PERCEPTIONS OF EMERGENCY MANAGERS ON VULNERABILITY AND INSTITUTIONAL PREPAREDNESS OF COLLEGES AND UNIVERSITIES IN THE RED RIVER VALLEY

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ABSTRACT

The present study examines emergency management related perceptions of campus officials who are responsible for overseeing the general disaster preparedness of at five diverse colleges and universities in the Red River Valley. This paper attempts to specifically examine in higher education what has been called the Thomas Theorem or “What is perceived real, is real in its consequences” (Thomas 1970). This further examination is accomplished through in-depth interviews using a survey tool based around three research questions: “How do the responsible campus officials perceive campus vulnerabilities?”, “How do the responsible campus officials perceive preparedness measures that have been undertaken by their campuses?”, and finally “Is there a match between preparedness measures and perceptions of campus vulnerabilities?” The present study also suggests areas where additional study may further benefit emergency management related decisions at higher education institutions.

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SECTION ONE: INTRODUCTION

The present study examines emergency management related perceptions of campus officials who are responsible for overseeing the general disaster preparedness of diverse colleges and universities in the Red River Valley. This study will focus on three research questions regarding these perceptions. First, how do the responsible campus officials perceive campus vulnerabilities? Vulnerability has emerged as a key concept in understanding emergency management, especially as it is related to potential disasters. Most of the focus on vulnerability has been associated with the general community, social categories within the community (e.g., gender, race, ethnicity or age) or the individual. There has been little literature addressing the general vulnerability of organizations and even less specifically addressing the vulnerabilities of universities or college campuses. As an exploratory study, this is not an assessment of actual vulnerabilities, but rather examines what higher education officials perceive to be organizational level vulnerabilities in institutions of higher education. While understanding this is a subjective, rather than objective assessment of vulnerability, its importance to understanding vulnerability is illustrated by the Thomas Theorem "What is perceived real, is real in its consequences" (Thomas 1970).

Second, the present study examines campus officials' perceptions of the preparedness measures that have been undertaken by their campuses. Both the academic literature and practitioner studies outline basically accepted sub-categories of preparedness (e.g., training, planning, warning, etc.), the present study examines the extent to which the preparedness themes in respondents' comments parallel these sub-categories. Again, as an exploratory question, the intent of this analysis is to identify areas that college/university emergency management officials perceive as important by emphasis or de-emphasis in their "self-reports" of preparedness

measures. This study doesn't intend to evaluate campuses objective level of preparedness or accuracy of the "self-reports."

Third and finally, the present study will ask to what extent there is a match between "self-reports" of preparedness measures and perceptions of campus vulnerabilities. As noted earlier, the Thomas Theorem suggests that "what is defined as real, is real in its consequences," so one would expect a match between perceptions of vulnerability and actual preparedness measures. To the extent that significant mismatches appear between perceived vulnerabilities and self-reported preparedness, this study will identify those areas, understanding the significant potential for organizational, political, economic, or other factors to impact those decisions. This question hopes to provide a basis for future research that might better identify and categorize such discrepancies.

These research questions were constructed in the context of symbolic interactionism. The literature review begins with an examination of symbolic interactionist perspectives on the above three research questions, and then examines vulnerability and preparedness issues identified in the literature. Although this study cannot be used to generalize to other colleges or universities, this may provide a basis for future gathering of information in a more expansive study.

SECTION TWO: LITERATURE REVIEW

This section will discuss Symbolic Interactionism, the theoretical framework used in the present study as well as addressing literature on key issues relevant to discussion of disasters, vulnerability and preparedness.

Defining Theoretical Framework

This study uses the theoretical framework of symbolic interaction to discuss the perceptions of emergency managers about their campus' vulnerability and preparedness. Symbolic Interactionism is one of the dominant theoretical perspectives in disaster research (Nigg 1994, p. 33). It is a useful perspective to help us take a step back from the everyday assumptions that our perceptions simply reflect a world of hard and cold facts and see the world as socially constructed. Charon (2004) effectively summarizes this stance saying, "The world does not tell us what it is; we actively reach out and understand it and decide what to do with it" (p.30). This provides a window into the human decision making processes, especially when addressing how we perceive threats and decide on appropriate responses. When examining the acquisition of knowledge, Charon (2004) says "To the pragmatist, knowledge is judged by how useful it is in defining the situations we enter." Charon also points out that we notice things in the environment according to our perceived use for that information (p. 31).

The world as we perceive it is a product of our collective definition of the situations for various settings, Waller (1970) indicates three elements implicit in definition of the situation. Waller lists "The configuration in which it is perceived," "The aspect of the situation toward which action is directed," and the "Attitude or activity which comes out of the interaction between individuals and situation and the organization of himself which the individual effects

with regard to the situation" (p.164). These elements provide a basis for examining potential patterns in the source or manner in which the individual's perceptions were formed. In other words, symbolic interaction suggests that the practitioners' world view is dependent on how the environment, goals, and other factors in their situation at a specific time are socially defined. Charon (2004) also says that we "define the situation 'as it exists' out there, and that definition is highly influenced by our social life" (p.43).

Application to Current Study

This line of literature indicates that our decisions are often based on our social lives and experiences rather than directly reflective of facts and figures. When the information or knowledge in the environment around us is socially defined as important, we pay attention, and when it is perceived to be less important or of a lower priority than another piece of information, we pay less attention. Such outlying information may be gathered and may even be internalized, but will be less likely to play an important role in decision making.

This suggests that a practitioner's views of vulnerability and preparedness as it relates to his or her organization may be mediated by social definitions. This helps create a profile of what is or is not important, which may or may not match actual vulnerabilities and preparedness levels.

The practitioner's perceptions are formed by a variety of sources in the environment, depending on the sources available or relied upon. As a consequence there may be a profound difference in the perception of vulnerability and preparedness across settings.

In addition, symbolic interactionism views humans as active definers of their situation, so not only do practitioners "receive" the definitions developed and shared by others, they also help to create those definitions. It is important to understand the symbolic role that these individuals

who are responsible for emergency management play. We must understand the role that they perceive themselves to have as well as the role they feel others perceive them to have. As we explore each practitioner's views of their organization's vulnerability and preparedness, we will also get an opportunity to examine their perceptions of their role in defining these phases for their organizations.

Disasters Defined

Part of understanding vulnerability and preparedness involves defining what a disaster is. There has been much debate about what should or should not be a considered a disaster and when an event becomes or ceases to be a disaster. One of the most accepted definitions has been proposed by Fritz (1961). He says a disaster is:

> An event, concentrated in time and space, in which society, or a relatively self-sufficient subdivision of society, undergoes sever danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented (p. 655).

Such events have four interrelated phases. Specifying these phases helps societies to prioritize resources and materials during specific times of a disaster. These phases were identified in a National Governors' Association document that was developed to assist governors in understanding the disaster process. The document provides specific details about the characteristics of the actions occurring in each of the phases (A Governor's Guide 1979, p. 12–14). The document defines the phases as follows:

- Preparedness: Includes developing plans, creating resource inventories, conducting training and exercises, installing and testing warning systems, creating food and medical stockpiles and mobilizing emergency personnel on standby.

- Response: Includes provide emergency assistance immediately after the impact of a disaster including conducting search and rescue, establishing emergency shelters, providing medical care and mass feeding. Can also include activities to reduce probability of secondary damage and transition to recovery phase.
- Recovery: Short-term recovery activities return vital life-support systems (cleanup, temporary housing). Long-term recovery activities attempt to return life to normal or in some cases improved levels (redevelopment loans, legal assistance, and community planning).
- Mitigation: Mitigation includes activities which strive to eliminate or reduce the probability of occurrence of a disaster. It also may reduce the effects of unavoidable disaster (for example, land-use management, establishing comprehensive emergency management programs, or legislating building safety codes).

By understanding the classically defined disaster phases, we can better understand each practitioner's general perceptions of vulnerability and preparedness.

For the purpose of defining a disaster event in this paper, the definition provided by Fritz along with the explanation of the four phases defined within the Governor's Guide will serve as reference points for interpreting practitioners' perceptions of vulnerabilities and preparedness. The remainder of the literature review for this paper will concentrate primarily on two areas including vulnerability definitions and preparedness measures.

Vulnerability

The concept of vulnerability has recently received a great deal of attention in the disaster literature (Godfrey 2004, Vatsa 2004, Tierney 2003, Cutter and Emrich 2006). It is variously

introduced as a concept (Cuny 1986, Zaman 1999, Vatsa 2004), as a full theory (Godfrey 2004, Bolin and Stanford 1999), or even as a science (Tierney 2003, Cutter and Emrich 2006). Across these different approaches, there are at least three themes that I would like to explore. First, how are researchers defining vulnerability? Second, what are the factors most often mentioned in definitions and/or theories as contributing to vulnerability? And, third, what units of analysis (e.g., individuals, social categories, groups, organizations, or entire societies) have been examined in terms of their vulnerability characteristics? These three issues will provide the framework for subsequent discussions concerning the perceived vulnerabilities of each respondent's institution. For example, this discussion will help set the stage following data collection to analyze the degree of similarity of each respondent's understanding of vulnerability to that of researchers. As well as exploring whether respondents emphasize the same contributing factors in vulnerability as does the literature. Including whether respondents see unique issues of vulnerability associated with college/university campuses that have not yet been addressed by researchers in other jurisdictional levels.

Vulnerability Defined

Researchers' definitions of vulnerability differ in breadth, depth, and focus. For example, Abramovitz (2001), Bolin and Stanford (1999), Tierney, Lindell and Perry (2001) as well as Cutter and Emrich (2006) emphasize the social aspects of vulnerability whereas Blaike et al. (1994) and Mitchell (1990) concentrate on ecological or environmental aspects. Cutter and Emrich (2006) are the only authors within the literature that was reviewed who approached vulnerability from a quantitative standpoint in contrast to other the researchers who focus on experiential and historical information.

Mitchell (1990) adds a long-term perspective by defining vulnerability as “the measure of the capacity to weather, resist, or recover from the impacts of a hazard in the long-term as well as the short-term.” Thus, there is considerable difference in emphasis from researcher to researcher on the key components behind a definition of vulnerability.

Despite these differences however, there is a common thread in vulnerability definitions that focus on the role of social structure and the individual. Blakie et al. (1994) defines vulnerability as “the characteristic of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone’s life and livelihood is put at risk by a discrete and identifiable event in nature or society” (p. 9). Similarly, Bolin and Stanford (1998) define vulnerability saying ”Vulnerability concerns the complex of social, economic and political considerations in which peoples’ everyday lives are embedded and that structure the choices and options they have in the face of environmental hazards. The most vulnerable are typically those with the fewest choices, those whose lives are constrained, for example, by discrimination, political powerlessness, physical disability, lack of education, and employment, illness, the absence of legal rights, and other historically grounded practices of domination and marginalization” (p. 9–10).

Cutter and Emrich (2006) also define vulnerability from a social standpoint, specifically indicating that “social vulnerability is the product of social inequalities” and the “susceptibility of social groups to the impacts of hazards” (p. 103). Consistent with their approach the social vulnerability index developed by Cutter, Boruff and Shirley (2003) which uses a number of social and environmental factors to attempt to calculate a quantitative measure of an individual’s

vulnerability. Their approach also sets the stage for better understanding what factors most contribute to vulnerability.

Factors for Vulnerability

Just as the definitions of vulnerability are broad and variable, so too is the list of factors that have been identified in the literature as contributing to increased or diminished vulnerability. This section will begin with a quick overview of several prominent lists or approaches and then identify common themes and gaps. This discussion will provide a framework for a subsequent analysis of the factors which respondents use to describe vulnerability.

Lists of factors affecting vulnerability vary greatly in their specificity, their connection (or lack thereof) with some sort of theoretical framework, and their focus on a given unit of analysis (e.g. individual or society). For example, a very broad list of relevant factors is offered by Cuny (1986). Cuny uses three basic factors to discuss vulnerability. He outlines them as physical vulnerability, economic vulnerability, and vulnerability of the social structure (p. 208–218). Zaman (1999) focuses these broad factors, beyond physical, economic and social, to include specifically factors related to amount of education or information as well as more specific environmental factors.

Vatsa (2004) presents a summary of vulnerability using four broad asset categories including physical assets, financial assets, human assets and social assets (p. 26). Godfrey (2004) sets up five systemic categories for understanding general vulnerability and the potential for impact from disasters. These include how social systems address systemic issues of education, health/life expectancy, security, social class, governance, resource allocation, and communications technology (p. 21). These categories provide a general understanding of social vulnerability from a social networking standpoint.

In contrast, Blaikie et al. (1994) discusses two models for understanding factors which contribute to vulnerability. The first model addressed is the pressure and release model. This model indicates that vulnerability is a direct result of pressure applied to an individual from the three following separate areas: Root Causes (limited access to resources, ideology or beliefs), Dynamic Pressures (lack of social support, government spending or shortfalls) and Unsafe Conditions (living in vulnerable areas, unsafe shelters, inadequate protection). Blaike et al. indicates that the combination of these pressures, creates individual or social vulnerability, in the context of a "disaster" event (p.23).

The second model addressed by Blaike et al. is the access to resources model. This model concentrates more deeply on the social and cultural aspects that contribute to disaster impacts, versus the pressure and release model, which identifies the process by which a disaster event occurs. This second model focuses on access to resources, in other words, how resources are allocated (not just money), where resources are used, and to who and how those resources will be dispersed after a disaster event (p. 46).

Bolin and Stanford (1998) set out a framework for "First World Vulnerability" that includes social class, gender, race/ethnicity, age/life cycle, migration/residency, language/literacy, political culture and social protection (p. 47–54). This general framework provides an even deeper understanding of the two models addressed above by further focusing the categories, presented by Blaike et al. (1994).

Three patterns seem to emerge in these different lists of factors which affect vulnerability. First, whether the lists are broad or specific, they generally agree on the following dimensions: physical factors, social factors, and economic factors. Second, most analysis of vulnerability emphasize either physical or social aspects and few have been able to successfully

intertwine the two, to provide a true look at the impact of social structures on physical vulnerability or visa-versa. Finally, factors associated with vulnerability vary with the unit of analysis. For example age, race/ethnicity and gender may be factors in individual vulnerability but do not have specific organizational characteristics that help in understanding organizational vulnerability. This final point is especially important for relating the vulnerability literature to college campuses.

Understanding Vulnerability at Different Units of Analysis

The above lists shift focus sometimes listing individual-level factors (e.g. race), and sometimes society-level factors (e.g. government spending), and sometimes listing factors that are sufficiently generic to apply to multiple units of analysis (e.g., financial stability). For some factors, it may be impossible or inappropriate to extrapolate findings or processes from one unit of analysis to another while for other factors, it does make sense. Therefore, it is important to examine vulnerability at its many levels in order to accurately identify which factors relate to different units of analysis. In so doing, it will become obvious that the unit of analysis of interest in the present study college/university campuses has received little attention.

Individuals

Blaike et al. (1994) discuss individual vulnerability in depth using the access to resources model. This model indicates that an individual's vulnerability is directly related to his/her access to resources, (e.g., financial, social and transportation) (p.49). Bolin and Stanford (1998) also address individual vulnerability while explaining their framework. Their factors address individual needs, or may even apply to very small groups, but would be most effective in understanding individual vulnerability. While providing a broader approach, Bankoff (2003)

describes vulnerability as "a measure of people's welfare recognizes their strengths as well as their weaknesses in determining that status" (p.19). Pertinent individual level characteristics include a variety of demographic characteristics such as gender, age and race.

Cities

Just as individuals can be more or less vulnerable, compared to other individuals, so can governmental units. For example, during the International Decade for Natural Disaster Reduction, the secretariat for the United Nations set out the following categories for understanding the vulnerability of a city. These factors are identified in Table 1. The left-hand column of Table 1 shows a list of factors identified for vulnerability of a city. The right-hand column includes more detailed explanations of the factors as they would apply to a city.

Table 1. Vulnerability of a City

Factor contributing to vulnerability	Explanations of Factors
Hazardous exposure of the location	Referring to geographic location
Economical and political relevance of a city	Amount of support and attention provided
Physical vulnerability	Specific structures and infrastructure
Urban management capacity	Zoning and strategic planning
Dependency on infrastructure	Infrastructure complexity and size
Density of population	Number of people concentrated in an area
Poverty and disasters	Effect of income variation on disaster impacts
Informal settlements at risk	Temporary or alternative buildings/infrastructure
Ecological imbalance of the urban environment	Land use planning and improper use

(Boulle, Vrolijks, and Palm, 1997, p.180–182)

Societies

While some individual and city-level factors also are relevant to the vulnerability of large societies, there are vulnerability factors that are uniquely relevant to larger societies. Shifting demographic patterns within a larger society is one such example. Specifically, Abromovitz (2001) lists two types of population shifts in the U.S. which contribute to vulnerability. First,

highest population growth tends to be in coastal states, whereas many inland states are seeing population declines especially among young adults. Second, increases in population and technological complexity necessitate substantial increases in the amount and complexity of our built environment (p.23). These shifts seem to illustrate the potential for our societal decisions to contribute to broad human vulnerability.

Organizations

We have examined factors relevant to individual, city, and societal-level vulnerability but information on organizational vulnerability is noticeably sparse. There are a number of related literatures dealing with organizational response to threats (e.g. high reliability organizations and learning organizations) as well as information in business management on overall product or service continuity in disasters, but these primarily address other challenges related to continuity of operation.

Application to Current Study

One of the challenges of addressing vulnerability in the present study is that vulnerability is predominately defined at the individual level rather than at an organizational level. This can pose a particular challenge when attempting to address the vulnerability from a utilitarian standpoint as much of emergency management is currently doing. This applies specifically to universities as they consist of dense and ranging populations.

For this reason it is necessary, as Blaike et al (1994) and Cutter and Emrich (2006) begin to address by applying what we know in an individual level to organizations. Based on the literature reviewed for this study the following aspects can potentially be established as logical

factors that may inhibit or contribute to the vulnerability of an organization. These factors include Social, Economic, Environmental and History.

Social: Social aspects include the availability of social support structures (e.g. professional organizations), the proximity to related organizations or branches (e.g. multiple hospitals in same city), and policies or procedures about social interaction of group members (e.g. holiday parties, softball teams)

Economic: Economic aspects include the financial ability for an organization to take steps to prepare, respond or recover from disaster impacts. This could include an organizations own resources as well as the availability of financial supports such as government subsidies.

Environmental: Environmental aspects include the proximity to hazards or potential damage or risk in which the organization exists.

History: Historical aspects include the past history of an organization including the experience of the members of the group who are in a position to change or modify the organizational stance on a particular hazard.

These factors provide a logical grouping of potential reference points from which to view vulnerability at the organizational level. Although these factors are reflected in the literature and follow logical breakdowns, this does not mean that individual emergency managers within an organization will view vulnerability through these categories. The experiences and networks of their socially constructed environments may lead them to identify alternative factors. This may be especially the case for emergency managers on college campuses. College campuses may face both individual and organizational vulnerabilities.

The above expansion from the classically individually based vulnerability to a more organizationally based approach allows for a clearer understanding of what college emergency

managers face. Because they often serve young diverse populations universities may provide many essential functions to those individuals, including food, shelter, information, academic and personal counseling, and, in some cases medical care.

Universities are also very complex organizations with associated organization vulnerabilities presumably similar to those factors listed above. A true understanding of vulnerability is the key to emergency management success, especially when identifying potential vulnerabilities. However, the purpose of this study is not intended to define or analyze the campus identified factors of vulnerability, but rather to understand the individual's perceptions of vulnerability in an organizational setting.

Preparedness

Introduction to Preparedness

Preparedness has been classically accepted as one of the four phases of emergency management. This phase typically encompasses the actions undertaken before a disaster occurs to eliminate or lessen the potential future impact of disasters. These actions range from broad to very specific, including planning, warning, resource acquisition and training/education. Preparedness is closely related to the mitigation phase which primarily focused on actions taken after a disaster to reduce impact the next time that kind of disaster hits (e.g. dams, levees, structural reinforcement).

Most discussions of preparedness focus on communities, however this paper will concentrate on organizational preparedness. There is little literature which refers directly to organizational preparedness, but it appears society wide preparedness models are of use in working with organizations in the field of emergency management. Research on preparedness

will be presented to discuss the potential overlap between community and organizational components of preparedness and to set the stage for examining practitioner views on college or university campuses.

Components of Preparedness

Mileti (1999) indicates that the purpose of disaster preparedness is to "anticipate problems in disaster so that ways can be devised to address the problems effectively and so that the resources needed for an effective response are in place beforehand" (p. 215). Tierney (2003) reiterates the latter by suggesting that actions undertaken before disaster impacts can play a role in enabling social units to respond actively when a disaster does strike.

Tierney, Lindell, and Perry (2001) indicates that some actions or dimensions that may be undertaken include developing plans, training employees and response personnel, and acquiring needed supplies, equipment and material (p. 5). In addition to Tierney, Lindell, and Perry's list, Waugh (2000) also includes mutual aid agreements, resource management efforts, and public information (p. 12). Lindell and Perry (1992) define preparedness actions as "those undertaken to protect human lives and property in conjunction with threats that cannot be controlled by means of mitigation measures, or from which only partial protection may be achieved" (p. 13). Kirschenbaum (2002) proposes the following components for understanding the level of preparedness of an individual or group: physical attributes, access to knowledge, planning, protective behavior (p. 9). Quarantelli (1997) summarizes previous research and proposes a ten point approach for preparedness planning including the following: view disaster as different from accidents or minor emergencies, highlight process rather than product, adopt a multi-hazard, approach, build a model for coordination, focus on general principles, assume potential victims will react positively, emphasize intra and inter organizational integration, encourage appropriate

actions, build on social science research, and keep the other three phases in mind while making preparedness decisions (p. 41).

Research on Preparedness in Organizations

Most of the community level preparedness components could just as easily be applied to organizations, but are they? Kovoor-Misra, Zummato, and Mitroff (2000) found in the organizations that they studied that preparedness actions primarily centered on the five areas addressed in the chart below.

Table 2. Organizational Preparedness Actions

Categories of Preparedness Actions	**Explanation of Categories**
Core Technology	Use of Technical Systems to Prepare for Disasters
Education	Some Technical Background of Upper Management
Function in Power	Function or Background of Individuals in Charge
Past Experience with Crises	Types of Crises Experiences of Organization
Structure	Parallel Structures to Existing Organization for Crises

(Kovoor-Misra, Zammuto and Mitroff 2000 p.48–49)

The areas in Table 2 provide unique subcategories that go beyond the existing areas typically included in preparedness. The list provides a nuts and bolts understanding of how organizations approach the challenges of preparedness. This approach can provide a unique window into how organizations interpret vulnerability to prepare their organization for future events, providing an interesting empirical reference point for the present study.

Similarly, Fowler, Kling, and Larson (2007) surveyed individuals in different levels of multiple types of businesses about their perceptions of preparedness level within those businesses in order to test several preparedness hypotheses to address some perceptions of

potential differences in organizations. Three of the hypotheses relate to our focus on universities. These include the following hypotheses. First, organizations located in higher density populations will have a higher perception of crisis preparedness than organizations located in lower density populations. Presumably, such high density settings need more preparedness work and higher perceptions would be the product. Their survey data indicated that there was no statistical difference in perception when comparing the densities. Second, For-profit organizations will have a higher perception of crisis preparedness than nonprofit or public (government) organizations. Supposedly, profit concerns will drive preparedness. The survey data results indicated the reverse with a significant mean difference with public organization employees having a higher perception of preparedness. Third, organizations with more employees will have a higher perception of crisis preparedness than organizations with fewer employees. This was true only when comparison involved very large organizations above 500 employees (p. 91).

Fowler, Kling, and Larson's (2007) study provides a general background for the present study. These researchers focused on perceptions of preparedness as this study will. However, the present study differs in the focus on emergency manager's perceptions rather than organizational members or leaders and the present study will be more concerned with the content and structure of the preparedness perceptions. Nevertheless, the campuses to be studied do differ in size (as well as many other uncontrolled factors) and it will provide insight to see if emergency managers at larger universities are (similar to the larger organizations in hypothesis three above) provide more elevated perceptions of preparedness than emergency managers at smaller universities.

Disaster Preparedness at Colleges or Universities

Very little research existed twenty years ago on the impact of disasters on universities in general, and even less appeared to exist on preparedness at universities. Over the last 15 years, that has begun to change as a new cohort of researchers have turned their focus to their own universities. One of the cornerstones of this growing body of research is a project started by the Federal Government called Disaster Resistant Universities or DRU.

Hands on application and basic research have led to a substantial number of recent Workshop presentations such as Gall's (2013) presentation addressing methods to use research tools to further push and improve the DRU concept, and Brown's (2013) presentation comparing the impact of DRU style planning on two Canadian universities. These along with others (Brown & Stewart 2011, Cunningham, Slaughter and Shows 2013) have been presented at a number of Disaster Resistant Universities Workshops including events in 2011 and 2013, and continue to expand and contribute to the body of knowledge related to emergency management at colleges and universities. In addition to these practical presentations a variety of authors have contributed valuable information to the field in the form of graduate degree projects, and journal articles. Yemaiel's (2006) paper provides historical foundation by detailing the creation of framework for Disaster Resistant Universities identifying the innate challenges to the varied implementation of these types of projects. Sherman-Morris' (2010) study focuses on the preparedness measures, primarily warning dissemination regarding a tornado event on the Mississippi State University campus and the response of students and faculty to that information. Garret's (2006) study uses the DRU framework to reassess the campus Mitigation Plan for University of New Orleans following Hurricane Katrina. Taylor, Beavers & Bennett's (2008) study documents the University of Tennessee, Knoxville process to complete a Mitigation plan through the DRU

framework. Similarly, Human, Palit, & Simpson's (2006) study focused on the University of Louisville's risk assessment and program building approach to meeting the DRU goals.

A number of unfortunate security events on higher education campuses have also spurred additional discussions in preparedness to security events in particular, like Rasmussen and Johnson's (2008) report for The Midwestern Higher Education Compact on the impact of the events at Virginia Tech. These events will likely receive continued study due to their physical and psychological impact on Universities, and their faculty, staff and students.

However, while the DRU initiative entails a number of "preparedness" type processes, including planning meetings, resource inventories, and other public information efforts, it is funded and operated as a mitigation program, leaving it sometimes less focused on planning and information and more focused on the projects and producing a Mitigation document. As highlighted in Kapcu and Kohsa's (2013) study disaster resiliency and preparedness are impacted by the entire gamut of disaster phases showing intimate ties to a number of factors, including; all-hazards comprehensive emergency plans, continuity of operations, emergency information management, leadership support, community partnerships, and training and certification programs.

Thus, with the hard work of researchers the gap in literature on preparedness at a university level is continuing to be filled, and along with the spring of literature in preparedness directly or in-directly related to the DRU project, there also has been an increased focus on research with universities as vulnerable populations, like Lad, Gill & Marszalek's (2007) study on the impact on college students as a result of evacuation and related issues for Hurricane Katrina. Lovekamp & McMahon's (2011) study on the impact on students of a 2008 tornado at Union University. Mackey, Gilmore, Dabner, Breeze and Buckley's (2012) study even went as

far as evaluating the value of blended learning environments to create academic resiliency for students and faculty who might be impacted by a disaster. There is also a growing area similar to this studies focus, primarily looking at the impact or perceptions of staff and faculty. For example, Ozmen's (2006) study evaluates the level of preparedness for primary schools for earthquakes as perceived by principals. Also, Fillmore, Ramirez, Roth, Robertson, Atchison, and Peek-Asa's (2011) study focusing on the experiences of university officials following the 2008 flooding in Iowa. Finally, Weatherall's (2013) study assessed hurricane preparedness among residential staff at LSU following Hurricane Isaac. The once monumental gap in literature continues to close as researchers begin to address the need for additional literature dealing specifically with our nation's higher education institutions.

Vulnerability and Preparedness

Vulnerability and preparedness are not often written about together, although the two can be intimately woven within an understanding of the disaster phases. Healy (1969), for example, does discuss the importance of analyzing vulnerability in such preparedness actions as planning. He is especially concerned with two types of vulnerability. These include internal vulnerabilities, those within the organization, and external vulnerabilities, or those that can impact the organization from the outside (p. 3–5). But, such a connection between vulnerabilities and preparedness remains at a very broad level.

The challenge of the final research question of the present study is to ask whether perceptions of vulnerability and preparedness match. Vulnerability literature may focus on mitigation specifically but may allow very few direct connections between preparedness and vulnerability. Similarly, the preparedness literature seems to assume vulnerability, but is often glossed over or not discussed. This study strives to contribute by examining to what extent

perceptions of vulnerability and preparedness are linked by emergency managers with Kirschenbaum's 2002 factors as the primary review tool.

SECTION THREE: METHODS

Sample

This research project uses a non-random or purposive sample in order to examine the perceptions of individuals at Higher Education Institutions in the Red River Valley. A number of in-depth interviews, at least one per campus, were done using the procedure detailed later in this section. The universities have been selected based on their location in the Red River Valley. These institutions have varied characteristics and infrastructure but share common geographical and cultural domains. In order to standardize the methods for each school, the present study utilized a standardized entry point of the Occupational Heath and Safety offices at each college/university. This survey contacted North Dakota State University (Fargo, ND), University of North Dakota (Grand Forks, ND), North Dakota State College of Science (Wahpeton, ND), Minnesota State University Moorhead (Moorhead, MN), and University of Minnesota Crookston (Crookston, MN). Institutions received an introductory letter with from the interviewer and the study advisor providing basic information about the survey as well as contact information for the questions and advising the institution of a specific time period in which they will be contacted. This letter also covered necessary Institutional Review Board topics including data confidentiality and voluntary participation.

Procedure

Institutional Review Board approval for completion of human subjects study was received and later renewal was obtained as required to complete the surveys and data analysis portion of this study. A few days after Colleges/Universities received the introductory letter

follow up phone calls or emails were completed to identify specific individuals and provide additional information to interviewees and set up specific times for phone interviews.

Interviews were recorded using an electronic recording device. A simple broad questionnaire was used with probes to provide detailed information for specific questions. This broad questionnaire provided an opportunity for individuals **to** provide in-depth information about both vulnerability and preparedness.

Questions

The broad questionnaire was structured using eleven open ended questions. Questions covered topics including: types of disasters likely to strike, discussion of vulnerability, and preparedness as well as actions associated with preparing for a disaster. Questions about campus hazard perception are followed by sets of questions about perceptions of vulnerability and preparedness. The survey guide is included in its entirety in Appendix One.

Data Analysis

The electronic files recorded during the interviews were transcribed to allow for in-depth analysis of the information provided by respondents. This was done to capture a snapshot of the respondents experience though anecdotal quotes and qualitative thematic analysis. This process strived to identify both similarities and differences in the responses provided by interviewees from the different colleges/universities. The responses were examined to look for similarities and potential future study areas as compared to information already available in literature. This study's hope is that continued study will allow for additional insight into the differences between colleges/universities as well as differences between these types of institutions and other businesses and education entities.

SECTION FOUR: FINDINGS

Each of the questions in the survey guide are presented in the order they were provided to the respondents, the findings below illustrate thematic analysis supported by direct quotations from the respondent's answers.

Primary Responsibility for Emergency Management

Respondents were asked: "What areas/Departments on your campus are primarily responsible for Emergency Management?" Respondents' answers varied widely, indicating the following areas, grouped by respondent, as primarily responsible for emergency management:

- Respondent indicated that "Public Safety" was primarily responsible on their campus.
- Respondent indicated that together "Human Resources" & "Campus Police" were primarily responsible on their campus.
- Respondent indicated that the "Emergency Management Department" was primarily responsible on their campus.
- Respondent indicated that the "Emergency Management Department" with the help of the "Building Safety and Security Representative Program" were primarily responsible on their campus.
- Respondent indicated that the "System wide office of Emergency Management" was primarily responsible on their campus.
- Respondent indicated that "all of them" were responsible on their campus. Respondent went on to indicate that "all departments know they will be playing some sort of role" in an emergency situation.

The data indicated that three respondents report that at their institutions a dedicated Emergency Management office was primarily responsible, with others indicating that all departments or other related departments had primary emergency management responsibilities assigned to them.

Hazard Perceptions

In this section respondents were asked to provide information on the hazards they perceive their campus could be impacted by. First, respondents were asked the question: "What types of hazards do you think are most likely to strike this campus?" Most likely hazards provided, grouped by respondent, are outlined in the following list:

- Respondent indicated that "lockdown, armed intruders, you know the shooters sort of thing, and there is always severe weather" were the most likely hazard for their campus to face.
- Respondent indicated that "regular flooding of course, but any type of severe weather" was the most likely hazard for their campus to face.
- Respondent indicated that "certainly the most frequent would be instances of weather or other natural disasters, those are the ones we have the most experience with" was the most likely for their campus to face.
- Respondent indicated that "severe weather, being that summer or winter" was the most likely for their campus to face.
- Respondent indicated that "Weather is our primary hazard" indicating their campus was most likely to face that type of event. Respondent also went on to list other hazards saying "but there is a potential for structure fire, we have an interstate on one side of the

campus and a busy railroad spurs on two sides so there is some potential of a derailment or an accident involving transportation."

- Respondent indicated a wide variety of likely hazards, saying "we definitely have a slew of natural disasters, and also have a slew of technological disasters that could impact our university such as an IT stoppage or even power outages."

Respondents' answers identified both man-made and natural disasters, although all respondents uniformly indicted severe weather as a likely hazard somewhere in their responses. The majority of responses seem to reflect the types of hazards that are encountered regularly in the geographical area surveyed.

Respondents were then asked the question: "What do you see to be the most serious hazards for your campus?" The following list, grouped by respondent, outlines the most serious hazards provided by respondents:

- Respondent indicated that "security" events were the most serious hazard their campus faced.
- Respondent indicated that "active shooter or traumatic death" events were the most serious hazard their campus faced.
- Respondent indicated that a "catastrophic terrorism incident" type events were the most serious hazard their campus faced.
- Respondent indicate that a "terrorist attack" type events were the most serious hazards their campus faced.
- Respondent indicated that a "Weather" events were the most serious hazard their campus faced.

- Respondent indicated that an “IT incident” events were the most serious hazard their campus faced.

Most of the surveyed respondents perceived their most serious hazard on campus to be man-made, with weather being perceived as another serious hazard. Each respondent that identified man-made disasters went on to address the potential impacts of that kind of event, not only on the institution but sometimes also on the community around it.

The last question in this section to respondents was: “What additional hazards could your campus experience?” This provided an opportunity for respondents to address items that may be more on the periphery of planning and response, but that they perceived as a threat to their college/university. The following bullets, grouped by respondent, illustrate additional hazards respondents identified their campus could experience:

- Respondent indicated their campus was preparing for and could also experience “Fire, summer and winter storms, hazardous materials, and security incidents.”
- Respondent indicated their campus was preparing for and could also experience “Earthquake, airplane crash, active shooter, severe weather, electrical loss, and bomb threat.”
- Respondent indicated their campus was preparing for and could also experience “Cybersecurity and cyber threats.”
- Respondent indicated their campus was preparing for and could also experience “Active shooter, hazardous materials, terrorism, fire, system outages and medical and weather emergencies.”
- Respondent indicated their campus was preparing for and could also experience “Flooding and emergencies requiring community to shelter.”

- Respondent indicated their campus was preparing for and could also experience “Active shooter” hazards.

The responses to this question varied widely, including items that were identified by respondents in the most likely and most serious questions, as well as others that were not commonly found like earthquake and airplane crash. This seems to indicate a general shared awareness, and an understanding that colleges and universities are as vulnerable as the jurisdictions they operate within to a variety of hazards.

Perceptions of Vulnerability

In this section respondents were asked questions regarding their perception of vulnerability related to college/university campuses. This section intends to identify the information respondents use to form their perceptions of vulnerability on their campuses.

First, respondents were asked the question: “How vulnerable do you believe your campus is to the hazards discussed above?” The following list, grouped by respondent, illustrates perceived vulnerability to the hazards identified previously:

- Respondent indicated that when they started they had “words on paper, but practical applications weren’t put in place.” Respondent also addressed challenges with “Minnesota or North Dakota nice” relating to security on campus. Respondent went on to identify mitigating factors on their campus including “Consolidated communications, to streamline updates and worked with partners to get community responders familiar with campus, keep it simple for general public.”
- Respondent indicated “City put a lot of work into mitigation to minimize impact of floods, and have good plans in place for weather emergencies, primarily a residential

campus with a relatively small number of commuters." Respondent also indicated the campus has "completed a full scale active shooter exercise, but the negative impact would be incredible and each situation is so fluid it is difficult to plan for a specific event."

- Respondent indicated that there is "significant vulnerability for Midwest campuses due to the perception of everyone being so darn nice especially since they are meant to be open places to exchange ideas and learn."
- Respondent indicated that the "cultural draw of programs added to vulnerability especially related to cyber security, with foreign students possibly getting pressure from home to provide information; and increased vulnerability as a result of continued push for higher education to be more research oriented, including energy."
- Respondent indicated feeling that they were "less vulnerable because they took the time to plan, and users hopefully would disseminate it well and people would look back and say we did everything possible to reduce the risk and prepare for the worst." Respondent believed that their planning would allow them to "supply at least the basic services to their campus regardless of the scenario."
- Respondent indicated that he felt they were "extremely vulnerable due to the issues that are innate in universities, including the openness of campuses and challenges with obtaining funding for structural, security, and other improvement projects to mitigate risks before they occur."

Respondents' answers identified items that increased as well as decreased overall campus vulnerability to man-made and natural disasters. Some themes that began to appear in the limited data relate to items both on and off campuses. These themes included increased vulnerability as

result of a perception of openness and "nice" communities and a cultural draw from the rest of the world for some specialties based on exciting research opportunities in the Midwest. Respondents also addressed potentially higher proportion of on-campus students and challenges in funding or justifying expenditures for improvements as themes in increasing vulnerability to campuses. Respondents indicated that some actions of their campus as well as the jurisdictions they operate in reduced their vulnerability as well. Themes identified by respondents that reduced vulnerability included things like: continued plan and program development, physical mitigation efforts, and exercises.

Next, respondents were asked the question: "What kinds of vulnerabilities do you feel are unique to universities and colleges?" Summaries of vulnerabilities, grouped by respondent, are illustrated in the following:

- Respondent indicated a unique vulnerability was the ease which a "perpetrator can easily blend in with students."
- Respondent indicated that a not being a "research institution per se" meant they had far fewer vulnerabilities than schools that participated in those kinds of activities, although respondent did reflect that a "disgruntled previous employee" being their biggest fear.
- Respondent indicated that institutions are uniquely vulnerable because "by their nature they [universities] are places that are open exchanges of ideas, but I would add they are also places of diversity."
- Respondent indicated that they believed as government tries to balance cost with research dollars "universities and academia will play larger and larger roles." Thus making universities vulnerabilities a continually changing area." Respondent also indicated that

diversity as well as the number and long term goals of foreign students may add to the vulnerability of colleges and universities.

- Respondent indicated the "biggest vulnerability they felt universities and colleges had was the residential population."
- Respondent indicated that the biggest vulnerability for universities was "students as a vulnerable population." Respondent went on to say that "since they live on campus they are more of a concern both for the university and for the community if disasters happen."

Respondents' answers seemed to focus on a single theme, with all of them focusing in some way on the impacts of colleges and universities as open environment. This includes challenges related to the origins of students, openness of campuses, and reliance of students on university services. One respondent also focused on challenges associated with competing costs of operations and research when decisions are made on campuses as a factor.

For the last question in this section, respondents were asked: "What aspects of your college or university do you feel create/reduce vulnerabilities?" Summaries of items that create and reduce vulnerability, grouped by respondent, are captured in the following list:

- Respondent indicated with "less research, vulnerability is greatly reduced." Respondent went on to indicate the presence of a "daycare", the "building is secured," but they still felt it increased their vulnerability. Also indicated reduced vulnerability with "less focus on athletics than at some other universities."
- Respondent indicated that a smaller population reduced the risks, especially in helping to get awareness of events out quickly. Respondent felt risks were reduced further since their college or university was "non-research, non-military" so it wasn't "contested or

controversial." Respondent also indicated that due to length of programs, students may not have time to develop "any long-term hatred or extreme history."

- Respondent indicated that location increases vulnerability "[sic] cause we are complacent" due to "less action going on here." Respondent also indicated that location can also mean "more natural disasters" in the upper Midwest, but pointed out we don't have "tsunamis." Respondent also felt that the higher degrees including PHD's created more vulnerability "largely because of the types of activities that go on at doctoral granting institutions." Respondent went on to indicate that diversity can also create additional vulnerability. Although respondent did not feel that public or private makes a difference, they did indicate that the kind of degrees offered and public and private partners on and around campus could increase risk.
- Respondent indicated that vulnerability was reduced due to working with lots of different agencies, including having a "senior emergency manager" and the "awareness of the executive council, departments and the Building Safety and Security Representative Program." Respondent also indicated that the vulnerability was reduced due to "knowing the essential functions for academic and research worlds at the university, to allow prioritization when necessary."
- Respondent indicated that "population size" and "participation in university system resources" as characteristics that reduced vulnerability, but indicated that they may be shorthanded as a smaller institution.
- Respondent indicated that they might have "more safeguards being public including access to funds if necessary" providing for reduced vulnerability, but suggested that population plays a role, indicating that the "more students on campus, the more

vulnerable we are." Respondent indicated that having higher degree level offerings might help by providing additional people on campus who "more aware of the threats" or may be more engaged than universities offering undergraduate courses. Respondent also indicated proximity to natural hazards like rivers may make schools more vulnerable.

Respondents' answers identified items that increased as well as decreased their perception of their overall campus vulnerability to man-made and natural disasters. In some cases the same aspects were identified as having impacts both directions. Nearly all respondents seem to have indicated they believe that as population increases vulnerability increases as well, although one respondent seems to indicate a perception that the mix of degree level may actually create an inverse impact, creating more awareness. Respondents also point out the amount and type of activities as being related, including things like degree level and average length of degree. Respondents also indicated they felt access to resources, proximity and occurrence of hazards, and extent of planning and exercising also had impacts on their perceived campus vulnerability.

Perceptions of Preparedness

In this section respondents were asked questions related to their perception of preparedness activities, completed or planned, to their college/university campuses. Questions in this section identify preparedness projects through the eyes of respondents.

The first question in this section asked respondents: "In what ways has your campus prepared for hazards?" The following summaries, grouped by respondent, illustrate ways respondent's report their campuses have prepared:

- Respondent indicated implementation of emergency notification systems including cellular, land-line, and computer notification systems. Respondent also indicated

extensive drill and exercise practice for a variety of hazards. Respondent noted the importance of working with campus occupants to "take a moment to look at where every classroom, laboratory, and department offices have evacuation and relocation maps."

- Respondent indicated implementing training in NIMS for leadership, and annual training and review of plans for updates including contact numbers. Respondent also discussed the placement of "two way radios to maintain communications" in a number of critical buildings on campus for use in the event of a disaster.
- Respondent indicated NIMS training was important and also the use of warning technologies like text messaging systems that apply across disasters to notify campus community of events. Respondent also indicated an effort to "start training from initial orientation for staff as well as students" and stressed "participation in exercises with community level" as important to knowing each other.
- Respondent indicated that response in 1997 to come "up with an emergency operations center to back up downtown and the county here at the university" was important to the foundation of current preparedness efforts. Respondent indicated work on interoperability but continued issues with responders being on the same frequencies, but the relationships are continuing to be built including "quarterly meetings" and a new MOA. Respondent emphasized that "tabletops are kind of where we are at, then start making the offer and I think we have participation then have a broader exercises where we tie a lot of those things together"
- Respondent indicated some training in NIMS, but when asked about general training indicated "not to the level we would like to be. Respondent also indicated that they have "25 tone alert radios that are located at key buildings" and a text notification system

triggered at the university system level, along with capability for campus-wide phone, e-mail message, and scrolling across the bottom of everyone's computer screen. Respondent indicated they worked on fire drills and "one tabletop quite a few years ago" but indicated that each building has three individuals who play a leadership role in the individual building plans.

- Respondent indicated information is provided in a handbook to all campus occupants, starting to get the information into their hands with "brown bag seminars and individual training sessions for departments." Respondent indicated effort to outreach about how faculty can "be looking to prepare their students during class, if its staff how they can prepare and better train their offices." Respondent noted they are "taking a top down and bottom up approach to meet in the middle having a number of drills and using a campus notification system along with telephone, email and breaking into the TV stream."

Respondents illustrated a variety of ways that they have tried to create systems to increase the preparedness of not only students, but faculty, staff and the communities around them. It is important to note that all of the established sub-categories of training, planning, warning, and exercise were included for respondents. Not surprisingly, when analyzing the frequency which themes were mentioned by respondents, the focus seems to be first on notification systems or warning followed closely by training and awareness activities. The next most common theme seems to be published, exercised and updated plans, with the focus on partnerships being the least frequent theme addressed by respondents within this data.

The next question in this section asked respondents: "What would you identify as the three or four most important things for campuses to do to prepare for hazards?" The following

list summarizes the items identified as most important for a campus to do to prepare in the order they provided, grouped by respondent:

- Respondent indicated they felt the most important thing campuses could do was implement an “Emergency Notification system,” stressing that a simple voice calling system might not be enough saying “I’m talking about something that has got to go to the students, whatever new kind of gadget they are wearing.” The second item identified by this respondent was “training,” relating this especially to preparing for violence on campus, indicating “I think that’s the thing that most parents are always worried about the most, a lot of training about what students should do and safe areas...and faculty to understand their role, which is a very important thing too.” They also indicated that a “good public safety department” was essential in that they had to “understand their roles and how to respond and prepare and gain the campus communities respect and trust.”
- Respondent indicated that they felt the most important thing a campus could do was “define and publish an emergency response plan” stressing that it is important that the process and the plan “identifies who is responsible for what activity and what is going to be accomplished.” The respondent also identified a need to “Rework or update annually” stressing that it can’t be something that is done and forgotten. Campuses need to “update that emergency response plan as your organization changes.” The third item identified was to “have buy-in from administration and leaders” so they will have confidence that the plan will work and “if plan is followed, we will have the best outcome.”
- Respondent indicated that the most important thing a campus could do was improve “internal and external communication” stressing how important it was to pre-identify “who talks to who, who calls who, how do you communicate with each other to manage

the emergency." Respondent also addressed challenges in communicating with notification systems saying "it doesn't do any good to be sending a text message to tell somebody a tornado is going to hit campus in 5 minutes if most of the messages aren't going to be delivered in 15-20 because of the delivery cycle." Going on to say "if you have a threat or warning that you need to communicate, you need to get that out and you need to make the best use of the various mechanisms that you have." The next item identified was "training" stressing it is the next logical step to improving on already established planning, saying "I think everybody's got plans, you can work them plans till your blue in the face, and they are still plans. You're still going to find a situation that is not quite perfect with the plan." Respondent went on to stress that although a scenario may never match a real event the respondent went on to say "what you can find so much value in and I just think is irreplaceable is getting people to ask the right questions, when they find themselves in situations." The final item identified was "exercise" saying "not because exercise makes you good, but because the exercise creates relationships. Relationships are huge." Respondent went on to say, "I can't tell you I have honestly learned a whole lot about how to fix something in an exercise, but I have created so many networks of people I can call one. I know that if I am standing out there dealing with an emergency, I know these people's faces, I've worked with them before, we've drank a cup of coffee together, and we are going to get it done this time."

- Respondent indicated "exercise" was the most important as "it helps synchronize, not only the thought process in how you respond to hazards, but it actually gives us practical application to do that." Respondent indicated that "participation in planning process" was next most important saying "if you don't have a plan at this point you can at least

heighten everyone's awareness about how to react to hazards." Respondent went on to say, "it's not so much having the plan but the process of planning where you have parts of the university, the institution working together to come up with the common plans." The final item was "identifying outreach tools" stressing the importance of making sure effort is made to establish and create "appropriate websites and tools and capabilities available that you identified through planning and exercises" that get the information out to all stakeholders.

- Respondents indicated "strategic planning" was the most important to "have a current accurate plan" especially to keep up with "constantly changing federal and state requirements for the style of emergency management plan." Respondent indicated a strategic direction was important as "there have been two updates to the [University System] plan but they haven't got ours all switched yet." Respondents also indicated that "communicating the plan" was the next most important saying especially to "communicate it with key partners that play a role." Respondents indicated that next was "practicing the plan" stressing to "practice it, at various levels and at various size events."
- Respondent indicated the most important thing campuses could do was establish a "dedicated staff position" saying "we need full time emergency managers or full time continuity of operations planners, if it's just a hat that someone wears, it doesn't do it justice." Respondent went on to point out that they were "not saying the people that have worn the hat up until I came have done a bad job, they have done a great job with what they had and the time they have had." Respondent pointed to "information distribution" or outreach saying it was next most important to "make sure information is flushed out and understood by everyone, meaning the staff, students, and the faculty." Finally

respondent pointed to “training” as an important component to preparing a campus stressing the importance of integrating emergency response plans saying “it’s incorporated into their training, incoming students allowing more time for them to become familiar with the plans, and for staff and faculty incorporate into their yearly base training, so that it’s not only just fleshed out to them, but to make sure they have a responsibility to actually be as safe as possible.”

Respondents varied greatly in the items they identified as most important for campuses to prepare for hazards. All respondents indicated communication or relationships in some fashion as an important aspect of preparing a campus. In addition, five respondents included training and exercising processes in their list, and four respondents included the planning or revision process in their lists. Interestingly, beyond the communication focus, items related to staff and understanding of their duties were also reflected in three respondents’ lists.

The next question in this section asked respondents: “Does your college/university have any of the following; dedicated police/security force, dedicated fire department, dedicated emergency medical services department, and a dedicated emergency manager?” The following list outlines their responses grouped into capabilities for all respondents:

- When asked regarding dedicated police/security force, respondents from four institutions indicated “Yes” and one indicated “No”.
- When respondents were asked regarding dedicated fire & emergency medical services respondents from all five institutions indicated they rely on city fire and outside emergency medical services.
- When respondents were asked regarding a dedicated emergency manager respondents from two institutions indicated they currently had a full time emergency manager with

three indicating their emergency manager either served multiple roles or was shared with multiple campuses.

The indication that the only responders on a campus at any given time is likely police/security, may best illustrate some of the challenges that campuses are faced with when trying to prepare for emergencies and disasters.

The final question asked respondents: “What do you perceive as barriers to implementing preparedness measures based on vulnerability on campus?” The following summaries, grouped by respondent, indicate the items identified as barriers to implementing preparedness measures:

- Respondent indicated that the barriers on campus to implementing preparedness include staff “getting frustrated with the politics of just trying to get things done.” Went on to illustrate talking about “teaching a guy today that’s been here eight years how to conduct a fire drill, and they have always been their responsibility.” Pointed out that often “everybody is wearing their own disciplined hat,” and that there are “some people over here that believe it is not my job to worry about the lives of others and so they will hide behind that.” Another barrier identified was “where is the money and who is going to pay for it,” stressing it isn’t always easy to justify the costs associated. Respondent also addressed turnover as a barrier saying “bring in all these new people they have to try and prove themselves, and there is nothing to prove, they should start working with the people that know what’s going on and know what’s in place.” Respondent also stressed that in order for outreach to succeed “there has to be a want for that information, I can talk till I am blue in the face, that’s the one things that I have learned, if you try to force it upon them, they will just tune you out, it’s almost like baiting, you just throw it out and if they want more have them come ask.”

- Respondent indicated “I believe because disaster type situations don’t happen on a regular basis, individuals who participate in training don’t necessarily take that training very serious or are hesitant to attend the training due the limited use of the training.” Respondent went on to point out another barrier may be the “training and the time commitment, I can see it from a financial perspective as far as an investment, the more bang for your buck you’re going to get out of the day to day activities isn’t because you deal with them on a day to day basis, however long term financially, being prepared isn’t going to cost you more in the long run.” Respondent also indicated that “another barrier would be the public, if you want to use the term public, non-law enforcement, non-emergency responders understanding why emergency response is done the way it’s done”
- Respondent indicated one barrier, saying “money, finances it costs money to prepare and exercise and do all the things we all know we should do, it is harder to spend money on things when there isn’t a definitive need immediately.” Respondent also identified another barrier saying “complacency, up in the Midwest we are just very complacent people, I know tons of people who don’t lock their car, don’t lock their homes , they like the way of life, it’s lower crime as related to other parts of the U.S. and people think these things don’t happen here.” Respondent also noted that “finding the balance and trying to take advantage of things that don’t cost a lot of money, there are some ways to deal with some barriers”
- Respondent indicated a potential barrier saying “resourcing, one of the things emergency management and the planning that goes with it like you say is fairly new to a lot of institutions even the private sector, it is fairly new to come up with some sort of business continuity plan, the awareness isn’t there, but this a resource problem too.” Respondent

went on to say as “Emergency Management is fairly new as a field. It is building that awareness that the president, his executive leaders and deans are aware that there are need we have to compete with and that emergency management does impact all areas of the university.”

- Respondent indicated that one barrier was “communicating it to other key players, it’s not just, if there is an emergency call [respondent], other individuals that need to be aware of their roles in emergencies and how to handle it.” Respondent indicated a barrier was implementation saying “we have a structure on paper but have not been able to get it organized, sit down with all the players and inform them of their roles and be able to practice.” Respondents also indicated that another barrier was “they make good models to fit our campus, but we don’t have any staff or personnel, we don’t have any full time constant 24 hour full time security or other resources we could use, but we are doing the best we can with the lean mean machine we have.” Respondents also pointed out the challenge of “the human factor, people respond differently to different situations,” going on to also address the challenge of various rules that apply to higher education saying “We are also governed by what we can do, sometimes things we like to do are contraindicated by rules like FERPA, HIPAA, and the like and I don’t think lots of entities have to deal with that.”
- Respondent provided a single barrier saying “we need backing at the university system level, we need the back understanding to facilitate the push down, um we need someone from up on high to be able to understand and really drive what we are trying to do on the campuses.” Respondent also pointed out that it isn’t just at the system level saying, “we need more involvement from the executive levels from the university, I’m not saying that

> our executive level is unaware…if they could be involved just a little bit more, were able to really drive the message a little bit more we would have a little bit better level of understanding." Respondent indicated the importance of support or buy-in saying "we need them to echo the message, and echo it from their mouths, and not just being an assumption that they are backing us."

Each respondent provided a different take on what exactly was a barrier to implementing preparedness efforts, providing a variety of answers each with their own background and story. The most apparent theme that is common in some form through all the respondents is resourcing, be that support and involvement in the process, financial resources, and allocation/dedication of staff to create and implement programs and initiatives. Three respondents also identified perceptions or opinions of people as a barrier, pointing to challenges associated with working with the diverse group of people necessary to implement successful preparedness efforts. Respondents also indicated the process of implementation can be a challenge as well as legal requirements of higher education and getting stakeholders to see the information or project as valuable. Based on the previous question, dedicated emergency managers on only two of the five campuses also could contribute to the barriers addressed in this question.

SECTION FIVE: SUMMARY AND CONCLUSIONS

This study's focus was to identify initial anecdotal information about perceived vulnerability and preparedness. That information was then used to examine any potential relationships between the two at colleges and universities in the Red River Valley. This was examined through the lens of three research questions. First, asking how do the responsible campus officials perceive campus vulnerabilities? Second, examining campus officials' perceptions of the preparedness measures that have been undertaken by their campuses and the extent to which the preparedness themes in respondents' comments parallel these established sub-categories. Third and finally, asking to what extent there is a match between "self-reports" of preparedness measures and perceptions of campus vulnerabilities. The following will discuss the findings related to each research question and potential future study areas based on these initial findings.

The first research question for this study asked "How do the responsible campus officials perceive campus vulnerabilities?" The findings seemed to indicate that responsible officials who in at least three cases were "Emergency Managers" and in other cases were housed in other departments, had a measurable grasp on the hazards their campus could likely face. This seems to be supported, in that respondents identified both man-made and natural disasters when answering question on potential hazards. Interestingly, all but one respondent indicated that their campuses most serious hazard was man-made, most indicating it is due to the impact on their campuses and the communities around them. Responses to question about degree of vulnerability seems to indicate a general awareness that colleges and universities are potentially more vulnerable to similar hazards as the jurisdictions around them, with respondents noting the "openness" of higher education and reliance of population on services provided. This was

affirmed in a related question where respondents almost uniformly indicated that campus population was related proportionally to vulnerability.

The second research question examines campus officials' perceptions of the preparedness measures that have been undertaken by their campuses and the extent to which the preparedness themes in respondents' comments parallel established sub-categories of training, planning, warning, and exercise. Respondents provided a robust list of activities (warning/notification systems, planning and revisions, training, and exercises) already underway at their campuses. The frequency of respondents focus on warning could indicate that this is perhaps the highest priority, as well as its common inclusion in the follow up question regarding a short list of things that campuses should do to prepare. The data seems to indicate that although particular campuses or programs might have a preference, they also are attempting to develop all sub-categories of preparedness actions, due to the frequency of their inclusion in the short list from a variety of respondents. Respondents identified a variety of barriers, stressing a shortage of resources as the most common theme, along with opinions or lack of understanding when working with a diverse group, and the actual process itself as barriers to successfully implementing preparedness measures as additional barriers.

The final research question asked to what extent there is a match between "self-reports" of preparedness measures and perceptions of campus vulnerabilities. This research question attempts to bridge the perception of vulnerability and the preparedness actions identified. When comparing the most serious hazard impact as identified by respondents, man-made, most commonly related to violence, and the most frequently reported preparedness action of notification and warning, based on literature included in this study among countless others produced after previous shooting incidents respondents seem to focusing on their most "serious"

hazard. Interestingly, when respondents provided an opportunity for an un-scaled list, nearly all of them provided “severe weather” as a hazard. Although warning plays a key role in severe weather incidents, in the geographic region these incidents are commonly associated with shortages of resources, specifically when respondents identified total campus population as directly proportional to vulnerability. Based on this assumption this research question would have expected to see additional focus on resource allocation or continuity of operations planning, although this may have been included in the respondents’ references to “planning” it was not specifically referenced in relation to preparing for “severe weather”

In light of the anecdotal findings of this study, this paper provides a number of areas that need additional study to better understand as a baseline the perception of the hazards and vulnerability within higher education as unique organizations, the selection of preparedness projects as they related to identified hazards, and additional focus on how the challenging decisions get made at a college or university level. This study provides a baseline for a more exhaustive review into how “emergency management” processes are handled at universities across the country, including the relationships with “local” jurisdictions, and other vital information that can provide the cornerstone for developing sound plans that keep higher education as safe as it can be while promoting the “openness” that respondents talked about.

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APPENDIX A: SURVEY GUIDE

Throughout this survey I will use the term hazard; this term is intended to encompass natural, man-made or other types of events that could have an impact on a campus.

1. What areas/Departments on your campus are primarily responsible for Emergency Management?
2. What types of hazards do you think are most likely to strike this campus?
3. What do you see to be the most serious hazards for your campus?
4. What additional hazards could your campus experience?

Vulnerability

5. How vulnerable do you believe your campus is to the hazards discussed above?
    a. Dimensions Probe-
        i. Social
        ii. Physical
        iii. Financial
6. What kinds of vulnerabilities do you feel are unique to universities and colleges?
7. What aspects of your college or university do you feel create/reduce vulnerabilities?
    a. Aspects Probe-
        i. Public/Private
        ii. Large/Small Student Population
        iii. Degree Level Technical/Undergraduate/Graduate
        iv. Geographic Location

Preparedness

8. In what ways has your campus prepared for Hazards?
    a. Dimension Probe
        i. Training
        ii. Exercise
        iii. Warning
        iv. Planning
9. What would you identify as the three or four most important things for campuses to do to prepare for Hazards?
10. Does your college/university have any of the following?
    a. Dedicated Police/Security Force
    b. Dedicated Fire Department
    c. Dedicated Emergency Medical Services Department
    d. Dedicated Emergency Manager
11. What do you perceive as barriers to implementing preparedness measures based on vulnerability on campus?

APPENDIX B: IRB RECERTIFICATION

NDSU NORTH DAKOTA STATE UNIVERSITY

INSTITUTIONAL REVIEW BOARD
office: Research 1, 1735 NDSU Research Park Drive, Fargo, ND 58102
mail: NDSU Dept. #4000, PO Box 6050, Fargo, ND 58108-6050
p: 701.231.8995 **f:** 701.231.8098 **e:** ndsu.irb@ndsu.edu **w:** www.ndsu.edu/irb

Date Received
RECEIVED
MAR 26 2014
Office of Sponsored Programs Administration

Exempt Recertification Form

Currently active exempt protocols that will continue beyond the expiration date must be re-certified by the IRB. Submit this form several weeks prior to expiration to avoid a lapse in IRB approval. Refer to SOP 7.1 Exempt Determinations for additional information.

Protocol Information

Protocol #: **#HS11174** Title: ***"Perceptions of Vulnerability and Institutional Preparedness in Higher Education: A Case Study Approach"***

Principal investigator: George Youngs, Ph.D 2/7/2014
Department: Emergency Management
E-Mail/Campus Address: George.Youngs@ndsu.edu

Co-investigator: Kent Theurer 3/25/2014
Department: Emergency Management
E-Mail/Campus Address: Kent.Theurer@my.ndsu.edu

Project Status

Project is currently active (mark all applicable): Expected end date of research: December 2015

- ☐ recruiting participants
- ☐ ongoing data collection
- ☒ ongoing analysis of identifiable data

Source of current funding: FAR# ☒ Not funded
Current Funding period: Start date: End Date:

Has a progress report been filed with the funding agency since last review?
☒ No ☐Yes, Attach copy of final grant application(s), and/or recent report to funding agency.

Research team: *List all individuals currently involved in the human subjects research (project design/oversight, recruiting participants, obtaining informed consent, intervening or interacting with participants to obtain information/data, and/or handling identifiable information for research purposes). May provide as a separate attachment.*

Name, dept. or affiliation:	Specify role in research:	Training date: (IRB Use only)
NA		

Project Summary

1. Research site(s):

Phone interviews only

2. Total # of participants:

10

3. Will additional participants be recruited?
   - ☒ No
   - ☐ Yes* – Indicate approximately how many:
   - **Attach a copy of current consent form(s), and any recruitment materials**

4. Have any potential participants declined to participate, or withdrawn from the research?
   - ☐ No
   - ☒ Yes - explain:

Some particpants chose not to particpate due to time constraints or lack of interest.

5. Have there been any complaints or unanticipated problems?
   - ☒ No
   - ☐ Yes - explain:

Investigator's Assurance

- The approved protocol on file with the IRB (which I have reviewed), accurately represents current procedures for the project.
- Changes to the protocol will receive IRB approval prior to implementation, unless necessary to prevent immediate serious harm to participants
- All unanticipated problems involving risks to participants or others will be promptly reported to the IRB.

Principal Investigator signature, date

----------FOR IRB USE ONLY--------

Project is:	☒ Certified for Continuation	☒ Category # 2	☒ Expires 4/1/2017
IRB Signature:	Kristy Shirley	Date: 3/27/14	