept applies to organizational communication with employees as well. Specifically, in the face of a crisis, employees will want to know to what degree the organization can control the event. Certainly no employee expected the university to be able to "control" a category 5 hurricane. However, employees with significant time investment in the university may have come to expect and appreciate that the university would respond in ways that placed the employees' best interests as a priority.

Implications for Communication, Post-Katrina Quantitative Data

Survey questions gauging perceptions of information adequacy after Katrina focused on more specific types of information than did questions about pre Katrina communication adequacy. Three employment-related topics were identified for individual assessment: job security, paycheck retrieval and return-to-work date. Respondents were asked to again indicate what communication sources they accessed after Katrina hit; the list was the same as the pre Katrina list, with one exception. Email as an option for post Katrina communication was not given, based on feedback from focus groups that indicated that listing email would indicate that it was a viable option.

For the vast majority of the focus group participants, email was not, in fact, considered a viable post-Katrina communication option for up to one month after the hurricane hit.

Data concerning employee perceptions of information adequacy regarding job security did differ based on work site location. This difference is manifested in the less than 7% disagreement rate among Gulf Coast Research Laboratory respondents, compared to the 20% range of disagreement at the other three work site locations. Perceptions of information adequacy regarding job security did not differ based on number of years of employment or on pay type.

Data concerning employee perceptions of information adequacy regarding paycheck retrieval differed based on years of employment and work site location. Difference based on years of employment illustrates, as with pre Katrina data, that employees of two years or less when Katrina hit were not in agreement in higher percentages than other employees, regarding perceptions of adequate information. The difference was also the same as that described for job security perception regarding percentage of disagreement among Gulf Coast Research Laboratory respondents, compared with respondents from the other work site locations. Perceptions of information adequacy regarding paycheck retrieval did not differ based on pay type.

Data concerning employees perceptions of information adequacy regarding return-to-work date differed based on years of employment. Respondents with less than 11 years of employment when Katrina hit were in more disagreement with information adequacy than were employees with 11 or more years. Perceptions of information adequacy regarding return-to-work date did not differ based on work site location or on pay type.

The fact that perceptions of information adequacy regarding job security, paycheck retrieval and return-to-work date are not impacted in significant ways by location, years of employment or whether one is paid an hourly rate or salaried serves as evidence of the implementation of two of Weick and Sutcliffe's (2001, 2007) characteristics of high reliability organizations. Among the five characteristics of successful HRO's, the university implemented two in definitive ways. First, they remained sensitive to operations when they adequately disseminated information about how employees were to receive paychecks. Further, the fact that paychecks were distributed, in the face of post hurricane chaos, speaks to the second characteristic, which is maintaining capabilities for resilience. Assuring that no employee lost a pay period served as an indication that the university was still functioning and in a manner of importance to employees: receiving one's paycheck. Maintaining capabilities for resilience was equally manifested by the fact that a return-to-work date was established, and information about it appropriately disseminated.

Data also revealed that, in regard to forms of communication accessed, word-of-mouth remained the most frequently used mode, followed by announcements shared with TV stations. The third most frequently used mode of communication was the university website. The same general categories of communication mode for the day prior to Katrina apply for post Katrina: written information directly from the university (email, department memo, and university website), information disseminated via media (newspaper, TV, radio) or verbal communication (landline and cell phones; information from co-workers; departmental meetings). What did change was the medium used for direct information from the university, with the website receiving the largest percentage of use during this period, in the absence of email listed as an option for respondents.

Implications for the organization based on what respondents shared about post-Katrina sources of information, coupled with input about specific types of information, suggest that, as with pre Katrina communication, the respondents with the least number of employment years disagreed with information adequacy perceptions to a greater degree than did respondents with at least three years on payroll. This difference may speak to the uncertainty that a newer employee feels regarding his status with the university on all levels: job security, how to get paid and when/if to return to work. A crisis communication plan that provides the university's philosophical stance regarding job security and payroll assurances, in particular, may alleviate anxiety when the next natural disaster crisis occurs. If an employee knows beforehand that it is the goal of the organization to maintain employee numbers and to honor payroll obligations to the degree feasible during times of crisis, then all employees, regardless of time invested in the university, may feel a greater sense of security.

As with pre-Katrina communication, respondents from the Gulf Coast Research Laboratory were, overall, more often in agreement with information adequacy on all levels than were their counterparts at the other work site locations. The implication for this phenomenon is not entirely evident. The difference may be a function of their work site location in relation to where the greatest damage occurred on the coast. It may well be a function of the intergroup dynamics among employees at this particular site. Further research exclusively with Gulf Coast Research Laboratory employees could prove to be an exemplary model of Perrow's (1994) loose coupling theory of organizational structure. The geographical size of the site, the relatively small number of employees there and the inevitable crossover of roles in smaller, independent settings may, upon further review,

determine that this particular component of the larger organization operated effectively because adjustments could be made, made quickly and to best outcome.

Information shared in written comments enabled a fuller assessment of communication from the university, both before and after Katrina arrived, to emerge. Notably, even though the wording of the open-ended questions did not ask that respondents focus only on communicative interaction from the university, communication was, in fact, the theme of the majority of comments. Embedded in the assessments of communication were clues as to the kinds of communication that seemed to matter the most, and it is this information that holds great potential for organizational learning. Consistent themes under a general rubric of "communication" included ways in which the university communicated – or failed to communicate – concern for the employee's welfare, and that of his family. Adequate opportunity to attend to personal safety, preparation and recovery were cited as both exemplary and lacking. Though the majority of comments in each of the three open ended questions were of a positive nature, up to 30% of comments were not. Yet, the basic theme of communication was consistent. Thus, the university has an opportunity to review crisis communication policies and procedures to ensure that not only is adequate preparation and recovery time afforded to employees, but that assurance of such are effectively communicated to employees. This organizational accommodation to the need for employees to attend to basic needs is consistent with Maslow's (1954) hierarchy of needs, in which food, safety, protection and care are primary. The acknowledgement of the need to make secure one's basic needs, as a majority of respondents felt the university did, also speaks to Mitroff et al.'s (1987) insistence that attending to employees' coping mechanisms enhances the efficacy of a systems approach in crisis management.

Implications for Communication from Qualitative Data

An equally important opportunity for organizational learning emerged from written comments regarding those actions taken by the university that communicated to employees concern for basic survival needs. In this broad category, employees commented on their gratitude for ice, water and food provided by the university after the hurricane had left massive devastation. A message of care and concern for employee well-being that was communicated through actions turned out to be as powerful to employees as what was communicated verbally and in writing. Thus, the university has the opportunity to further enrich its natural disaster communication plan by formalizing and planning for outreach efforts that reinforce the desire to see that basic employee needs are met, to the degree possible. These acts of assistance from the university can be analyzed in light of Seeger and Ulmer's (2002, 2003) research, as concrete examples of integrating an organization's moral imperative to respond in an ethical manner with employees during times of crisis. Technically, the university as employer had no legal responsibility to ascertain if employees needed food, water, ice, clothing or shelter. However, the university chose to assume this caretaker role and in doing so, made a statement of investment in employees that is consistent with the ethical imperative suggested by Seeger and Ulmer.

Further, the qualitative data served to confirm the use of impression management strategies as described by Allen and Caillouet (1994). The university, they would maintain, actively engaged in behavior that would reinforce for employees the organization's viability. The clear, emphatic declaration that no jobs would be lost may be the single most definitive moment in the university's impression management efforts after Katrina. Having the chief executive officer of the university stated publicly and

with no ambiguity that the university would re-open and no paychecks would be missed, constituted a symbolic gesture while simultaneously serving as a needed reassurance to employees.

<div align="center">Organizational Learning Assessment</div>

A key objective of this study was to determine if organization learning occurred for this organization in the aftermath of a natural disaster. Further, this research project sought to ascertain whether or not organizational learning was manifested to the degree that employees perceive the organization as utilizing, post crisis, characteristics of high reliability organizations. Based upon the parameters of organizational learning as presented in chapter two, the results are mixed.

To the degree that Seeger and Ulmer's (2003) criteria for organizational learning are applied, the university did engage in active organizational learning on at least one level. The university accommodated experience, it can be argued, based on how employees perceive the university, post Katrina. The assessment in both the qualitative feedback and in the rating of the university as adopting nine of the ten HRO characteristics lends credence to the assertion that experience provided lessons, and the organization adapted accordingly. By whatever means the university did so, it has created what can safely be interpreted, based on the survey, as an organization in which its employees believe management operates in a manner alert for, and ready to respond, to crisis. What cannot be adequately assessed by this study is the degree to which information was accommodated by the university. One may presume that information gleaned from experience was accommodated, but it is only a presumption. The study did not include a pre-Katrina assessment of HRO characteristics; therefore, reliable analysis of the degree to which information was absorbed cannot be statistically verified.

Based on Cohen and Sproull's (1996) three pronged test for organizational learning one may conclude that the university did engage in organizational learning by at least two of the three criteria. The learning gleaned created knowledge that is manifested in procedure, as is evidenced by employee perceptions of HRO characteristics; the results of the learning are, based on the data, retained among interactions within the organization, again evidenced by perceptions of HRO characteristics; and the learning may have provoked change. This final criteria, as stated earlier, cannot be statistically ascertained because no pre-Katrina perception among employees of HRO organizational functionality does not exist.

Further Implications

This research contributes to the body of knowledge regarding organizational crisis communication in that it successfully applies, for appropriate analysis, theoretical frameworks that typically are not used for internal organizational communication in times of crisis. More specifically, this research illustrates the applicability of crisis communication theories, originally designed for man-made crises, to natural disaster crises where human error cannot be assigned. This contribution enriches the small body of research available regarding communication with one's employees, not one's public constituents, in the face of natural disaster crisis. Examples of external crisis communication strategies applied to internal crisis communication endeavors are offered below.

Impression management theory, established by Allen and Caillouet (1994) proved to be a viable theory for analysis of intra-organizational communication, not just to one's public stakeholders. Impression management requires that the organization become an intentional actor in shaping – or even re-shaping – its image. Allen and Caillouet

envisioned impression management as a strategy for arguing an organization's ongoing

viability in the face of man-made crisis. In this manner, organizational legitimacy

required the implementation of apologia, an attempt to repair damaged image. Further,

the organization attempts to re-establish the positive impressions of the organization held

by the public prior to the crisis.

It is this particular component of impression management, more so than apologia,

that proved to be effective and applicable to this instance of internal organizational crisis

communication. When the university president spoke clearly and publicly from the back

of a pick up truck to a group of employees who had lost all semblance of normal life, he

successfully employed attributes of impression management in two significant ways.

First, he assured the ongoing viability of the organization by declaring that the university

would reopen and that jobs would not be eliminated. And, he called upon the assumption

that these employees to whom he spoke trusted that the university would "make good" on

its word, that an assurance of ongoing viability held legitimacy for them. Based upon

what both the qualitative and quantitative data revealed, this assumption was a correct

one. He was able to call upon the perceptions employees held prior to the crisis and

reinforce the assurance that while homes, offices and a sense of safety were now gone,

employment with a still-viable organization remained.

To some degree, Coombs' (1995) attribution theory was also enacted when the

university president made his on-site pronouncement that the university would remain

open and jobs would not be lost. Attribution theory is grounded in the concept that, as

with impression management, a reframing of the crisis must be offered so that the public

has an alternative way in which to view the organization, post crisis. It is true that the

natural disaster crisis which was Katrina did not require an explanation per se from the

organization. For example, there was no need to assign blame for the hurricane, and no need to deny its existence. Yet, when the continued viability of the university and the continued employment was assured by the president, he invited employees to consider the crisis through two new perspectives.

The first perspective utilized the element of minimizing, a key component of attribution theory. Minimizing allowed the president to assure employees that things were not as bad as they may seem, in that jobs would not be lost. The other key component of attribution which the president used is ingratiation; in this instance, in the form of bolstering. Again, perceptions shared by survey participants in both qualitative and quantitative data confirm that this assurance provided a bolstering morale for the coast employees in particular, who were facing almost total devastation.

In similar fashion, this case study also confirms that the concept of high reliability organizations and the characteristics of them as described by Weick and Sutcliffe (2001, 2007) can be successfully applied to a non-profit organization, an educational organization and a multi-site organization, separately or, as is the case of this study, all three components in one organization. True, Venette (2003) successfully applied HRO characteristics to a non-profit agency – in his study, a branch of the United States Department of Agriculture which works with risk assessment scenarios at United States ports. Thus, in terms of applicability of HRO characteristics to a non profit organization, this study only adds further confirmation of the viability based on that characteristic. What makes this study's contribution to the field of organizational crisis communication noteworthy, however, is that, unlike the kind of government organization that Venette (2003) surveyed, a public university such as the one surveyed for this study does not typically operate in an environment of high risk.

The applicability of high risk organizations to a low risk educational environment confirms that organizational learning, as espoused by Seeger and Ulmer (2003), can occur by combining experience with information. This particular university chose to combine the experiences gained from a crisis like Katrina and learn from it via information gathered from employees. The information gathered speaks to high reliability practice perception of the organization by its employees. This study illustrates the applicability and even the practicality of organizational learning when assessed through the lens of high reliability organizational practices. In this context, then, the contribution to the field is a strong one. It verifies that HRO characteristics can, in fact, provide a model for improving practices, procedures and even perceptions for organizations that do not operate in a daily high risk environment but which nevertheless are vulnerable on a daily basis to some kind of risk.

<div align="center">Limitations</div>

This study presents results with limitations. As with all research, the limitations that create the boundaries of the research must be identified and factored into the significance of the outcomes. The limitations of this particular project are identified here.

This study focused on only one organization among hundreds of organizations that faced communication issues, post-Katrina. While one strength of the research may be the in-depth analysis that results from a case study's intense examination of one organization, it also limits the options for comparison. Applicability to other organizations, therefore, may be limited. The size of the organization, the number of employees and the numerous work site locations may confound the relationship or usefulness of the data to smaller organizations.

This study is also constrained by the time lapse between the time of Hurricane Katrina in August 2005 and the distribution of the survey in December 2008. Three years have passed since Katrina hit the university campuses. The potential for faded memories or even no recollection at all may play a factor in outcomes. Similarly, the usefulness of the data collected is somewhat limited because no pre-Katrina survey of employees' perceptions of organizational communication practices had been administered. The data regarding efficacy of communication practices would have resulted in a potentially more robust outcome had the communicative efforts after Katrina been measured against pre-Katrina perceptions prior to August 2005.

The survey is also limited in that a stringent comparison of employee perceptions of communication could not realistically be assessed between the time period of one week prior to Katrina and one week after Katrina. Feedback gleaned from focus groups confirmed that so little communication was possible in the week following Katrina that, by necessity, a wider time period needed to be allowed for true assessment of post-Katrina communicative efforts. Further, the categories of immediate needs regarding communication after Katrina also emerged from the focus groups. The groups clarified that a general assessment of employee perception of adequacy of information shared would not capture helpful information. Rather, the focus groups urged the assessment of three key employee concerns in the weeks immediately following Katrina: job security, assurances of regular paycheck distribution and information regarding when to return to work. Therefore, though useful, these specific areas of information make a true comparison with wider general perceptions of pre-Katrina communication adequacy more difficult.

A change in leadership at the highest levels of the organization, between the time that the hurricane hit until the distribution of the survey, may have limited the accurate assessment of organizational communication as it was implemented from the highest levels. The university president in office when Katrina hit in 2005 had retired from his post eighteen months before the distribution of the survey. Wood (1999) demonstrated the vital role of the charisma and communicative ability of a university president in her research regarding internal communication channels in higher education. Thus, changes in presidential leadership and accompanying changes in communication styles may have impacted employee perceptions of crisis communication readiness. Similarly, Hwang and Cameron (2009) determined that the perception of the person conveying information to an organization in times of crisis – and that person typically is the chief executive officer – does impact the perception of the severity and meaning of the crisis to recipients of the message.

Effective communication from an organization under the leadership of a new president may color respondents' perceptions and memories of communication from the organization as it occurred under previous presidential leadership at the time of the hurricane. The qualitative data gleaned from the survey's open-ended questions indicated that a noteworthy percentage of those who provided written comments (up to 30% of the comments) indicated frustration-to-anger with communication from the university, via the administration, at that time. On the other hand, the HRO scale questions asked respondents to focus only on their current perceptions of the university. Responses indicated a strong perception of a university that operates in a manner consistent with HRO organizations. The change in variable of leadership must be noted as a limitation of this study. The communication at the time of the hurricane fell to the responsibility of a

previous president; the current president inherited post-Katrina communication channels to create and refine.

Massey and Larson (2006) researched the impact of management response to crisis in which the issue of credibility of the crisis management team, a team designated by the organization's chief officer. Their study confirmed that the crisis plan itself is only as effective as the perception of the team that enacts it. In their study, the management team, spearheaded by top management, was able to effectively engage in crisis management in part because employees and the public both perceived the leadership team to be credible. The absolute necessity of respected leadership at the top, particularly during times of crisis, was reinforced by Schoenberg (2005) when he employed the phrase "reputation management" to describe that key credibility issue of the Chief Executive Officer. The degree that perceptions of communication efficacy right before and right after Katrina are different when compared with perceptions at the time of the survey distribution cannot be appropriately measured based on the data at hand. Thus, the impact of perceptions of president leadership in during this particular crisis may limit the scope of final analysis.

Lack of input from former employees who were employed by the university when Katrina hit also limits a full picture of information adequacy perception. Because this group was not surveyed, we cannot fully know of two key factors. First, we cannot ascertain what their perceptions were, and thus have a more robust assessment of information adequacy. Equally important, too, is the uncertainty regarding to what degree, if any, the hurricane and the university's response to it impacted the factors that led to employment separation on the part of these former employees.

Finally, a clearly agreed-upon definition of what is meant by "USM" when completing the survey was, likely, not possible among respondents. Assumption of this limitation is based upon focus group feedback in which much discussion ensued regarding "whom" or "what" is USM: is it the university as a whole? The administration at the Hattiesburg campus? An employee's individual work site location? It was determined that for the purposes of treating the university as an HRO, the term would remain undefined in any way other than "The University of Southern Mississippi." Therefore, the risk exists that respondents' feedback varied based on differing perceptions of what "the university" means, by what is included in the concept of "the university."

On the other hand, this confusion may not, in fact, truly be confusion. It may instead serve as an example of Seeger's (2002) chaos theory in action. Seeger maintained that a natural disaster crisis is actually the perfect venue for chaos theory to be enacted. When usual forms of communication break down, when traditional forms of leadership are unavailable or inaccessible, chaos theory posits that persons in organizations re-group and create a new reality, at least for the duration of the crisis event. Viewed in this way, the failure of "USM" as Hattiesburg guided organization in the eyes of some coastal employees, allowed for new alliances. Certainly, the strong sense of unity among the Gulf Coast Research Laboratory would speak to an enactment of chaos theory. And, despite perceptions among some Gulf Park employees of abandonment by Hattiesburg, new campus alliances among that group, perhaps, formed and functioned in a leadership void.

Suggestions for Future Research

Limitations of the research can logically point the way toward topics for future research. For example, more specific information regarding employee perceptions of HRO practices may emerge if each work site location were surveyed, with questions posed to employees at each site, specific to each location. Such information could help identify strengths and weaknesses of each site, and lead to improved communication system-wide. Data from respondents who work at the Gulf Coast Research Laboratory suggest that further feedback from that particular employee group may yield information about to what degree and how Seeger's (2002) chaos theory was implemented effectively. Why did employees at this site ultimately report lower levels of dissatisfaction with university communication efforts than did their colleagues at other sites? The data suggests that the degree to which this particular work site regrouped after the hurricane hit may be a factor of chaos theory in action. This perception can be verified through follow-up surveys, at all sites, that incorporate elements of chaos theory.

Such a site-by-site survey may yield data that can inform the potential need for stronger communicative ties between sites. Individual site surveys for "best practices" may be especially helpful at the Gulf Coast Research Laboratory, since perceptions of information adequacy among employees there, particularly after Katrina hit, tended to be higher than their coastal colleagues working at other sites. Subjecting the Gulf Coast Research Laboratory to further analysis would prove consistent with Heath's (1997) research, indicating the need for organizations to demonstrate a commitment to heightened attention to communication, and to responsibly make adjustments in the aftermath of crisis.

Further research exclusively with Gulf Coast Research Laboratory employees could prove to be an exemplary model of Perrow's (1994) loose coupling theory of organizational structure. The geographical size of the site, the relatively small number of employees there and the inevitable crossover of roles in smaller, independent settings may, upon further review, determine that this particular component of the larger organization operated effectively because adjustments could be made, made quickly and to best outcome.

Further research opportunities also exist with a closer examination of word-of-mouth communication channels, based on the reported strength of this type of communication, both before and after Katrina. Billings, Milburn and Schaalman (1980), almost three decades earlier, identified the need for employers to lessen the opportunity for employee emotional inoculation to set in by ever anticipating and revising communication strategies. The more information an employee has, the less likely he is to experience emotional inoculation, a form of stress and anxiety that can cause emotional paralysis. Since word-of-mouth forms of communication proved to be the most effective for employees both before and after Katrina hit, the university will benefit from more detailed, thorough information about how the verbal channels emerged. Kiger (2001) spoke to the need for relying on unconventional communication methods after the World Trade Center crisis and foretold the Katrina crisis of no technology available to use for communication. More in-depth survey of the various kinds of word-of-mouth communication may prove beneficial as the university assesses current crisis communication plans. More information about what persons or organizations served as the conduit for word-of-mouth communication may yield heretofore underutilized sources. For example, word-of-mouth information may be transmitted in certain

formalized settings, such as places of worship or through civic organizations. An in-depth study of word-of-mouth communication may determine that more employees get information in this manner from co-workers than supervisors, or from neighbors. The source of the verbal communication may, ultimately, inform the veracity of the information shared.

The university should consider surveying those former employees who were on payroll when Katrina hit. Determining to what degree the hurricane prompted their separation from the university would potentially strengthen the usefulness of the survey. More specifically, the university has the potential to gain insight into whether or not the university's communicative responses to the hurricane impacted the circumstances that led to the employees' separation from the organization.

Further research is also warranted in the area in which employees indicated disagreement with high reliability organizational practices. With feedback from the survey indicating that a majority of respondents do not feel that individual input is routinely taken into account in organizational long term planning, follow up research with this organization may reveal to what degree and in what manner this perception is being communicated. Consistent with Pearson and Mitroff's (1993) research confirming the correlation between an organization's acknowledgment of the expertise of employees with their sense of personal accountability when the organization faces crisis, the university will benefit from follow up research on this particular HRO characteristic. Failure to further examine this perception by employees may cause employees to engage in what Novak (2006) described as benign mindlessness. This phenomenon occurs when employees feels their opinions do not matter; therefore, they becomes less likely to maintain a mindful approach to work practices and procedures. Thus, an in-depth follow

up within the university may, in turn, result in meaningful application for similar organizations, particularly organizations that are engaged in nonprofit endeavors. Overall, more case studies of organizations affected by Katrina, such as institutions of higher education, non profit agencies, and for profit businesses, will enrich the data currently available about effective communication practices in natural disaster crises. The variety of organizational goals, sizes and locations will provide more depth of insight.

Final Summary

Organizations cannot control the occurrence of natural disasters. Within their control, however, is how they communicate with their constituents before, about and after such a disaster. This study has provided a basis from which organizations can compare and assess what they want to communicate to that crucial stakeholder, the employee. In times of natural disaster, what is communicated internally within an organization is as important as what is conveyed to the public. Scholars in the communication field have an opportunity to enhance the practice of effective organizational communication with employees. This kind of practical application of systematic inquiry partners the academician with the administrator. The end result may not only ensure the survival of the organization in times of hurricane, tornado, flood or other natural disasters, but do likewise for employees.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD MATERIALS

TO: USM Institutional Review Board

FROM: Rebecca N. Woodrick

DATE: November 17, 2008

RE: Request for Approval to Survey

Statement of Project Goals:

The goal of this project is to assess perceptions of communication efficacy between The University of Southern Mississippi (USM) and its employees when Katrina hit during August 2005. The information used will serve as the basis for feedback to the university as it updates its Crisis Communication Plan.

Protocol Information

A survey will be distributed to current USM employees who were on payroll during August 2005. A total of 1700 employees will be invited to participate in the survey.

The survey will be distributed both online and in print. A private entity has been selected to collect the data online, thus reducing the opportunity for participants to be identified based on port. Handwritten surveys will be available upon request, and will be sent with pre-addressed return envelopes.

The survey will take no more than 15 minutes to complete. A copy of the survey is attached. It is titled "Employee Perceptions of Communication from The University of Southern Mississippi during Hurricane Katrina." Also attached is a copy of the request to President Martha D. Saunders, which she approved. Verbal support of the survey was also given by President Saunders in a meeting in which Professor John Meyer was present on September 19, 2008.

Participants in the survey will be 18 years of age or older.

Benefits

This project has the potential to:

- Allow employees to give feedback that will assist in adopting a useful and informed Crisis Communication Plan for the institution;
- Allow the university to assess what went well and what needs improvement regarding internal communication with employees, particularly during time of natural disaster crisis.

Risks

This project has the potential to elicit in respondents reactions to memories of hurricane Katrina. The survey itself will contain information regarding how to access counseling services should they feel the need to do so.

Confidentiality of the process will be promised in written form when the request-to-participate email or letter is sent. It is reiterated in the introductory remarks of the survey.

The data will be retained by The Group Decision Center in Fargo, ND until the principal investigator requests that it be destroyed. All written copies of the survey will be shredded after the data has been entered into the online survey.

Informed Consent

A wavier of the consent form is requested. The vast majority of participants will take the survey online, the submission which will indicate agreement to participate. Further, both online and written survey forms will indicate (1) the nature of the survey (2) the confidentiality of the information shared and (3) ways to access assistance should emotional issues emerge from having participated in the survey.

Attachments: Permission to survey employees
                      Survey

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subject must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 28111702
PROJECT TITLE: **Assessment of Communication With Employees During Hurricane Katrina**
PROPOSED PROJECT DATES: **11/25/08 to 03/25/09**
PROJECT TYPE: **Dissertation or Thesis**
PRINCIPAL INVESTIGATORS: **Rebecca Nell Woodrick**
COLLEGE/DIVISION: **College of Arts & Letters**
DEPARTMENT: **Speech Communication**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **11/24/08 to 11/23/09**

_____   _____
Lawrence A. Hosman, Ph.D.   Date
HSPRC Chair

HUMAN SUBJECTS REVIEW FORM
UNIVERSITY OF SOUTHERN MISSISSIPPI
(SUBMIT THIS FORM IN DUPLICATE)

Protocol # 28111702
(office use only)

Name Rebecca Nell Woodrick _____ Phone 601.266.6804 ____

E-Mail Address rebecca.woodrick@usm.edu _____

Mailing Address Box 5168, USM _____
(address to receive information regarding this application)

College/Division COAL _____ Dept Speech Communication _____

Department Box # 5131 _____ Phone 6-4271 _____

Proposed Project Dates: From 11/25/08 _____ To 03/25/09 _____
(specific month, day and year of the beginning and ending dates of full project, not just data collection)

Title ASSESSMENT OF COMMUNICATION WITH EMPLOYEES DURING HURRICANE KATRINA _____

_____

Funding Agencies or Research Sponsors _____

Grant Number (when applicable) _____

_____ New Project

__X____ Dissertation or Thesis

_____ Renewal or Continuation: Protocol # _____

_____ Change in Previously Approved Project: Protocol # _____

_Rebecca N. Woodrick_____ 11-17-08
Principal Investigator   Date

_John C. Meyer_____ 11/12/2008
Advisor   Date

_Charles H. Tardy_____ 11/12/08
Department Chair   Date

RECOMMENDATION OF HSPRC MEMBER

_____ Category I, Exempt under Subpart A, Section 46.101 ( ) ( ), 45CFR46.

__X____ Category II, Expedited Review, Subpart A, Section 46.110 and Subparagraph (B).

_____ Category III, Full Committee Review.

_____ 11-20-08
HSPRC College/Division Member   DATE

_Lawrence G. Hosman_____ 12-02-08
HSPRC Chair   DATE
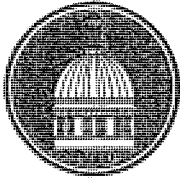
THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Office of Affirmative Action and Equal
Employment Opportunity

118 College Drive #5168
Hattiesburg, MS 39406-0001
601.266.6618
www.usm.edu/aa-eeo

TO: President Saunders

FROM: Becky Woodrick

DATE: September 19, 2008

RE: Research request

I request permission to survey current USM employees who were also on payroll in August 2005, as the basis for my dissertation research associated with my pursuit of a speech communication doctoral degree here at Southern. My area of concentration in the program is organizational crisis communication.

My goal is to assess employee impressions of the quantity and quality of communication they had with the university, as their employer, during the crisis that was hurricane Katrina. Access will take two forms: multiple focus group interviews and an online survey (hard copies will be available upon request). I have chosen this topic because little research exists regarding how to effectively communicate, in times of natural disaster crisis, with an organization's employees. They are, arguably, the most important stakeholder group within an organization. Yet in-depth analysis of and detailed framework for natural disaster communication crisis with employees is curiously absent from the literature.

Participation in the survey will be entirely voluntary, and employee identity will be kept confidential. The confidentiality of all participants would be maintained in a final report given to you on the findings of the survey. As you are well aware, this degree of confidentiality is crucial to the success of the survey.

I request from you the following:

- Your written approval to Human Resources, so I may use the above-described employee group (approximately 1700 persons) for my survey group;
- Access to the university's communication crisis plan that was implemented in August 2005, as well as the current plan.

Potential benefits to USM for having allowed me survey these employees include:

- A statistical and organizational analysis of employees satisfaction with the communication they received from the university during and after hurricane Katrina (this information can be used to confirm efficacy and/or provide feedback on how to improve upon communication);
- Potential for positive public recognition as a case study in organizational communication with employees in times of crisis;

- A summary presentation of the findings, both written and verbal, to you and other university administrators of your choosing.

The degree to which the university may choose to remain anonymous in the publication of the dissertation, and in any subsequent research based on the dissertation, is entirely at your discretion.

My goal is to conduct the survey no later than the end of this semester.

Thank you for your consideration of this request.

APPENDIX B

REQUEST TO PARTICIPATE IN FOCUS GROUP AND SURVEY

On 11/5/08 2:48 PM, "Becky Woodrick" <rebecca.woodrick@usm.edu>
wrote:
Good afternoon!

I write to ask for your help. I've created a survey, as a part of my speech
communication doctoral research project, which will gather information
about USM's communication with employees during hurricane Katrina. I
seek employees, from all corners of the campus community, to help "test
drive" the survey. You will be asked to complete a survey, and then devote
one hour on Wednesday, November 19 (12:10 p.m. to 12:50 p.m.), to give
me feedback about the survey. **I will provide you lunch if you will give me
your feedback!**

If you can spare 15 minutes to fill out the survey, and then bring it with you
Dr. Joachim's conference room on 11/19, I will be most grateful. If need
be, I can request release time from your supervisor so you can participate
in the meeting. **Your survey, as well as your feedback, will remain
confidential.**

FYI, your fellow employees at GCRL and at the Hattiesburg will have the
same opportunity, on November 17 and 19.

If you are willing to assist, please send me an email or call me at 601-266-
6804. I will see that you get a copy of the survey early next week, and ask
that you bring it with you on the 19th.

Questions? Give me a call.

Thanks much,

Becky Woodrick
Southern Miss AA/EEO Director

APPENDIX C

SURVEY

ASSESSMENT OF COMMUNICATION WITH EMPLOYEES DURING HURRICANE KATRINA The University of Southern Mississippi

Thank you for agreeing to participate in this survey! Your feedback will remain confidential, and will be used not only for the purposes of this dissertation research project, but to aid the university in updating crisis communication efforts during natural disasters. When you complete and send this survey you will, by default, give your permission to participate in this survey, which has been approved by The University of Southern Mississippi's Human Subjects Protection Review Committee. Questions or concerns about this survey can be shared with Becky Woodrick by calling 601.266.6804; dissertation committee chair Dr. John Meyer at 601.266.4280; or by contacting the chair of the USM Institutional Review Board, 118 College Ave, Box 5147, Hattiesburg MS 39406 or by calling 601-266.6820.

If your participation in this survey should create issues or concerns of a personal nature, you are invited to contact the director of the university's counseling center, Ms. Deena L. Crawford, for information regarding counseling referrals. Ms. Crawford can be reached by calling 601.266.4829.

First, please provide some basic information about yourself:

Start |

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ASSESSMENT OF COMMUNICATION WITH EMPLOYEES DURING HURRICANE KATRINA The University of Southern Mississippi

Please tell me about yourself:

1. Work location in August 2005:

   ○ Gulf Coast Research Laboratory   ○ Stennis Space Center   ○ Hattiesburg
   ○ Long Beach/Gulf Park Campus   ○ Jackson County site   ○ Keesler AFB

2. # of years you have worked for USM:

3. I am:

   ○ Staff   ○ Administrator (academic and non academic)   ○ Faculty

4. I am paid:

   ○ Bi-weekly   ○ Monthly

5. My gender is:

   ○ Female   ○ Male

6. My race is (Check all that apply):

   ☐ White   ☐ Afican-American   ☐ Hispanic/Latino   ☐ Native American   ☐ Asian

7. My age is:

   ○ 18-25   ○ 26-35   ○ 36-45   ○ 46-55   ○ 56-65   ○ 66-75   ○ 76 or better

8. Prior to Katrina, I had experienced a hurricane(s):

   ○ No   ○ Yes (please list which one(s) & date(s):

<div align="center">

47%

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</div>

Next

ASSESSMENT OF COMMUNICATION WITH EMPLOYEES DURING HURRICANE KATRINA The University of Southern Mississippi

AS YOU THINK ABOUT YOUR RESPONSES TO QUESTIONS IN THIS SURVEY, THINK ABOUT USM AS A MULTI-SITE UNIVERSITY. IN OTHER WORDS, GIVE ANSWERS THINKING OF USM AS A WHOLE, NOT JUST IN TERMS OF THE CAMPUS WHERE YOU WORK.

PART I

When answering these questions, please think about your time at USM as an employee, and respond based on your job role/responsibilities at Southern Miss:

9. Where/how did you receive information directly from USM: (check all that apply)
One Week Before Katrina

Email	USM website	Departmental meeting	Departmental memo	Announcements from USM given to TV station(s)
Announcements from USM given to RadioStation(s)	Announcements from USM given to Newspaper(s)	Landline telephone	Cell phone	Info from co-workers
Others (please describe here)				

10. **ONE WEEK BEFORE KATRINA HIT:**
USM provided me, as an employee, with adequate information about Katrina:

○ Strongly Disagree ○ Disagree ○ Somewhat Disagree ○ Neutral ○ Somewhat Agree ○ Agree ○ Strongly Agree ○ Can't Recall

11. **UP TO ONE MONTH AFTER KATRINA:**
Where/how did you receive information directly from USM:(check all that apply)

USM website	Departmental meeting	Departmental memo	Announcements from USM given to TV station(s)	Announcements from USM given to Radio station(s)
Announcements from USM given to Newspaper(s)	Landline telephone	Cell phone	Info from co-workers	Others (please describe here)

64%

Next

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ASSESSMENT OF COMMUNICATION WITH EMPLOYEES DURING HURRICANE KATRINA The University of Southern Mississippi

A REMINDER: AS YOU THINK ABOUT YOUR RESPONSES TO QUESTIONS IN THIS SURVEY, THINK ABOUT USM AS A MULTI-SITE UNIVERSITY. IN OTHER WORDS, GIVE ANSWERS THINKING OF USM AS A WHOLE, NOT JUST IN TERMS OF THE CAMPUS WHERE YOU WORK.

PART II

12. Think back to the <u>two week immediately after Katrina</u> hit, and answer the following questions based on your opinion at that time:

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Can't Recall
USM provided me, as an employee, with adequate information about my job status/security, after Katrina hit:	○	○	○	○	○	○	○	○
USM provided me, as an employee, with adequate information about receiving my next paycheck, after Katrina hit:	○	○	○	○	○	○	○	○
USM provided me adequate information about when to return to work, after Katrina hit:	○	○	○	○	○	○	○	○

70%   Next

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ASSESSMENT OF COMMUNICATION WITH EMPLOYEES DURING HURRICANE KATRINA The University of Southern Mississippi

PART III

13. I participated in the following USM activities, after hurricane Katrina: (Check all that apply)

- ☐ free food offered on my campus
- ☐ on-campus pick-up of my regularly scheduled paycheck
- ☐ meeting with Dr. Joachim at the Long Beach high school
- ☐ meeting with President Thames/Dr. Joachim at the Long Beach high school
- ☐ convocation with President Thames on the Hattiesburg campus
- ☐ helped with repair of employees' homes damaged by the hurricane
- ☐ received help from USM employee(s) with repairs to my home/office
- ☐ received temporary housing from USM
- ☐ received clothes, food, cleaning supplies, etc from USM-affiliated groups
- ☐ Other (please describe here)

14. Please describe anything USM did for you, as an employee, that you found particularly helpful right before Katrina hit:

15. Please describe anything USM did for you, as an employee, that you found particularly helpful right after Katrina hit:

88%

Next

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ASSESSMENT OF COMMUNICATION WITH EMPLOYEES DURING HURRICANE KATRINA The University of Southern Mississippi

PART IV

When answering these questions, please think about your years/experience at USM as an employee, and respond based on your job role/responsibilities. Think in general terms, not just about Katrina issues:

16. Please click the option that best corresponds to your opinion:

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
My opinions are taken into account in the daily operations at The University of Southern Mississippi (USM).	○	○	○	○	○	○	○
My opinions are taken into account in long-term planning within USM.	○	○	○	○	○	○	○
My actions directly contribute to safeguarding USM's continued existence as a successful university.	○	○	○	○	○	○	○
My actions influence others to prevent significant mistakes at USM.	○	○	○	○	○	○	○
USM is very concerned about the possibility of making high risk mistakes that would jeopardize the organization.	○	○	○	○	○	○	○
USM is committed to correcting shortcomings that could jeopardize the organization.	○	○	○	○	○	○	○
USM emphasizes maintaining effective operations.	○	○	○	○	○	○	○
USM is committed to correcting shortcomings in their emergency response procedures.	○	○	○	○	○	○	○
USM's supervisors and managers accept an employee's suggestions about important issues when the employee has particular expertise in that area.	○	○	○	○	○	○	○
USM often over-simplifies when communicating about complex emergency response procedures.	○	○	○	○	○	○	○

17. Is there anything you would like to say about Katrina and USM's response to the hurricane, that has not been included in this survey? If so, please do so here.

100%

Finish

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APPENDIX D

QUANTITATIVE DATA

Table A1

Perceptions of Information Adequacy One Week Prior to Katrina with Information Sources

	Strongly Disagree		Disagree		Somewhat Disagree		Neutral		Somewhat Agree		Agree		Strongly Agree	
	(%) Yes	(%) No	(%) Yes	(%) No	(%) Yes	(%) No	(%) Yes	(%) No	(%) Yes	(%) No	(%) Yes	(%) No	(%) Yes	(%) No
Email	.04	.08	6.1	8.3	6.2	5.6	9.4	8.3	10.0	5.3	22.4	14.2	6.1	4.1
	29	6	41	56	42	38	63	56	68	36	150	95	41	28
Web	2.0	10.7	4.0	10.4	3.4	8.5	5.9	11.8	4.1	5.9	10.4	11.9	4.3	5.9
	13	72	27	70	23	57	0	79	28	40	70	80	29	40
Dept Mtg.	1.3	11.3	1.6	12.8	2.5	9.6	4.3	13.4	2.0	2.0	8.0	14.3	4.1	6.1
	9	76	11	86	17	63	29	90	14	54	54	96	28	41
Dept memo	0.7	11.9	1.1	13.3	1.1	10.7	2.6	15.1	1.0	9.1	3.7	18.7	2.2	8.0
	5	80	8	89	8	72	18	101	7	61	25	125	15	54
TV	2.0	9.7	4.3	10.0	4.1	8.6	6.5	11.2	3.8	6.2	9.1	13.3	5.8	4.4
	14	65	29	68	28	52	44	75	26	42	61	89	38	30
Radio	2.0	10.6	1.9	12.5	1.9	10.0	4.6	13.1	1.7	8.3	6.2	16.1	3.8	6.4
	14	71	13	84	13	67	31	88	12	56	42	108	26	43
Paper	1.0	11.6	2.2	12.2	2.3	9.5	3.5	14.2	1.4	8.6	5.0	17.3	2.0	8.2
	7	78	15	82	16	64	24	95	10	58	34	116	14	55
Land phone	1.6	11	0.8	13.6	1.0	10.9	2.6	15.1	1.0	9.1	5.0	20.0	1.9	8.3
	11	74	6	91	7	73	18	101	7	61	16	134	13	56
Cell	1.7	10.9	1.0	13.4	1.1	10.7	2.6	15.1	1.0	9.1	5.0	17.3	2.0	8.2
	12	73	7	90	8	72	18	101	7	61	34	116	14	55
Info, co-worker	6.2	6.4	7.3	7.1	6.1	6.1	10.0	7.7	5.2	4.9	12.4	10.0	6.4	3.8
	42	43	49	48	40	40	67	52	35	33	83	67	43	26
Other														

Table A2

Crosstabulation of Information Adequacy One Week Prior to Katrina with Number of Years of Employment

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Total
< 2 yrs	2 (20%)	3 (30%)	0 (0%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)	10
3-11 yrs	45 (12.7%)	49 (13.8%)	51 (14.4%)	72 (20.3%)	37 (10.4%)	76 (21.4%)	25 (7.0%)	355
12-20 yrs	25 (14.1%)	31 (17.5%)	18 (10.2%)	28 (15.8%)	15 (8.5%)	42 (23.7%)	18 (10.25)	177
21-29 yrs	7 (10.4%)	10 (14.9%)	6 (9%)	9 (13.4%)	7 (10.4%)	17 (25.4%)	11 (16.4%)	67
30-38 yrs	5 (14.7%)	2 (5.9%)	4 (11.8%)	7 (20.6%)	4 (11.8%)	9 (26.5%)	3 (8.8%)	34
39 yrs +	0 (0%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)	2 (50%)	4

Note: N = 647

Table A3

Crosstabulation of Information Adequacy One Week Prior to Katrina with Employee Work Location

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Total
Hattiesburg	64 (13.0%)	72 (14.6%)	61 (12.4%)	84 (17.0%)	54 (11.0%)	114 (23.1%)	44 (8.9%)	493
Gulf Coast Research Lab	3 (5.2%)	4 (6.9%)	5 (8.6%)	12 (20.7%)	8 (13.8%)	15 (25.9%)	11 (19.0%)	58
Long Beach/ Gulf Park/ Jackson Co./ Kessler AFB	15 (16.5%)	19 (20.9%)	10 (11.0%)	15 (16.5%)	5 (5.5%)	17 (18.7%)	10 (11.0%)	91
Stennis Space Center	3 (13.0%)	2 (8.7%)	4 (17.4%)	6 (26.1%)	1 (4.3%)	3 (13.0%)	4 (17.4%)	23

Note: N = 665

Table A4

Crosstabulation of Information Adequacy One Week Prior to Katrina with Employee Pay Type

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Total
Monthly Paycheck	16 (8.9%)	22 (12.2%)	22 (12.2%)	26 (14.4%)	24 (13.3%)	46 (25.6%)	24 (13.3%)	180
Bi-Weekly Paycheck	69 (14.2%)	74 (15.3%)	57 (11.8%)	93 (19.25)	44 (9.1%)	103 (21.7%)	45 (1.3%)	485

Note: N = 665

Table A5

Crosstabulation of Information Adequacy Regarding Job Security up to One Month after Katrina with Number of Years of Employment

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
< 2 yrs	0 (0%)	1 (11.1%)	0 (0%)	1 (11.1%)	1 (11.1%)	2 (22.2%)	3 (33.3%)		9 (1.3%)
3-11 yrs	27 (7%)	43 (11.2%)	24 (6.2%)	34 (8.8%)	28 (7.3%)	113 (29.5%)	103 (26.9%)	11 (2.8%)	383 (54.9%)
12-20 yrs	8 (4.23)	18 (9.5%)	13 (6.8%)	20 (10.5%)	21 (11%)	49 (25.9%)	58 (30.6%)	2 (1%)	189 (27.1%)
21-29 yrs	3 (3.8%)	9 (11.5%)	5 (6.4%)	5 (6.4%)	7 (8.9%)	25 (32%)	22 (28.2%)	2 (2.5%)	78 (11.2%)
30-38 yrs	2 (5.8%)	3 (8.8%)	0 (0%)	4 (11.7%)	1 (2.9%)	16 (47%)	7 (20.5%)	1 (2.9%)	34 (4.9%)
39 yrs +	0 (0%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	1 (20%)	3 (60%)	0 (0%)	5 (.7%)

Note: N = 698

Table A6

Crosstabulation of Information Adequacy Regarding Job Security up to One Month after Katrina with Employee Work Location

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
Hattiesburg	31 (5.8%)	62 (11.5%)	36 (6.7%)	56 (10.4%)	156 (29.1%)	44 (8.2%)	138 (25.7%)	14 (2.6%)	537 (75.1%)
Gulf Coast Research Lab	2 (3.49%)	3 (5.175)	0 (0%)	4 (6.89%)	5 (8.62%)	21 (36.205)	23 (39.7%)	0 (0%)	58 (8.1%)
Long Beach/ Gulf Park/ Jackson Co./ Kessler AFB	6 (6.25%)	9 (9.3%)	5 (5.2%)	5 (5.2%)	8 (8.33%)	22 (22.9%)	40 (41.6%)	1 (1.04%)	96 (13.4%)
Stennis Space Center	2 (8.3%)	2 (8.3%)	1 (4.1%)	4 (6.6%)	0 (9%)	13 (54.1%)	2 (8.3%)	0 (0%)	24 (3.4%)

Note: N = 715

Table A7

Crosstabulation of Information Adequacy Regarding Job Security up to One Month after Katrina with Employee Pay Type

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
Monthly Paycheck	22 (8.0%)	30 (10.9%)	13 (4.72%)	29 (10.5%)	27 (9.8%)	83 (30.1%)	69 (25.0%)	3 (1.1%)	276 (38.4%)
Bi-Weekly Paycheck	19 (4.3%)	46 (10.43%)	29 (6.6%)	40 (9.0%)	32 (7.21%)	129 (29.2%)	134 (30.3%)	13 (2.9%)	442 (61.6%)

Note: N = 718

Table A8

Crosstabulation of Information Adequacy Regarding Paycheck Retrieval up to One Month after Katrina with Number of Years of Employment

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
< 2 yrs	0 (0%)	1 (11.1%)	1 (11.1%)	2 (22.2%)	0 (0%)	2 (22.2%)	0 (0%)		9 (1.3%)
3-11 yrs	26 (6.7%0)	29 (7.5%)	30 (7.8%)	38 (9.8%)	24 (6.2%)	119 (30.9%)	96 (25%)	22 (5.7%)	383 (54.9%)
12-20 yrs	6 (3.1%)	15 (7.9%)	18 (9.5%)	20 (10.5%)	12 (6.3%)	67 (35.4%)	51 (26.9%)	10 (5.2%)	189 (27.1%)
21-29 yrs	3 (8.8%)	6 (7.6%)	3 (3.8%)	6 (7.6%)	7 (8.9%)	23 (29.4%)	19 (24.3%)	11 (14%)	78 (11.2%)
30-38 yrs	2 (5.8%)	3 (8.8%)	0 (0%)	3 (8.8%)	2 (5.8%)	13 (38.2%)	8 (23.5%)	3 (8.8%0)	34 (4.9%)
39 yrs +	0 (0%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	0 (0%)	3 (60%)	1 (20%)	5 (.7%)

Note: N = 698

Table A9

Crosstabulation of Information Adequacy Regarding Paycheck Retrieval up to One Month after Katrina with Employee Work Location

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
Hattiesburg	28 (5.2%)	43 (8.0%)	34 (6.31%)	56 (10.4%)	29 (5.4%)	181 (33.6%)	126 (23.4%)	41 (7.6%)	538 (75.1%)
Gulf Coast Research Lab	3 (5.17%)	1 (1.72%)	1 (1.72%)	4 (6.895)	5 (5.2%)	20 (34.4%)	23 (39.6%)	1 (1.72%)	58 (8.1%)
Long Beach/ Gulf Park/ Jackson Co./ Kessler AFB	7 (7.3%)	5 (5.2%)	10 (10.4%)	5 (5.2%)	8 (8.3%)	26 (27%)	31 (33.2%)	4 (4.1%)	96 (13.4%)
Stennis Space Center	3 (12.5)	0 (0%)	2 (8.3%)	3 (12.5%)	2 (8.3%)	10 (41.6%)	3 (12.5%)	1 (4.1%)	24 (3.4%)

Note: N = 716

Table A10

Crosstabulation of Information Adequacy Regarding Paycheck Retrieval up to One Month after Katrina with Employee Pay Type

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
Monthly Paycheck	23 (8.3%)	25 (9.1%)	10 (3.6%)	28 (10.2%)	23 (8.3%)	88 (31.9%)	61 (22.0%)	18 (16.5%)	276 (38.4%)
Bi-Weekly Paycheck	16 (3.6%)	29 (6.5%)	32 (7.2%)	43 (9.7%)	22 (5.0%)	149 (33.6%)	122 (27.5%)	30 (6.89%)	443 (61.6%)

Note: N = 719

Table A11

Crosstabulation of Information Adequacy Regarding Return-to-Work Date up to One Month after Katrina with Number of Years of Employment

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
< 2 yrs	1 (11.1%)	1 (11.1%)	1 (11.1%)	1 (11.1%)	1 (11.1%)	2 (22.2%)	2 (22.2%)	0 (0%)	9 (1.3%)
3-11 yrs	32 (8.3%)	38 (9.8%)	23 (5.9%)	24 (6.25%)	44 (11.4%)	120 (31.2%)	100 (26%)	3 (.7%)	384 (55.1%)
12-20 yrs	13 (6.9%)	11 (5.8%)	12 (6.4%)	9 (4.8%)	21 (11.2%)	65 (34.7%)	65 (34.7%)	55 (29.4%0	187 (26.8%)
21-29 yrs	3 (3.8%0	5 (6.4%)	5 (6.4%)	3 (3.8%)	9 (11.5%)	66 (84.6%)	26 (33%)	0 (0%)	78 (11.2%)
30-38 yrs	2 (5.8%)	2 (5.8%)	1 (2.9%)	1 (2.9%)	1 (2.9%)	19 55.8%)	8 (23.5%)	0 (0%)	34 (4.9%)
39 yrs +	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%0	5 (100%)	0 (0%)	5 (.7%)

Note: N = 697

Table A12

Crosstabulation of Information Adequacy Regarding Return-to-Work Date up to One Month after Katrina with Employee Work Location

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
Hattiesburg	35 (6.5%)	33 (6.2%)	43 (8.0%)	32 (6.0%)	59 (11.2%)	184 (34.4%)	147 (27.5%)	2 (.4%)	535 (75.0%)
Gulf Coast Research Lab	3 (5.2%)	2 (3.4%)	3 (5.2%)	3 (5.2%)	4 (6.9%)	22 (37.9%)	21 (36.2%)	0 (0%)	58 (8.1%)
Long Beach/ Gulf Park/ Jackson Co./ Kessler AFB	10 (10.4%)	12 (12.5%)	6 (6.3%)	2 (2.08%)	11 (11.5%)	22 (22.9%)	31 (32.3%)	2 (20.8%)	96 (13.4%)
Stennis Space Center	4 (16.7%)	1 (4.2%)	0 (0%)	3 (12.6%)	1 (4.2%)	11 (45.8%)	4 (16.7%)	0 (0%)	24 (3.4%)

Note: N = 713

Table A13

Crosstabulation of Information Adequacy Regarding Return-to-Work Date up to One Month after Katrina with Employee Pay Type

	Strongly Disagree N (%)	Disagree N (%)	Somewhat Disagree N (%)	Neutral N (%)	Somewhat Agree N (%)	Agree N (%)	Strongly Agree N (%)	Can't Recall N (%)	Total
Monthly Paycheck	26 (9.4%)	24 (8.7%)	17 (6.2%)	12 (4.3%)	31 (11.2%)	88 (31.9%)	77 (27.9%)	1 (.4%)	276 (38.5%)
Bi-Weekly Paycheck	26 (5.9%)	34 (7.7%)	25 (5.7%)	29 (6.6%)	46 (10.5%)	152 (34.5%)	126 (28.6%)	3 (.7%)	440 (61.5%)

Note: N = 716

Table A14

High Reliability Organization Scale Frequency Distribution

	Frequency	Percent (%)
10	1	.2
11	1	.2
14	1	.2
19	1	.2
21	2	.3
22	4	.6
23	1	.2
24	3	.5
25	2	.3
26	2	.3
27	1	.2
28	6	.9
29	2	.3
30	6	.9
31	6	.9
32	10	1.6
33	7	1.1
34	7	1.1
35	8	1.3
36	16	2.5
37	11	1.7
38	19	3.0
39	15	2.4
40	30	4.7
41	11	1.7
42	21	3.3
43	24	3.8
44	22	3.5
45	23	3.6
46	18	2.8
47	23	3.6
48	28	4.4
49	27	4.3
50	28	4.4
51	24	3.8
52	20	3.2
53	32	5.1
54	20	3.2
55	25	3.9
56	23	3.6
57	12	1.9
58	21	3.3
59	14	2.2
60	18	2.8
61	7	1.1
62	4	.6
63	7	1.1
64	8	1.3
65	6	.9
66	1	.2
67	1	.2
68	1	.2
70	2	.3
Total	633	100

Table A15

Crosstabulation of High Reliability Organization Ranges with Range of Years of Employment

	< 2 yrs	3-11 yrs	12-20 yrs	21-29 yrs	30-38 yrs	39 yrs +	Total
Very Low (10-24)	0	8	4	0	1	0	13
Low (25-39)	1	72	30	12	4	0	119
High (41-55)	2	182	99	37	21	2	343
Very High (56-70)	5	75	36	20	6	1	143
Total	8	337	169	69	32	3	618

Table A16

Crosstabulation of High Reliability Organization Ranges with Employee Work Location

	1	2	3	4	Total
Very Low (10-24)	13	0	0	1	14
Low (25-39)	92	9	19	3	123
High (41-55)	266	33	40	9	348
Very High (56-70)	101	13	22	9	145
Total	472	55	81	22	630

Note: 1 = Hattiesburg
2 = Gulf Coast Research Laboratory
3 = Long Beach/Gulf Park/Jackson Co./Keesler AFB
4 = Stennis Space Center

Table A17

Crosstabulation of High Reliability Organization Ranges with Employee Pay Type

	Monthly	Bi-Weekly	Total
Very Low (10-24)	4	10	14
Low (25-39)	32	91	123
High (41-55)	87	262	349
Very High (56-70)	34	111	145
Total	157	474	631

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