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An Investigation Into Hazard Mitigation Tools at Institutes of Higher Education

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AN INVESTIGATION INTO HAZARD MITIGATION
TOOLS AT INSTITUTES OF HIGHER EDUCATION

By

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Submitted to the Faculty of the Graduate College of
Arkansas Tech University
in partial fulfillment of the requirements
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Abstract

Current theories for community planning assert that multiple stakeholders should be involved to improve civic cohesion and implementation. Since an institute of higher education (IHE) operates like a town or city in many ways, it is appropriate that the emergency management planning within an IHE should engage multiple stakeholders. Emergency management planning at an IHE focuses on the students who while adults, are not traditionally valued for their input in emergency management planning.

Emergency management leaders at IHEs across the country were surveyed. Following correlation analysis, results indicated that an IHE with student involvement in emergency management planning had an increased likelihood of implementing hazard mitigation tools. The findings will advance discussions of best practices for IHEs and help to engage the most important stakeholders who, until now, have not had their seat at the table, the students. This project supports the inclusion of students as stakeholders in the emergency management planning at IHEs.

Keywords: higher education; emergency management; student; mitigation; community; planning; stakeholder; hazard; risk

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Chapter I: Introduction

If the preservation of life is the foremost goal of emergency management, then students on college campuses have a vested interest and are a major stakeholder in the emergency management process within the institution of higher education (IHE) environment (Federal Emergency Management Agency [FEMA], 2003). However, student involvement in the planning process is often absent or limited. This lack of student participation and the failure to implement hazard mitigation may be correlated. This project describes the historical context of emergency management, examines emergency management planning strategies used by IHEs, and studies the level of student engagement in IHE emergency management pre-incident planning.

Colleges and universities face a variety of potential disasters, including extreme weather, communicable disease outbreaks, vehicle accidents, or earthquakes. After the mass shooting tragedies at Virginia Polytechnic Institute and State University (“Virginia Tech”) in 2007 (Manchin, 2007) and Northern Illinois University in 2008 (Horwitz, 2008), public outcry and media coverage about possible mitigation tools were immediate. Before the massacre at Columbine High School in 1999 (Clinton, 1999), it may have been common for an educational facility not to have an emergency management plan that encompassed pre-incident (planning and mitigation) and post-incident (response and recovery) efforts.

IHEs now face public and media scrutiny regarding institutional preparedness and the processes utilized in emergency management planning no matter what type of extreme event. In essence the public scrutiny asks, what can be done to prevent student injuries and deaths from happening again (Stoller, 2013)? The crux of emergency

management at an IHE is the same as emergency management (pre- and post-incident) at a business or municipality (FEMA, 2003); the order of foci extends from the minimization of loss of life, to maintenance of property, to protection of the natural environment. Therefore, the foremost goal of emergency management at IHEs is the protection of students' lives, as well as all individuals impacted by the incident. This investigation sought to discover if students were involved in institutions' emergency management planning. The research question of this investigation was whether IHEs that involved students in the mitigation or preparedness stages of the emergency management planning process were more likely to implement hazard mitigation tools.

Definitions

For purposes of this investigation, the words disaster and emergency are interchangeable and encompass all levels of crises. Within the emergency management lexicon, many scholars have provided their own definitions for these terms (Zdziarski, 2006; Wilson, 2010); this investigation did not attempt to distinguish between the words disaster and emergency. The investigation was not focused on the varied degrees of emergencies or disasters.

According to Federal Emergency Management Agency [FEMA] (2016), "hazard mitigation is the effort to reduce loss of life and property by lessening the impact of disasters." A hazard mitigation tool, therefore, is the action or item the entity employs to lessen the impact of disasters. Examples of hazard mitigation tools are seismic reinforcements to buildings, developing an emergency response plan, or a full-scale emergency exercise. The focus of this investigation was simply, yes or no, whether students are involved in the emergency management planning process and whether the

IHE implemented a hazard mitigation tool. The investigation was not concerned with the varied degrees of disasters (duration, financial losses, or human injury and death), why IHEs involve students, or cost efficiency of mitigation tools.

Background

Emergency management at IHEs is still relatively new on many campuses even though the massacres at Virginia Tech and Northern Illinois University occurred nearly a decade ago. It is uncertain what tools (physical, planning, or human) at either campus would have prevented or mitigated the destruction caused by the shooters. However, it would seem apparent that administrators and emergency managers on campuses nationwide should have at least investigated hazard mitigation resources to protect their own campuses from similar fates.

Community planning involving diverse resident stakeholders is becoming more commonplace for municipalities compared to earlier models involving a small number of select and influential participants. IHEs may be more like municipalities (considering the students and employees as residents) with regard to the number of residents and the fluidity of their daily routines than to primary or secondary schools for emergency management planning purposes. I reviewed more than five dozen studies, articles, government reports, and respected news publications to find whether others have researched the inclusion of IHE's "residents" in the emergency management planning process. The literature suggests that student engagement improves an IHE's emergency management planning process.

Perspective

Involving students in the emergency management planning process creates an avenue for public discussion of emergency plans in the same way that the media brought the discussion of the Columbine and Virginia Tech disasters to the masses. As Horwitz (2008) notes, after the shooting at Virginia Tech, a report was made public with a list of disaster mitigation tools, including creating a threat assessment team and training students on emergency response (Virginia Tech Review Panel, 2007). Asking drafters of an IHE's emergency management plan to audit critically their own document, including the decisions on which possible mitigation tools to implement, could be viewed as a conflict of interest. Students can provide a new perspective in developing and reviewing an IHE's emergency management plan generally, and its hazard mitigation plan specifically.

Purpose of the Study

The purpose of this investigation was to discern whether IHEs that involved students in the emergency management planning process were more likely to have implemented hazard mitigation tools. The literature shows that leaders at IHEs which have been impacted by disasters, lamented for needing better communication and engagement with their stakeholders (Morreale & Kirkwood, 2002; Fillmore et al., 2010). I predicted that scrutiny of the emergency management planning process by students would make the IHE more likely to implement hazard mitigation tools, similar to the mitigation implemented at Virginia Tech due to scrutiny after that disaster. The problem of whether to involve students in hazard mitigation planning is significant to the field of emergency management because best practices for education, which have mostly focused

on primary and secondary schools, are also needed for IHEs. The survey target audience was coordinators of IHE emergency management plans. I wanted the survey respondents to be intrigued by the concept of involving students and start discussions with their administrators about which other stakeholders should be included in the emergency management planning process.

By definition, mitigation tools should reduce the impact of an emergency on people's lives, the property of an institution, or the natural environment. Failure to explore possible mitigation tools or deciding not to implement them due to challenges in budget, human capital, or technology, leaves an IHE vulnerable to the full risk of the emergency threat (Blanchard, 2008). IHEs are one of the country's strongest economic engines, so protecting their assets is important for our communities (Comerio, 2000; Lane & Johnstone, 2012).

The research question of this investigation was whether IHEs that involved students in the mitigation or preparedness stages of the emergency management planning process were more likely to implement hazard mitigation tools.

Significance for Emergency Management

IHEs strive to educate their students and prepare them for life beyond the campus. One method for achieving this is by engaging students in activities of the IHE and learning about business processes (Auletta, 2012), such as hazard identification and costs of (not) mitigating for those hazards (Federal Emergency Management Agency [FEMA], 2001). According to FEMA (2003), emergency management planners at IHEs should engage in complex discussions about the risks germane to the institution. The discussions

require the participants to analyze potentially far-reaching cause-and-effect relationships in terms of life safety, financial, social, and environmental implications (FEMA, 2001).

There are many academic disciplines at IHEs that can support students' preparation and planning participation. Not all students will choose to participate with the emergency management process during their collegiate experience, but it can be another tool for the education of students. It is important that the IHE inform all the students about the emergency management plan and the role students are expected to play. Lovekamp and McMahon (2011) reveal that students generally are unaware of their IHE's plan, but expect the institution to take care of them in distressing times. Although no single approach can be truly the one best practice for all IHEs (FEMA, 2003), this investigation demonstrates that involving students in the mitigation and preparedness phases may be a viable candidate.

Summary

The primary research question of this investigation was whether IHEs that involved students in the mitigation or preparedness stages of the emergency management planning process were more likely to implement hazard mitigation tools. The question included how implementation of hazard mitigation tools and the engagement of students in the emergency management planning were affected by such factors as: 1) two-year or four-year IHE, 2) residential or non-residential IHE, and 3) the age of the students. Zdziarski (2006) supports the inclusion of students when he states "student organization leaders...should not be forgotten in the prevention and planning phases" (p. 7). In the following literature review, I will provide a description of the emergency management cycle.

I will also establish the value of students to emergency management planning and the importance of communication among stakeholders. I provide examples of disasters at IHEs and demonstrate how planning at other organizations is relevant to higher education.

Chapter II: Literature Review

I exclusively utilized an online search for relevant literature. The predominant sources for literature were accessed through the EBSCO databases (via the libraries of Arkansas Tech University and Chattanooga State Community College), ResearchGate.net, website of the International Journal of Mass Emergencies and Disasters, and results returned from Google.com. The keywords/terms used, whether individually or in combination, included: higher education, emergency management, student, mitigation, planning, community, stakeholder, hazard, and risk. The intent of the searches was to find free documents available online that illuminated the investigation's research question: Did IHEs that involved students in the mitigation or preparedness stages of the emergency management planning process have a higher likelihood of hazard mitigation tools implementation? The literature discussed the history and theory of emergency management, the mitigation and preparedness phases of the emergency management cycle, and example disasters.

Emergency Management Origins

The origins of emergency management protocol in the United States (U.S.) came from the national and civil defense systems (Dynes, 1994). Dynes stated that the U.S. military is the source for much of the emergency management terminology that developed after World War II. The command and control model is still infused in emergency responders, and the term "Incident Command" within emergency management is an obvious connection to the military complex. To be effective, the command and control approach requires two extremely important steps: the participants must respond to commands, and the participants must allow the commander to control

their actions. In New Orleans after Hurricane Katrina in 2005, many residents did not trust government entities; the residents were neither willing to respond to the commands as the plan expected, nor willing to have their actions controlled, according to Col (2007). Dynes concludes that these military-based protocols are no longer in step with the needs of current emergency management.

Lindell and Meier (1994) surmise that the command and control model limits planning, as well as response and recovery operations by excluding resources and intellectual creativity from non-traditional assets (those not affiliated with firefighting or law enforcement). Lindell and Meier state that traditional assets are from firefighting and law enforcement. Therefore, the non-traditional assets for emergency planning at IHEs are the faculty, staff, and students. These non-traditional emergency assets can collectively be referred to as the community of an IHE. Campbell (2005) emphasizes the importance of the IHE community when she states “the term ‘community’ is synonymous with the very essence of planning,” and later explains that “effective planning is as much about planning with communities as it is about planning for communities” (p. 517). Hazards can affect an IHE and the community assets. Since hazards to the IHE are also hazards to faculty, staff, and students, then the emergency management planning should involve the IHE, faculty, staff, and students.

Whereas some may think the purpose of a plan is to show strength, Booker (2014) submits the primary reason of a plan is to discover flaws in the emergency management program. If failures in an emergency management program are not identified during an exercise, then the exercise has been a failure (Federal Emergency Management Agency [FEMA], 2015). Problems need to be rooted out and solved during the planning process,

not during an actual disaster when the losses (financially or in lives) can be greater. Booker (2014) also urges IHEs to develop organizational consistency that includes exploring non-traditional ideas. In contrast to the command and control method, Dynes (1994) suggests “continuity, coordination, and cooperation” (p. 141).

The Federal Emergency Management Agency (FEMA) (2003) describes four phases of the emergency management process: mitigation, preparedness, response, and recovery. According to Zdziarski (2006), a fifth phase of learning must be inserted to move the cycle from recovery to beginning again with mitigation. Teaching emergency management principles during the learning phase can reinforce that mitigation is the most beneficial phase (Federal Emergency Management Agency [FEMA], 2012).

Unfortunately, mitigation is often underappreciated (Zdziarski, 2006). Ideally, the emergency management planning process is cyclical for continuous improvement (Osburn, 2008). According to Gillespie and Streeter (1987), the more times the cycle is repeated, more data is collected, analyzed, and processed for a better emergency management plan.

For Kapucu and Khoso (2013) “developing an all-hazards plan, conducting regular training and exercises, and developing strong community partnerships” (p. 1) are the most important parts of an emergency management program. IHE employees are the traditional command and control for emergency management. The students and other community entities are stakeholders and need a working relationship with the IHE. Kapucu and Khoso report that community stakeholders who do not play an active role in emergency management are certainly affected by an IHE’s plans for responding to an emergency. Consequently, students are heavily invested in, and in many senses reliant on,

the actions of the IHE (Dynes, 1994). The IHE needs to create a partnership with students, far beyond them simply being subject to command and control operations.

Mitigation and Preparedness Phases

The mitigation phase begins when resources for the planning process are identified (FEMA, 2013). Decisions regarding the determination of the internal and external stakeholders, the time commitments of all involved, and the funding demands of the process are essential components in the pre-planning stage. The evaluation of existing documentation and assets is also completed prior to initiating the planning process. Documenting the resources requires institutional knowledge and the ability to catalog a large volume of information (FEMA, 2003). D. K. Sullivan, assistant director of environmental health and safety at the University of Louisville, supports using students for clerical labor in this step (personal communication, April 21, 2015).

After determining its resource assets and liabilities as described in the previous paragraph, the IHE conducts a hazard identification and risk assessment (FEMA, 2003). Without assessing hazards and the respective risks, the institution cannot efficiently work to prevent, mitigate, prepare, or respond to threats (FEMA, 2001). This is a cornerstone step regarding potential hazards, the IHE's vulnerability to the hazard, and the potential impact of the hazard to the IHE. To help numerically prioritize the risk of the hazards, FEMA (2001) suggests scoring the hazards with the equation:

$$\text{Risk} = \text{Threat} \times \text{Vulnerability} \times \text{Impact}$$

Threat is the probability of the hazard occurring.

Vulnerability is the susceptibility of the IHE to the hazard.

Impact is the severity when the hazard occurs.

The higher the Risk score, the greater effect of the hazard. If an IHE incorrectly minimizes the risk of a hazard, it may be ill prepared to mitigate or respond when the threat occurs (FEMA, 2003). Once all practical steps have been explored to mitigate the threat(s) with the highest risk score(s), then the IHE moves to the preparedness phase. Obtaining varied perspectives through discussions with multiple stakeholders will improve the depth at which the IHE can scrutinize its risk assessment. Students can assist identifying hazards, in plan development, or with implementation (Garrett, 2006).

In order to involve multiple stakeholders on an IHE campus, the stakeholders must be made aware of the IHE's emergency management plan. As the emergency management planning continues, the support from the IHE's community (employees, students, surrounding neighborhood residents, local businesses, or municipal services) is critical for success (Heathman & Wang, 2005). If the plan is updated, as supposed to occur regularly, then the IHE community must be informed. Additionally according to Heathman and Wang, "when people see or hear that an effort is being made to make things safer, they have more faith in the community, their employer and in local and state officials" (p. 12). In the case of a public IHE, many see the school as a driving force in the community, a local employer, and as an arm of the state to be held to high levels of responsibility. A private IHE may also be very important to its community.

The National Institute of Building Sciences determined that for every dollar allocated to mitigation, four dollars is saved due to decreased need for response and recovery efforts (Yemaiel, 2006). This real-life economics lesson reflects the adage attributed to Benjamin Franklin in 1735 that "an ounce of prevention is worth a pound of cure" (Keyes, 2006). As mitigation is perhaps the most critical phase to successful

emergency management planning (FEMA, 2003), it is logical to involve multiple stakeholders for their varied perspectives.

After the mitigation phase, the preparedness phase crafts protocols, strategies, and procedures (U.S. Department of Education, 2009). If the mitigation phase determines the greatest risks, then the preparedness phase begins the buildup of defenses to those risks. As with the mitigation phase, the management of data could be complemented with the involvement of students (e.g., students helping with clerical tasks). The intertwined ideas of continuity, coordination, and cooperation are important for preparedness and developing resources (Dynes, 1994). During the government response in New Orleans following Hurricane Katrina in 2005, many citizens reportedly lost faith and trust that the government's actions were coordinated for the continuity of their personal well-being (Col, 2007). There may have been a lack of cooperation among various levels of government (federal, state, and parish) as to when each agency should act (U.S. Senate, 2006). Stakeholders (citizens, students, faculty, etc.) are more likely to trust the emergency manager's decisions when the stakeholders understand the emergency management processes (Wray, Rivers, Whitworth, Jupka, & Clements, 2006). Concurrently, the stakeholders must understand their own roles and responsibilities, such as to where to evacuate during a fire alarm (Kapucu, 2010).

As discussed by multiple authors (Dynes, 1994; Wray et al., 2006; Col, 2007; Lovekamp & Tate, 2008; Fung, 2010; Auletta, 2012), students will have greater trust in the decisions of the emergency manager if the students were involved with the emergency planning process prior to the disaster. The earlier in the emergency planning process that the IHE engages students, the higher level of buy-in and cooperation the IHE

will receive. An indirect benefit of cooperation is that students may become sources of information for the IHE (Keller, Hughes, & Hertz, 2011; Auletta, 2012). The concepts for the U.S. Department of Justice's community-oriented policing services (COPS) and FEMA's community emergency response teams (CERTs) were developed in the 1980s (Federal Emergency Management Agency [FEMA], 2011; President's Task Force on 21st Century Policing, 2015). These concepts introduced at the federal level begin with involving and empowering the community in emergency management efforts. Gray (1989) devotes an entire book to the collaboration of multiple groups around a problem and the realization of their respective goals. Gray submits that multiple groups focused on the same problem should engage each other. The resulting analysis of the problem is likely to be more in-depth and with more viable solutions than if each group individually assessed the problem and independently crafted their possible solutions.

Students: Assets and Liabilities

Some decision-making employees at IHEs may prefer not to deal with students when it comes to creating an emergency management plan, perceiving the involvement of students as an unnecessary nuisance (D. K. Sullivan, personal communication, April 21, 2015). To aid Sullivan's position, the Virginia Tech Review Panel in 2007 published five recommendations related to emergency planning; none suggested including students in the planning process. The only mention of students in the emergency planning recommendations was to train students annually about the emergency alert systems and how to respond to various emergencies (DeLaTorre, 2011).

If the preservation of life is the foremost goal of emergency management as described by FEMA (2003), then the two primary groups to protect on campus are

students and employees. Emergency managers may need to devote more time and resources to involve students, but the resulting plan will better serve the IHE collectively, and the employees and students, individually (Gray, 1989). Gray contends that the IHE would identify more and potentially better mitigation tools by engaging students in the mitigation phase. Once the IHE engages the students and identifies potential mitigation tools, utilizing the mitigation tools with the students should also be easier since they were involved in the process (Col, 2007). For efficiency in minimizing the number of participants in the planning process, the IHE could involve student organization leaders to represent large groups of students.

Students, whether through their own connections or those of their families, may be able to bring additional resources to the aid of the IHE for its emergency management planning. Business people, especially sale representatives, know the value of expanding their networks of contacts. Another perspective of this opportunity for the IHE is the idea of building capacity for emergency management (Norris-Tirrell & Clay, 2006). Norris-Tirrell and Clay discuss the capacity building that citizens bring to a municipality's resources for response and recovery.

In their discussion of the Homeland Security District that encompasses the city of Memphis, Tennessee, Norris-Tirrell and Clay (2006) bring an insider's view of the complexity of developing plans in an area with multiple stakeholders and high-risk assets. In Memphis, the high-risk assets are interstates, the Mississippi River, military installations, and low-income residents. The region used collaborative efforts, including engaging the community, to find, create, and develop resources to aid emergency management planning.

Another way to view students is as community residents who have limited resources and are heavily reliant on the services of the IHE (Lasker 2004; Reynolds 2006; Zdziarski 2006). After Hurricane Katrina and Superstorm Sandy, discussion of persons with limited options for evacuation gained greater attention (Senate, 2006). College students may have little personal income, are unfamiliar with governmental operations of the community, or do not know where to turn for services (except to the IHE). The IHE has an obligation to care for its students.

Lovekamp and McMahon (2011) report that students' perceptions of risk, of the level of personal preparedness and vulnerability, and of the services available to them do not match well to historical realities. Lovekamp and Tate (2008) report similar concepts related to students' fears compared to reality. Auletta (2012) writes that students do not have much experience living and acting as adults. It is possible that students should not be involved with the planning because they would not have valid information to contribute and could skew the mitigation efforts in a direction that is not truly reflective of the IHE's vulnerabilities and capacities. This experience dearth, however, may be exactly the reason why students should be involved with mitigation planning. Students are enrolled at IHEs to learn about the world and engaging them first-hand in the emergency management process may give them tangible connectivity to better understand the hazards of their community. Integration into the process may better equip students to share information with their classmates, thereby improving communication efforts between campus administration and the student body.

Communication

When a disaster occurs and the IHE sends out an emergency notification, students may not understand or react in the manner the sender desires (Col, 2007). If students are involved in the pre-event process, they will be more aware of the background and possible concerns of the event, and perhaps even the intricacies of the expected responses. According to Gray (1989), the IHE and students must engage with each other to better understand their respective perspectives, which may result in learning new and better approaches to emergency management.

Student perception of hazards may not match the expectations of the emergency manager (Fung, 2010). Farner and Notaro (2006) note that citizens feel safer when the emergency managers communicate important information about disaster planning. However, simply communicating with people not previously involved with emergency management planning does not guarantee success to the emergency response objectives. The emergency managers must engage with the citizens and verify understanding of expectations of the risks and of each group's responsibilities. Col (2007) describes Qinglong County's in-depth use of citizen information reporting and involvement with the mitigation and preparedness phases before the earthquake there in 1976. Amazingly, no casualties occurred in Qinglong County, even though more than 246,000 people died in the surrounding areas. Col attributes Qinglong County's phenomenal survival numbers to citizen participation in multiple layers of the emergency management process.

Col's (2007) comparison of the responses to Hurricane Katrina vis-à-vis an earthquake in Qinglong County, China, included four lessons that emergency managers should heed and learn. As stated earlier, citizens must participate in the emergency

management process, not just be told what to do. In the China example, citizens were involved in multiple elements of the emergency management plan. When the earthquake struck, the citizens were able to carry out the plan even when government assistance was not yet available.

Four key lessons from Qinglong County were the following:

Lesson 1: Local government must be able to act decisively and as early as possible in preparation for disasters.

Lesson 2: The local level of government must be supported in its disaster preparation and mitigation efforts by higher levels of government.

Lesson 3: Citizens must participate in all phases of preparation and execution of emergency management measures.

Lesson 4: Linking scientific information to public administration action in disaster management is critical. (Col, 2007, pp. 121-122)

Wray et al. (2006) reports that “trust plays a central role in decision-making processes and...individuals are more likely to follow instructions given by someone they trust. When the public has low knowledge about the risk at hand, trust plays an important part in public perceptions” (p. 47). Individuals with no knowledge of what is expected of them, in terms of how to react to a disaster, may have no basis upon which to trust the government responders. When stakeholders (e.g., citizens, students, faculty, etc.) have an understanding of the emergency manager’s process or capabilities, they are more likely to trust the process and be cooperative.

Keller et al. (2011) present a similar reason for incorporating student information in the emergency management process. Their research sought to develop a new model for

assessing and mitigating threats of manmade violence at IHEs. They believed that multiple stakeholders provide helpful information for the emergency management planning and mitigation phases. Students are certainly major stakeholders, so the development of systems centered on mitigating campus hazards should involve them. An IHE emergency management plan will be better received when all community stakeholders are engaged in developing and testing the plan (French, 2011).

Campus Disasters

On January 17, 1994, a 6.7 magnitude earthquake severely damaged facilities at the California State University, Northridge campus. According to Morreale and Kirkwood (2002), “the decision-making process should have encompassed diverse perspectives from multiple stakeholders” (p. 6). Though Morreale and Kirkwood is not explicit about who the multiple stakeholders should have been for California State University, Northridge, he later notes that employees and students were not well informed and they should have been involved in a better communications plan.

Morreale and Kirkwood (2002) discusses another disaster at an IHE. On April 5, 1997, two weeks after a blizzard, massive flooding hit the University of North Dakota. Morreale and Kirkwood details that the IHE clearly communicated a need to all stakeholders, including students, that large amounts of manual labor would be needed to combat the flood. It is not clear from Morreale and Kirkwood’s account whether students had been actively involved with the emergency management planning, but he explains that the IHE administration made clear, early decisions regarding their course of action and those steps proved valuable to restoring the campus.

Like the University of North Dakota in 1997, a massive flood exposed the University of Iowa emergency management system in 2008. Fillmore et al. (2010) discusses a qualitative assessment post-incident with key administrators of the IHE. In addition to deficiencies in the emergency plan, the administrators needed effective involvement with the IHE community as a task for preparedness, according to Fillmore et al. This need for “positive engagement” is the capstone for several other concerns explained by Fillmore et al. (p. 309). Positive engagement with the community includes having a plan that is simple to enact at the time of an event and, in preparation activities, easy to train for with IHE-affiliated persons and neighboring residents. As explained by the Public Health and Safety administrator, “communication was key. People assume too much about how they will get their information. We learned that we needed to make sure that communications...run smoothly” (Fillmore et al., 2010, p. 312).

In 2004, the Federal Emergency Management Agency (FEMA) chose six universities (University of Alaska/Fairbanks; University of Washington; University of California/Berkley; Tulane University; University of Miami; and the University of North Carolina/Wilmington) to pilot the Disaster Resistant University (DRU) project to establish and evaluate best practices (Human, Palit, & Simpson, 2006). These six universities were seen as some of the best of the best in IHE emergency management. The DRU pilot IHEs had to develop their efforts within a FEMA framework, which may have limited creative emergency management ideas, according to Yemaiel (2006). Conversely, the IHEs were not uniform in who led their respective efforts, so the results are not easily comparable.

Garrett (2006) explains how the makeup of the University of New Orleans team, which drafted risk and vulnerability assessments, included representatives from campus environmental health and safety, media relations, engineering (academic) department, administration, faculty representation, and the Student Government Association. In contrast, Human et al. (2006) writes that the University of Louisville, another DRU pilot university, did not use students in their planning efforts. Instead, the University of Louisville's risk assessment and vulnerability analysis is synthesized from data gathered from assessments of physical structures' integrity and geographic information system layers, such as geography, infrastructure, weather patterns, etc. (Sullivan & Perry, 2014).

Sullivan said the University of Louisville has not considered actively involving students in their emergency management planning process (personal communication, March 13, 2013). In his opinion, which is based on the University of Louisville's performance in response to nearly a dozen disasters in the past decade, the IHE's plan is performing well without student involvement. Sullivan acknowledged that though students are not involved with the data interpretation, students could be involved in the data collection and entry (personal communication, April 21, 2015). Involving students in the data collection process may encourage them to learn more about the IHE's emergency management, which could benefit outreach to the student population (Himanka, 2012).

Kapucu and Khosa (2013) surveyed emergency managers from 19 IHEs that were using FEMA DRU funds and an additional 114 IHEs' emergency managers unaffiliated with FEMA DRU funding. Kapucu and Khosa sought to determine the most important keys for an IHE to become resilient to disasters. They used mixed methodology to collect responses from the 133 emergency managers. As is the case for this investigation, there is

an inherent conflict of interest in asking emergency managers to describe strengths and weaknesses of their own emergency management programs.

Beyond Campus

Designing the membership of a committee engaged in community planning is a process found in many other types of business. Three examples found in the literature are the River Basin Management Planning in Scotland (Blackstock, 2009), environmental contamination emergencies in the United States (Lindell & Meier, 1994; Chekouras, 2007), and human immunodeficiency virus (HIV) community planning groups in California (Rose, Gomez, & Valencia-Garcia, 2003). According to the referenced literature, all three examples support the concept that multiple stakeholders should be invited to participate in planning efforts.

Blackstock (2009), in analysis of the River Basin Management Planning, recommends a variety of stakeholders participate in planning. Bringing diverse perspectives to planning discussions increases the likelihood of building consensus. The downside, Blackstock points out, is that having an abundance of involved parties usually slows down the decision-making process and requires more diligent efforts to direct the group dynamics.

Lindell and Meier (1994), and Chekouras (2007) discuss community planning for toxic chemical emergencies. Lindell and Meier found that citizens have an influence in emergency planning; by inference, student involvement can influence the IHE emergency management planning. Chekouras covers many topics of planning for a chemical disaster, including that having non-first responders on the planning committee could expose knowledge that a terrorist could use. I have heard similar comments about including

students on emergency management committees—that students cannot be trusted with information that could be used to create a disaster at the IHE. Chekouras further explains that information disclosure needs to be managed. However, to completely dismiss involvement by citizens decreases opportunities for the citizens to contribute to the overall good of the planning process. Citizens, including students, may also be able to contribute perspective, talents, or partnership connections that the community could use.

Rose et al. (2003) explain how community planning groups in California helped shape planning, information disseminations, and public policy. Their study reviewed more than 1,000 members of 56 HIV community planning organizations and the structures of the organizations, particularly education of the members about the goals, possibilities, and limitations of the group. The study highlights that a small percentage of citizens often occupy nearly all the volunteer positions of multiple organizations within a community. Though the committee memberships may change periodically, the replacements are often from other committees—meaning, there are few new perspectives coming onto the committees over time. The article concludes that individual power plays and timid voting (so as not to offend other committee members) can hamper the potential success of a community committee. All of these factors can also affect IHE emergency planning meetings.

The threat of litigation is a driving, but often unwritten factor in how the emergency management process is defined, refined, and exhibited at IHEs. Plans are drafted based on published guidelines from groups such as FEMA. If an IHE creates a plan that does not meet published guidelines or industry best practices without strongly validated justification, the IHE may expose itself to litigation losses. In terms of litigation

defense, excluding students might be fiscally prudent for post-incident management.

Osborn (2008), who reviewed an IHE with a history of multiple natural disasters, says an IHE taking a defensive approach to emergency management is less effective than continually testing, evaluating, and seeking to improve its plan. Despite evidence from the community planning industry that including students in the pre-event process can be beneficial, if published emergency management guidelines from government or industry best practices does not suggest such a position, most IHEs may not adopt the idea.

Gaps in the Body of Knowledge

Though some references discussed multiple stakeholder involvement within emergency management at IHEs and municipalities, no data addressed student involvement in IHE emergency management planning with respect to implementing hazard mitigation. The literature review does not answer the research question whether IHEs that involve students in emergency management planning are more likely to implement hazard mitigation tools. Campus Community Emergency Response Teams (C-CERTs) are becoming prevalent at IHEs. C-CERTs are for post-incident response, so publications that discuss C-CERTs are not pertinent to this investigation's topic about pre-incident planning, (i.e., mitigation and preparedness). No literature was identified regarding emergency management at IHEs that do not have a physical presence, (i.e., those IHEs only offering online classes). Online-only IHEs are more likely to have electronic or information technology hazards. Although chemical, weather, or violence hazards may not impact an online IHE's student population, a hazard that disrupts the IHE's ability to deliver its content is equally troublesome. An online IHE should consider involving students in their emergency management mitigation and preparedness phases.

It is possible that the inclusion of students may not influence the effectiveness of planning committees. Wilson (2005) describes contract professionals who lead community development planning and, as outsiders to their client's setting, may be more focused on battling group dynamics, internal strife, and ulterior goals than engaging students. No matter the approach, "stakeholders, students, faculty, staff, and administration should work toward a common goal, which would be the protection of everyone on and around the campus" (Booker, 2014, p. 21).

Summary

There are two parts to this investigation's research question: student involvement and hazard mitigation. The literature addressed that involving students in the emergency management process can and should occur. The literature contends that most communities that involve multiple stakeholders yield better planning results, including implemented hazard mitigation tools. None of the reviewed literature specifically addressed whether involving students at IHEs in the mitigation or preparedness stages of the emergency management planning process affects the likelihood that hazard mitigation tools are implemented by the IHE. This investigation surveyed emergency managers at IHEs to address the gap in the body of knowledge. The investigation was focused strictly on whether there was a correlation between student involvement and implementation of hazard mitigation.

Chapter III: Methodology

The research question of this investigation was whether IHEs that involved students in the mitigation or preparedness stages of the emergency management planning process were more likely to implement hazard mitigation tools. In addition to the involvement of students, I also examined the impact of the following factors: 1) the type of IHE (whether two-year or four-year); 2) whether the IHE was residential or non-residential; and 3) the ages of the students who participated in the planning (under 25 years old or 25 and older). I collected data from an online survey of IHE emergency managers.

Population/Sample

The physical setting of each IHE was not important to the solicitation and collection of data, nor to the analysis and post-investigation implications. The investigation solicited responses from IHE emergency managers via email and through a website. The respondents were most likely staff within departments of emergency management (not academic), campus police, facilities, or environmental health and safety. This investigation focused on those individuals who were familiar with the design and history of their particular IHE's emergency management planning teams.

Similar information requests on the DRU email listserv have yielded up to two hundred responses (Sullivan & Perry, 2014). The survey for this investigation did not attempt to select certain IHEs, but accepted responses from all IHE emergency management representatives who agreed to participate.

The investigation sought input from those individuals who had membership in the International Association of Emergency Managers (IAEM), DRU listserv, Campus Safety Health and Environmental Management Association (CSHEMA), College and University Hazardous Material Management Conference (CUHMMC), and public IHEs of the State of Tennessee. The investigation utilized existing email groups for dissemination of the survey invitations.

It was not the intent of the investigation to be an exhaustive survey of all the two-year and four-year IHEs in the United States. According to the U.S. Department of Education's *Database of Accredited Postsecondary Institutions and Programs* (2015) and lists on the University of Texas at Austin (2016) website, there were 1,019 two-year IHEs and 2,128 four-year IHEs in 2015. Sullivan and Perry (2014) reported that 80% of their respondents were from four-year (presumably residential) IHEs.

Methodology/Methods

I sought to discover whether there was a correlation between the involvement of students in IHE emergency planning and the implementation of hazard mitigation tools at the institutions. To assess this possible correlation, I chose the descriptive quantitative survey method. A descriptive quantitative investigation "examines the situation, as it exists in its current state [and] involves identification of attributes...or the correlation between two or more phenomena" (Williams, 2007, p. 66). Some survey questions carried a score value that allowed for quantitative analysis of the results, while some questions asked the respondents to describe, or qualify, their response. Whether students were involved may be driven by the qualifications of the IHE and the students; these were considered the moderating variables.

The research included a survey questionnaire that the respondents completed online at QuestionPro.com. I sent an invitation email through the online communities mentioned in the population/sample section (above). The invitation included a link to the survey on QuestionPro.com. Also included in the invitation were: the purpose of the study, that the results would be used in a Master's thesis, approval of the survey by the Arkansas Tech University Institutional Review Board, information on how to obtain a copy of the study results, and a printable statement that all the information would remain confidential and anonymous. The survey instrument, including the Informed Consent Statement, follows in Appendix A.

Data Collection and Data Analysis

The survey contained 20 opportunities for response. The first opportunity asked for the name of the respondent's IHE and the second opportunity asked for the IHE's website address URL. I anticipated that some respondents might respond with an abbreviation for their institution's name, so the website address helped to further clarify the name of the IHE for which a respondent completed the survey. In case multiple surveys were submitted for the same IHE, only the first or most-complete survey was used in the statistical analysis. Subsequent attempts could occur if multiple people from the same IHE responded to an invitation on the DRU listserv for instance. Including data for analysis from multiple people from the same IHE would have skewed the data. Ninety-eight complete surveys were submitted. Nine institutions had more than one survey submitted, thereby reducing the potentially usable completed surveys to 89.

Question 1 asked the respondent to describe the job duty that most closely matched their job duties, including emergency management; police or security;

environmental, health, and safety; facilities; risk management; student affairs; academic affairs; or none of the above. Question 2 asked whether the respondent considered a decision maker regarding emergency management at their IHE. For respondents who answered No, their survey was culled from analysis. I only wanted responses from leaders in emergency management who had the most complete understanding of their institution's efforts. If their response was No, the respondent was allowed to continue the survey; I did not want a respondent, who figured out their response of No to Question 2 prevented their continuation of the survey, to answer Yes to Question 2 just so the respondent could see all the questions. Additionally, one of the goals of the survey was to introduce the respondents to the concept of involving students in their IHE emergency management planning. Not allowing respondents to see all questions would handicap that goal for the investigation. Nineteen respondents answered No to Question 2, thereby further reducing the number of usable complete surveys to 70.

- Question 3: Is your school considered a: Two-year (or less) institution, Four-year (or more, including research) institution, or Other?
- Question 4: Is your institution considered residential: Yes or No? That is, does your institution have on-or near-campus housing? Whether the housing is owned or operated by the institution is not important.

I believe that a respondent's answers to Questions 3 and 4, would be key indicators whether the IHE involved students.

- Question 5: Does your institution have an established emergency management planning team of more than two people (i.e., multiple stakeholders) who are

responsible for drafting emergency management documents and procedures:
Yes or No?

- Question 6: Do you feel the institution's administration supports the concept of involving multiple stakeholders in the emergency management planning process: Yes or No? If you do not know, please answer No.
- Question 7: Have stakeholders who do not work for the institution been invited to participate with the emergency management planning team: Yes or No? Examples might include a food service vendor, local government, American Red Cross, community organizations, etc. If yes, please list as many types of external stakeholders as you can.
- Question 8: Has your institution implemented hazard mitigation tools or projects, including physical infrastructure or training for campus groups, faculty, or students: Yes or No? If no, skip to Question 12. If yes, please list the hazard mitigation tools your institution has implemented.
- Question 9: Of the mitigation tools/projects implemented, which group was the driving force for bringing the idea to fruition: Campus safety departments, like police or emergency management; Administration; Faculty and/or staff; Students; External stakeholders; or Other?
- Question 10: Do you think the administration moved to implement the hazard mitigation tools/projects wholly or partly in response to pressure from the student body: Yes, No, or Don't Know?
- Question 11: Do you think the administration implemented the hazard mitigation tools/projects wholly or partly in response to pressure from other

stakeholders: Yes, No, or Don't Know? If yes, describe the other stakeholders in question.

If a respondent answered No to an "if yes, then..." question (which were Questions 7, 9, and 11), but added textual qualification information, the textual responses were not counted. If a respondent answered No to Question 8, then responses to Questions 9, 10, or 11 were not counted.

- Question 12: Do you feel that non-employee stakeholders should be involved with emergency management planning: Yes or No?
- Question 13: Have you ever had a student on your emergency management planning team: Yes, No, or Don't Recall? If No or Don't Recall, skip to Question 18.

If a respondent answered No or Don't Recall to Question 13, then responses to Questions 14 through 17 were not counted.

- Question 14: Approximately how old was the student: Younger than 25 years, 25 and older, Both, or Don't Know? If you are uncomfortable guessing, answer Don't Know. If you have had students of both age categories, answer Both.

The U.S. Department of Education's National Center for Education Statistics considers undergraduates 25 years and older as non-traditional, meaning they most likely did not immediately transition from high school to college (2002). Non-traditional students may have a more experienced perspective than traditional students and that their views would be more valued by an IHE's emergency management planning team.

- Question 15: In your opinion, was the student deeply involved with the planning discussions, providing thoughtful input and asking purposeful, probing questions to advance the objectives of the team, or was the student there more simply to check the box of inclusion that the student body was asked and involved: Yes, engaged; or No, simply for inclusion?

The wording of Question 15 (before the word “or”) was chosen to reflect the traits a community planner might look for in a citizen needed for a committee.

- Question 16: In your opinion, when the student was involved in the emergency management planning, were any hazard or risk mitigation tools suggested for implementation as a result of the team’s efforts: Yes, No, or Don’t recall?
- Question 17: In your opinion, when the student was involved in the emergency management planning, were any hazard or risk mitigation tools implemented or planned to be implemented as a result of the team’s efforts: Yes, No, or Don’t recall?
- Question 18: Do student organizations (such as the Student Government Association, school newspaper, radio station, or any other official or unofficial voice for the student body) discuss the emergency management efforts of your institution: Yes or No? If you do not know, please answer No.

Questions 1 through 5, 8, 9, and 14 were qualifiers of the type of IHE and students involved (i.e., demographic questions and textual answers). Questions 6, 7, 10 through 13, and 15 through 18 were scored numerically, where an answer of Yes or Both garnered one point, and an answer of No, Don’t Know, or Don’t Recall garnered zero

points. For Yes or Both, the respondent could list textual qualifiers to their answer that were used for qualified analysis. An answer of Yes for the questions that garnered points was indicative of an emergency management planning program that actively involved multiple stakeholders.

The investigation expected that the higher the point total, the more likely the respondent answered Yes to Questions 8 and 13. The correlation between implemented hazard mitigation tools and student involvement on the emergency management planning team may be circumstantial and not an indication that the latter drives the former. A positive correlation may indicate that the IHE has an aggressive position toward improvement of emergency management mitigation, which could include involving multiple stakeholders. It is possible that a respondent's answers could indicate hazard mitigation tool implementation and could result in a high score without involvement of students.

The survey assigned the same point value to the point-garnering questions. The questions and answers to the survey were entered into a spreadsheet. I analyzed the data based on the qualifying questions one through five, seven through nine, and 14.

Experience with similar studies on the DRU listserv conducted by Sullivan and Perry (2014) at the University of Louisville indicated that a second email reminder/request for participants should be sent. This investigation's second email was sent two weeks after the first email. Seventy of the 98 respondents completed the survey after the date of the second email.

Positioning, Biases, and Ethical Issues

Unlike most primary and secondary schools, IHEs compete for their students, who are their customers. Perception of the IHE's strengths and weaknesses can correspond to how successful the IHE is in recruiting and retaining students. IHEs could be hesitant to publically answer questions about their emergency management assets and capabilities when such answers may be disconcerting to their students or students' parents. If students negatively view the IHE's responses, the IHE may lose current and potential students. A key to obtaining valid data about IHEs' emergency management, or specifically their implementation of hazard mitigation tools, is confidence in the anonymity of responses.

The invitation email and survey web address contained no identifiers about the respondents. The respondents were not asked for their names. In an informal setting at the Best Practices in Higher Education Emergency Management Conference at the University of Tennessee at Chattanooga in March 2013, I presented a draft survey to several of the attendees, all of whom had emergency management roles at their respective IHEs. Unanimously, the professionals polled said they would have no concerns completing and submitting the survey since it did not ask for their name.

I am employed at a two-year non-residential community college where my duties include emergency management. The survey questions were drafted based on what I believed were important indicators about whether an IHE implemented hazard mitigation tools. As described in Chapter II, there is little literature available about this topic for use in designing the survey questions. I do not believe the order of questions affected the

respondent's answers, since most of the questions had simple Yes or No answers. Also, the questions were grouped by similar subjects for ease of answering.

I urged the respondents to answer truthfully. The questions were designed to inquire about the current state of the emergency management planning at each respondent's IHE. With the exception of Question 12, which asked whether the respondent felt that non-employee stakeholders should be involved with emergency management planning, I urged the respondents to answer in ways that reflected how they operated, not how they wished their IHE functioned.

The study was designed to determine whether IHEs that involved students in the emergency management planning process were more likely to implement hazard mitigation tools than IHEs that did not involve students. This study was not designed to test whether involving students in the emergency management planning process yielded implementation of more effective hazard mitigation tools compared with tools implemented without the involvement of students. No effort was made to assess the ability of the tools to actually mitigate hazards. No effort was made to determine the comparable costs or cost-efficiencies of hazard mitigation tools implemented with or without student involvement.

In addition to the resulting data, I wanted the respondents to take away from the survey an implication that students may add value to emergency management planning at IHEs. Prompting leaders within the industry to continue the discussions about best practices is as beneficial for the industry as the results of this investigation.

Rigor

To insure rigor and credibility, a defined set of questions was utilized for all the respondents. There was no attempt to discriminate or differentiate certain questions for certain types of IHEs. Also, the questions did not show favor to any particular variety of emergency management philosophy regarding the use of students in mitigation and preparedness planning. However, I suspected that residential universities—as compared to non-residential community colleges—could find it easier to utilize students. The students at residential universities tend to stay longer at the IHE and have better familiarity with their environment due to that longevity.

Internal validity. Internal validity of the research question was confirmed if there is correlation between student involvement and hazard mitigation tool implementation at the IHEs. There were likely several reasons why an IHE chose or chose not to implement hazard mitigation tools available to it. The investigation proposed that student involvement may be one of the reasons why an IHE implemented hazard mitigation tools. The survey also asked if the IHE administration implemented the hazard mitigation tool in response to scrutiny from the student body or other stakeholders. There may be other reasons, still, but this investigation was not an exhaustive search for those other reasons.

External validity. I predicted that residential or four-year IHEs were more likely to have student involvement than non-residential or two-year IHEs. Additionally, I anticipated the respondents were more likely to value the input from students over the age of 25 due to real or perceived maturity from the students.

Reliability. Most of the questions were drafted so that the respondent was faced with a forced-choice Yes or No. Some questions asked the respondent's perception of

events or the respondent's opinion. These questions were as much to encourage the respondents to assess their own IHE as they were for me to obtain data. Any question that asked for a respondent's perception or opinion was subject to fail reliability tests, as the respondent's perception or opinion may change over time.

Limitations and objectivity. The investigation design was intentionally limited in that it did not seek to information about the cost, return on investment, or other qualifiers of the hazard mitigation tool. The survey did not ask why the emergency manager believed the student, if involved, was engaged in the process or simply in attendance for inclusion. The survey did not ask if other factors could have contributed to the student's level of engagement. The survey did not attempt to connect the mitigation tools with which the student had input. The purpose of the investigation was not to discern how the student was selected to join the emergency management planning team. All of these limitations are possible avenues for further research. Since I did not complete any portion of the survey, I maintained impartial objectivity of the data. I did not change any respondent answers even if an answer seemed inconsistent with the other responses from the same individual.

Summary

The purpose of this investigation was to test the hypothesis that IHEs that involved students in emergency management planning were more likely to implement hazard mitigation tools than IHEs that did not involve students in the planning process. I utilized a descriptive quantitative survey method to achieve numerical and qualified feedback from the respondents.

I sent a survey request through email listservs of various professional organizations whose members may be involved with emergency management planning at IHEs. The anonymous surveys were administered through QuestionPro.com. Chapter IV contains the results of the survey.

Chapter IV: Results

The investigation collected data from 70 emergency management leaders at IHEs across the nation regarding the involvement of students on emergency management planning teams. The respondents included colleges and universities, residential and non-residential. The hypothesis of the investigation was that IHEs that involved students in emergency management planning were more likely to implement hazard mitigation tools than IHEs that did not involve students in the planning process. I speculated that students might drive the implementation of the hazard mitigation tools by pressuring the administration to take actions. The survey questionnaire posed questions to address the hypothesis and speculation. The data from the surveys are discussed below.

Limitations

The survey results are the opinions of people in position of responsibility for emergency management duties at IHEs. Some of the questions asked for the respondents' opinions related to other persons at their IHE. As opinions, these survey responses might vary from what other personnel from the same IHE perceive as truth. Yet, the personnel responsible for emergency management duties were the most appropriate and accessible sources for this investigation.

As previously described in Chapter III, 98 surveys were submitted, but 19 were from personnel who were not emergency management decision makers at their IHEs (Question 2) and nine surveys were from IHEs for which a usable survey had already been submitted. The 70 usable surveys constitute a small percentage of the more than 3,000 IHEs located in the United States. The results of the investigation may not be representative of the entire population of IHEs.

Respondent Descriptors

The respondents represented all the categories of job descriptions offered in the survey. The respondents answered the survey solicitation via listservs of the Disaster Resilient University (DRU), Campus Safety Health and Environmental Management Association (CSHEMA), and College and University Hazardous Material Management Conference (CUHMMC). From Question 1, more than 80% of the respondents indicated their duties are aligned with emergency management or environmental health and safety, as shown below in Figure 1.

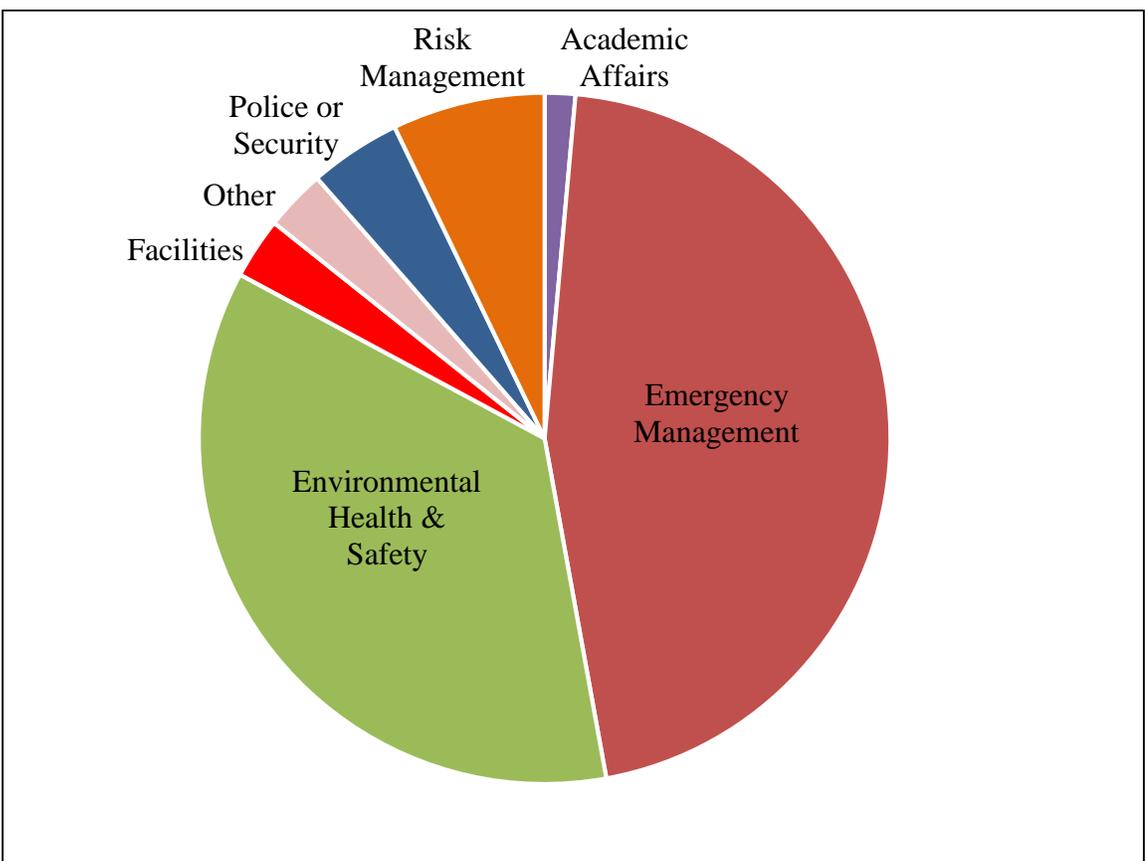


Figure 1. Respondent duties.

Previous surveys conducted with the DRU listserv, which connects with all levels of IHEs interested in emergency management, have reported approximately 80% of respondents were four-year institutions (Sullivan & Perry, 2014). Of the respondents to Question 3 for this investigation, 81%, or 57 of the 70 respondents, were from four-year IHEs as shown in Figure 2.

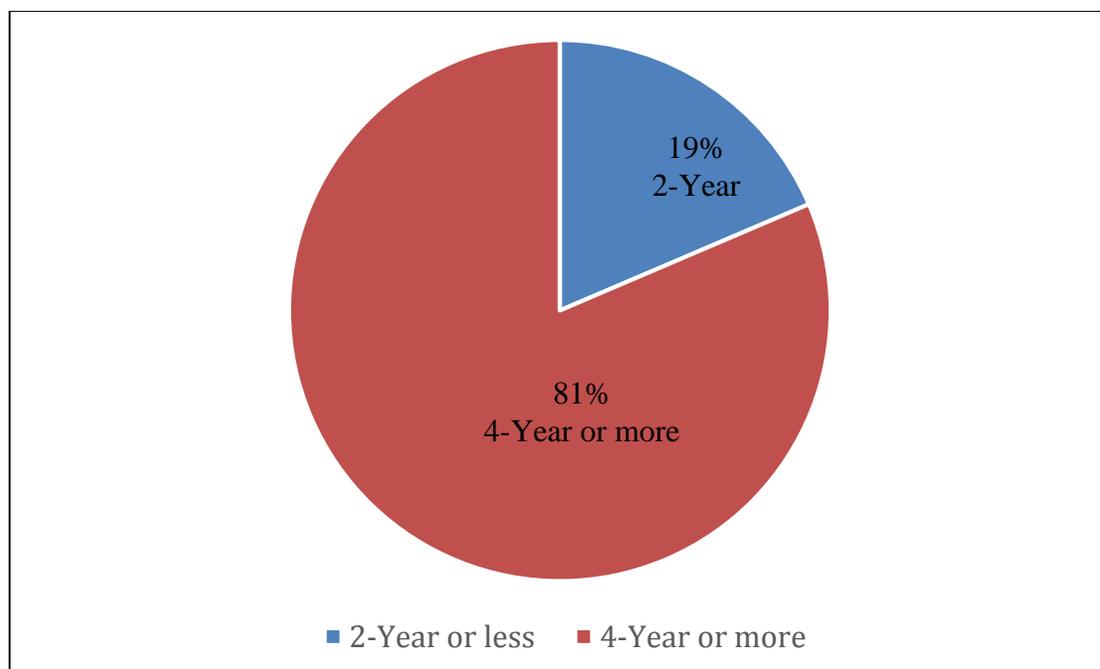


Figure 2. Category of respondent IHEs.

Question 4 asked the respondents if housing was available on or near their campuses. All of the respondents from the 57 four-year IHEs answered that there was housing. Only three of the 13 two-year IHEs had housing.

Stakeholders

Question 5 asked if the IHE had an established emergency management planning team with more than two members. Six respondents answered No, and from these six IHEs, five were from four-year IHEs. The job descriptions of these six respondents: two

were emergency management, one was risk management, one was environmental health and safety, and one said their job description was something other than the choices.

Continuing with the questions about multiple stakeholders, Question 6 inquired whether the respondent felt their institution's administration supported involving multiple stakeholders, to which 90% answered Yes. The responses to Question 7 indicate that fifty-eight of the 70 respondents have invited stakeholders, such as a food service vendor, American Red Cross, or local government, who do not work for the IHE to participate with the emergency management planning team, as shown in Figure 3 below.

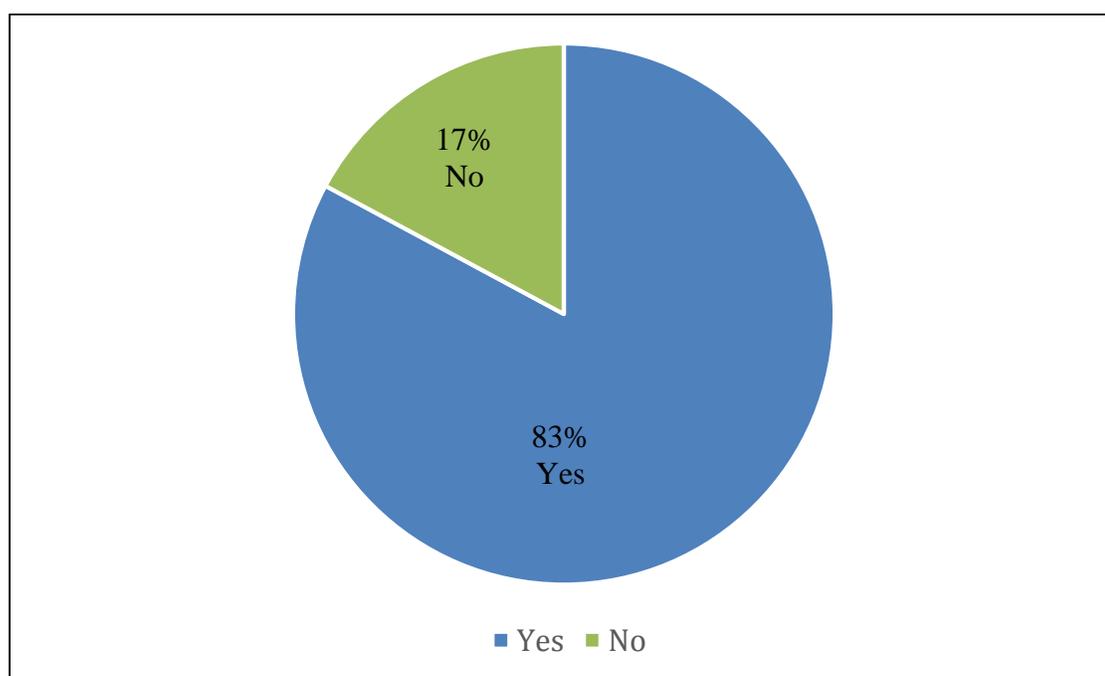


Figure 3. Percent of IHEs that invited external stakeholders to join emergency team

The respondents were prompted in Question 7 to describe which non-employees had been invited to participate. The most frequently listed external stakeholders were local law enforcement and fire departments. Other invited groups were the local K-12 school district, government representatives, 9-1-1 communications dispatch, the Federal

Bureau of Investigation, and the IHE's food services vendor. The complete list of invited non-employees is included as Table 1.

Figure 4 below is generated by cross-referencing the data from Questions 3, 4, 5, 6, and 13. The cluster in the middle is two-year IHEs with housing and the cluster on the right is four-year IHEs with housing. At four-year IHEs, the percentage with multiple stakeholders involved, external stakeholders invited, an administration that wants multiple stakeholders involved, and students involved was higher than for two-year IHEs. No four-year IHEs were without housing, so there is no data to compare with the two-year IHEs that were without housing. However, the data does show that none of the two-year IHEs without housing had a student involved on the emergency management planning team.

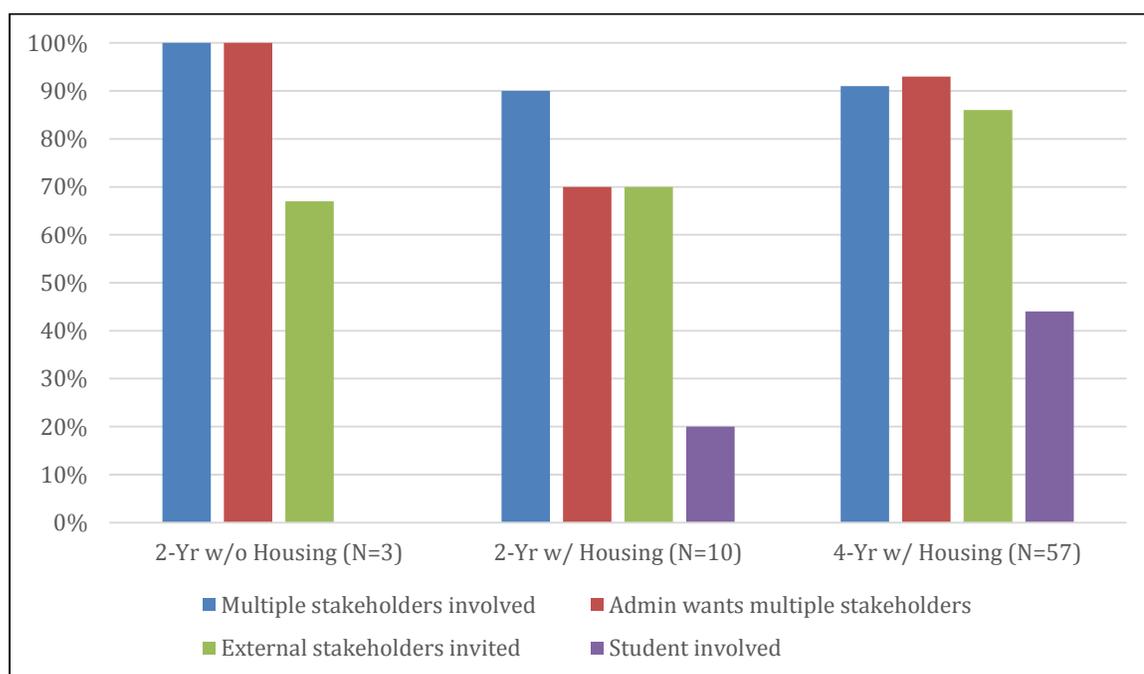


Figure 4. Involvement with emergency management planning teams, per IHE description.

Only four respondents did not want non-employees involved in the emergency management planning, based on the results from Question 12. Of those four, all have multiple stakeholders on their planning team (Question 5), have their administration's support for involving multiple stakeholders (Question 6), and have had non-employees invited to participate (Question 7).

Mitigation Tools

The previous sections reported survey results pertaining to stakeholders on the planning team. This section is about the mitigation tools. From the 70 survey respondents, 55 reported on Question 8 that they have implemented some kind of hazard mitigation tool. The complete list is included as Table 2 in Appendix B. Briefly, the list includes training, such as conducting active shooter exercises, tabletop discussions, fire drills, and chemical spill response. Mitigation tools in the form of planning were for internal needs and external, such as for FEMA hazard mitigation funding and in coordination with public first responders. Infrastructure hazard mitigation tools included installing backup power for the built environments, development of mass notification systems, and identification of tornado shelters. The least described hazard mitigation tools were activities to comply with external regulators (such as OSHA) or internal policies (such as from public higher education systems).

Once approved by administration to proceed with the project, the campus group that led implementation of the tool was dominated by the campus safety departments (Question 9), shown in Figure 5.

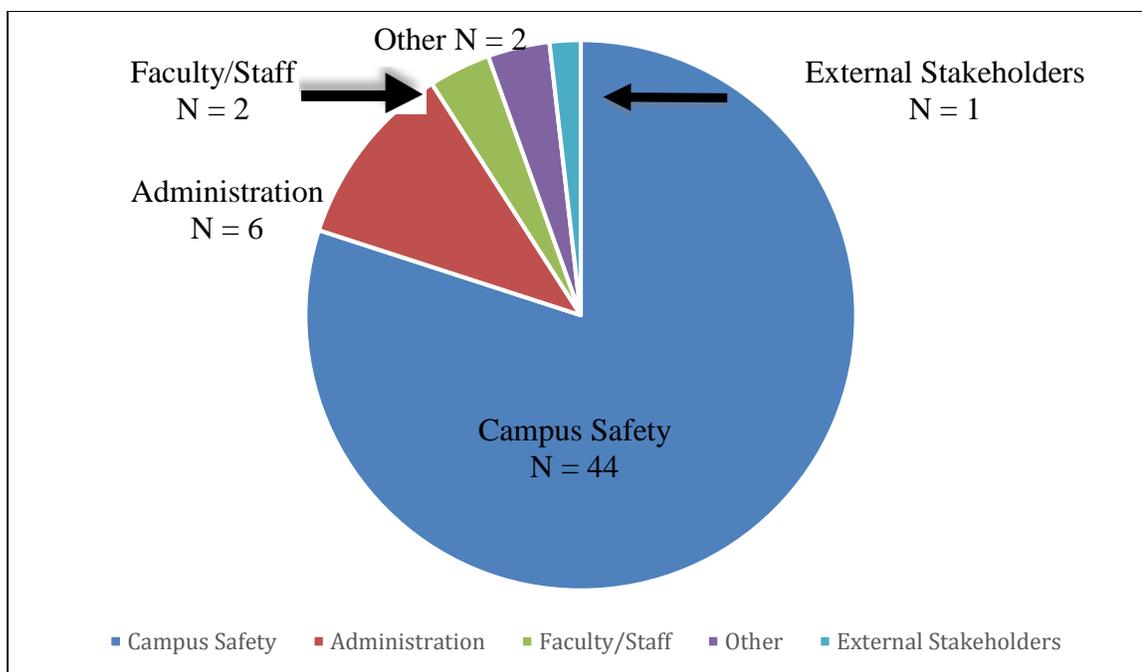


Figure 5. Group that was the driving force in implementing hazard mitigation tool.

Only five of the 55 IHEs with mitigation tools reported that their administration implemented the effort due to pressure from the student body, as asked in Question 10. The other respondents said either their administration did not implement due to students (N = 46) or the emergency manager did not know if the administration reacted due to student pressure (N = 4). Fourteen of the 55 respondents thought their administrations implemented the mitigation tool in response to pressure from other stakeholders, according to Question 11.

Student Involvement

Sixty-six of the 70 respondents felt that non-employee stakeholders should be involved with emergency management planning, tallied from Question 12. Twenty-seven of all the respondents indicated to Question 13 that students have been involved on the emergency management planning team at their IHE. Only two of the two-year IHEs

indicated that students have been involved. The other 25 IHEs that had student involvement comprised 47% of the four-year institutions.

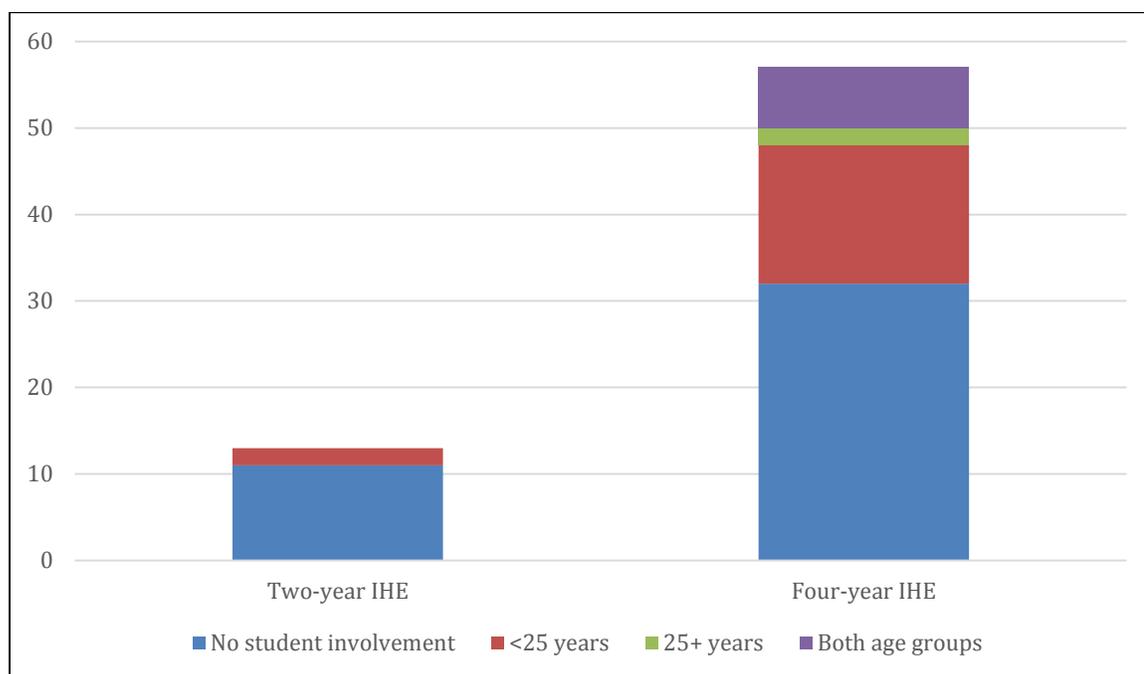


Figure 6. Number of IHEs with students involved on the planning team, by age category.

Figure 6 presents data combined from the answers to Questions 3, 13, and 14. The breakdown of the age categories of students involved, as described in Question 14, are shown in red, green, and purple in Figure 6. The students involved at two-year IHEs were all less than 25 years old. At the four-year IHEs, the involved students were mostly younger than 25 ($N = 15$), two IHEs involved students who were only 25 and older, and seven IHEs had both age groups of students involved with the emergency management planning team.

The next three questions asked about the level of involvement of the students and the mitigation production of the planning teams. Almost three-fourths of the respondents indicated that the student(s) were actively engaged, provided thoughtful input, and asked purposeful and probing questions that advanced the objectives of the emergency

management planning team. The emergency management planning teams that had engaged students were more likely to have suggested mitigation tools than those teams where the student was simply involved for inclusion, as shown in Figure 7. Additionally, Figure 8 shows that the mitigation tools were more likely to be implemented or planned to be implemented if the tool was suggested by an emergency management planning team in which the student was engaged versus a team that on which the student was not engaged, but simply involved for inclusion sake.

In the methodology chapter, three other factors were proposed that could affect implementation of hazard mitigation tools: 1) the type of IHE (whether two-year or four-year) from Question 3; 2) whether the IHE was residential or non-residential from Question 4; and 3) the ages of the students who participated in the planning (under 25 years old or 25 and older) from Question 14. The responses were compared with the data from Question 8 about mitigation tool implementation.

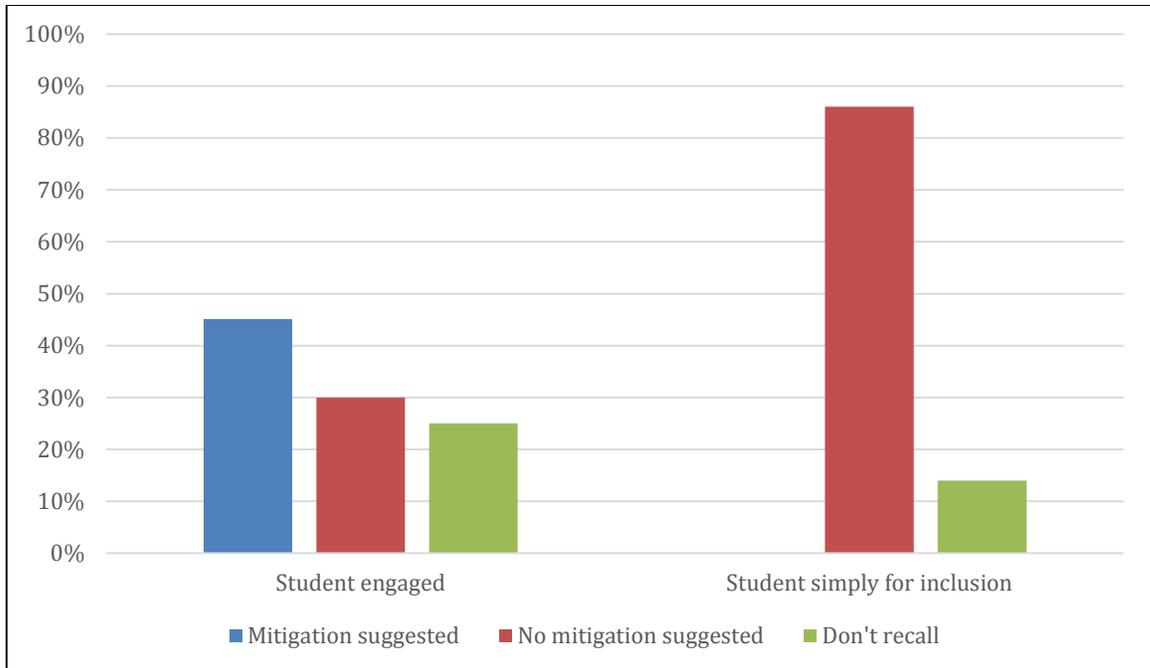


Figure 7. Percent of times mitigation tools were suggested by emergency management planning teams that involved students.

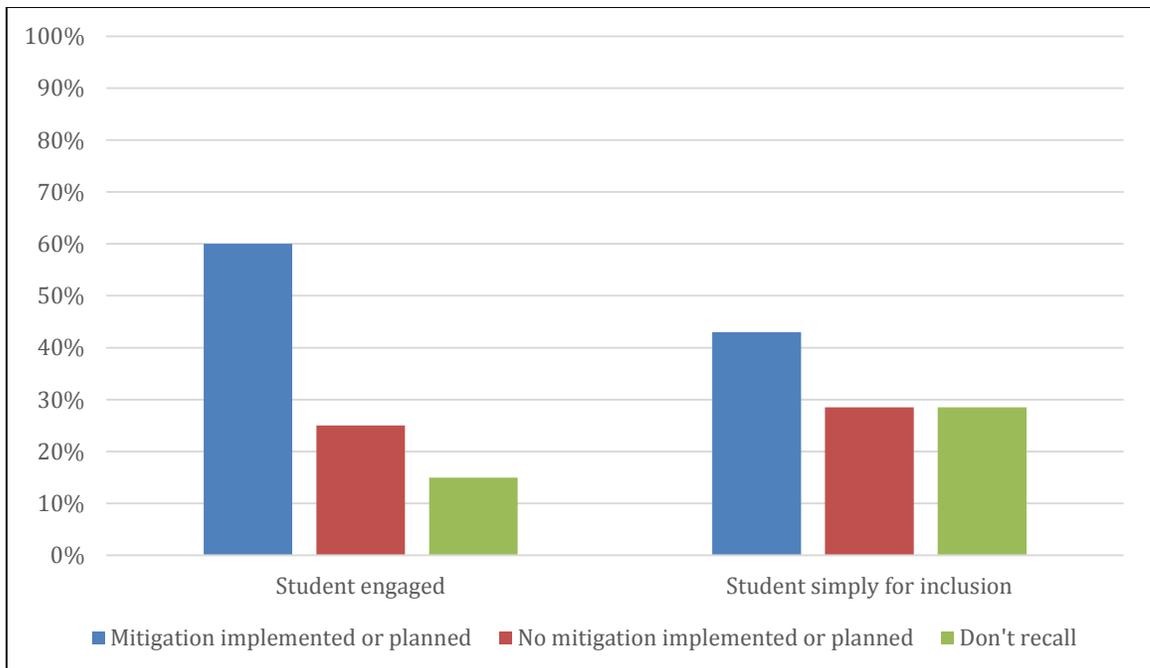


Figure 8. Percent of times mitigation tools were implemented or planned to be implemented by emergency management teams that involved students.

To the first proposed potential impact on the implementation of hazard mitigation tools, the respondents were comprised of 57 four-year IHEs and 13 two-year IHEs. Forty-four and 11 of the four-year and two-year IHEs, respectively, implemented hazard mitigation tools. Therefore, 77% and 85% of the four-year and two-year IHEs implemented hazard mitigation tools. The second potential impact was proposed to whether the IHE was residential or non-residential. Forty-six of 60 residential IHEs and nine of 10 non-residential IHEs implemented hazard mitigation tools. Therefore, 77% and 90% of the residential and non-residential IHEs implemented hazard mitigation tools. The third potential impact considered the age(s) of the student(s) involved with the emergency management planning team. Eighteen IHEs involved students under the age of 25, two IHEs involved students over the age of 25, and seven IHEs involved students from both age categories. From those categories the numbers of IHEs that implemented hazard mitigation tools were 16 of the 18 IHE with traditional age students, both of the IHEs with non-traditional age students, and six of the seven IHEs with all ages. Therefore, 89%, 100%, and 86% of the IHEs with traditional age, non-traditional age, and all ages, respectively, implemented hazard mitigation tools.

Summary

The data in comparing Question 8 (Has your institution implemented hazard mitigation tools?) with Question 10 (Do you think the administration moved to implement the hazard mitigation tools/projects wholly or partly in response to pressure from the student body?) shows that five of the 55 IHEs that implemented hazard mitigation tools indicated that the tool implementation was due to pressure from the student body. From the five respondents who felt their administration implemented the

hazard mitigation tool due to pressure from students, two answered that they did not know if the student organizations on campus discuss emergency management.

Conversely, from the 50 respondents who felt their administration's implementation of hazard mitigation tools was not the result of pressure from students, more than half of them were aware that student organizations on campus had discussed emergency management efforts of the institution. The answer to the research question is found by comparing the responses of Question 13 (Have you ever had a student on your emergency management planning team?) with Question 8 (Has your institution implemented hazard mitigation tools?). Twenty-seven IHEs involved students on the emergency management planning team, of which 24 (or 89%) had implemented hazard mitigation tools. In contrast, 43 IHEs indicated no student involvement in the emergency management planning, and of those institutions, 31 (or 72%) had implemented hazard mitigation tools, as shown in Figure 9.

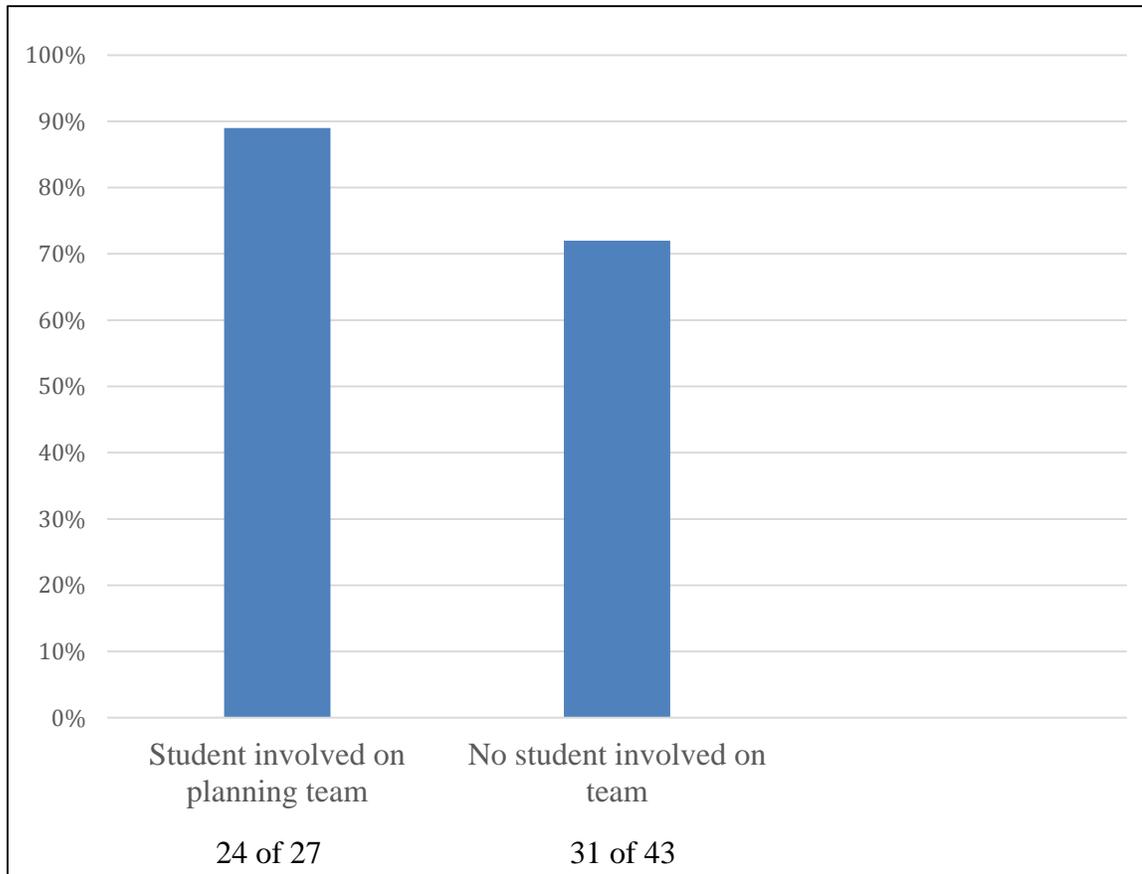


Figure 9. Student involvement and percentage of situations when hazard mitigation tools were implemented.

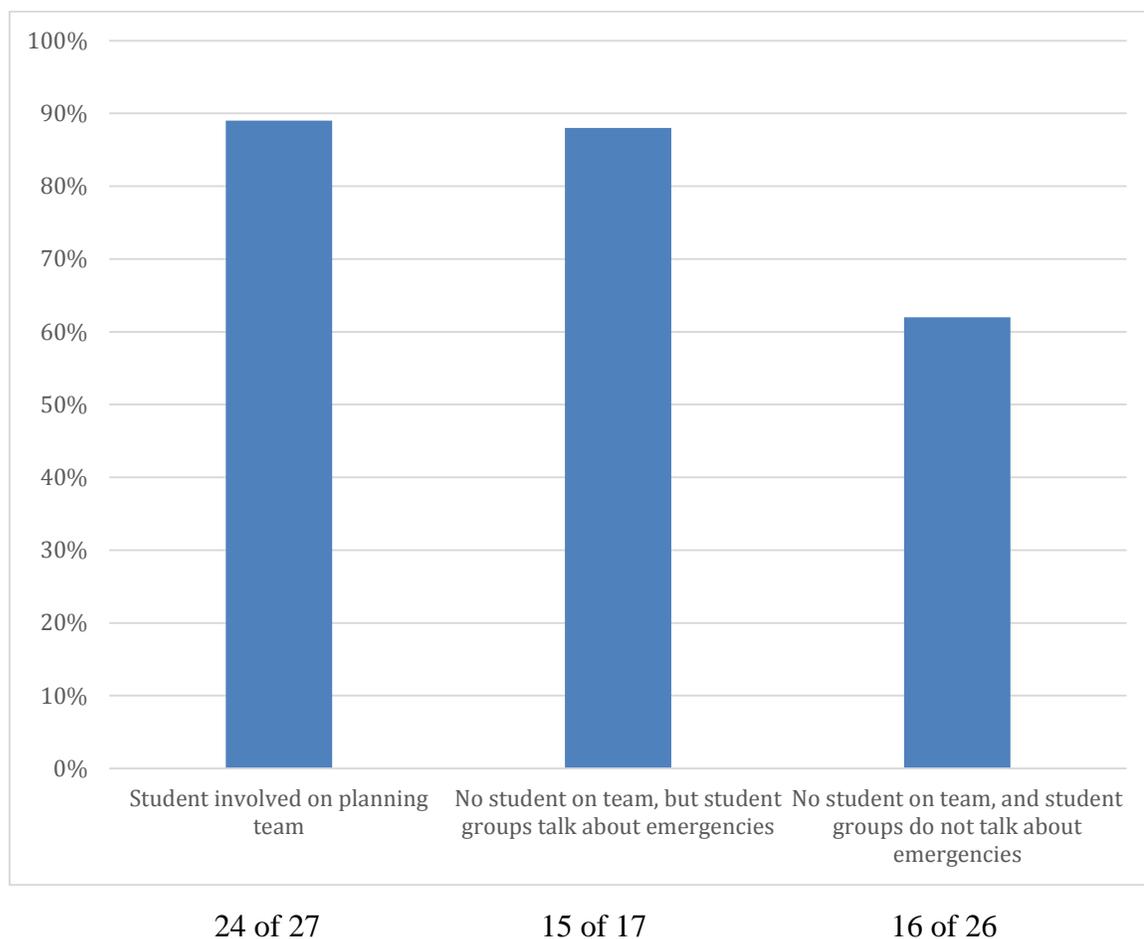


Figure 10. Percentage of situations when hazard mitigation tools were implemented.

Further breakdown of those results are shown in Figure 10. At IHEs that had no student engagement in their planning team, but where student organizations discussed the emergency management efforts of the institution, 88% had implemented hazard mitigation tools. At IHEs without students on the team and without student discussion of emergency efforts, 62% of the IHEs had implemented hazard mitigation tools. Discussion of the investigation findings are presented in Chapter V.

Chapter V: Discussion

This investigation asked the following research question: Are institutions of higher education (IHEs) that involved students in their emergency management planning processes (in the preparedness or mitigation phases) were more likely to implement hazard mitigation tools than IHEs that did not involve students. I anticipated that the scrutiny by students of the emergency management planning process would make the IHE more likely to implement hazard mitigation tools.

This investigation utilized a thorough literature search of the keywords (higher education, emergency management, student, mitigation, community, planning, stakeholder, hazard, and risk) to address this specific research question. According to Campbell (2005), the IHE should involve students because “effective planning is as much about planning with communities as it is about planning for communities” (p. 517). Dynes (1994) states the community leaders should strive for “continuity, coordination, and cooperation” (p. 141). Multiple authors (Wray et al., 2006; Col, 2007; Lovekamp & Tate, 2008; Fung, 2010; Auletta, 2012) indicated that students will have greater trust in the IHE emergency management decisions if the students were involved with the emergency planning process prior to the disaster.

Implementation of an emergency management plan at the time of a disaster is chiefly about communication (Farner & Notaro, 2006). By involving students within the emergency management planning processes, students can educate their classmates about the plan, so that the student body is better informed about their roles and have realistic expectations of the actions of the IHE (Lovekamp & McMahon, 2011).

In addition, as Yemaiel (2006) points out, students are a resource for IHEs and thus a reason why their involvement within emergency management planning should be investigated as potentially viable and beneficial to the IHE. If students of an IHE are the equivalent of the citizens of a municipality, then student involvement can build the capacity of the IHE's mitigation and preparedness resources (Norris-Tirrell & Clay, 2006; French, 2011).

Data

Ninety-eight respondents answered survey solicitations via listservs of the Disaster Resilient University (DRU), Campus Safety Health and Environmental Management Association (CSHEMA), and College and University Hazardous Material Management Conference (CUHMMC); seventy of the completed surveys were usable, based on the respondents' answers to a qualifier question. Similar survey solicitations on the DRU have had about one hundred responses (Sullivan & Perry, 2014).

IHEs that involved students in their emergency management planning teams were 17% more likely to implement hazard mitigation tools than IHEs that did not involve students, based on data analysis for conditional relative frequency. Even at IHEs that did not involve students, if the student body was active in discussing emergency topics, then the IHE was 16% more likely to have implemented hazard mitigation tools than IHEs where the students did not discuss emergencies. Both of these data analyses, using conditional relative frequency, indicate that the more open and engaged students are concerning emergency management considerations, the more likely the IHE is to implement hazard mitigation tools. The response options for Questions 8 and 13 are nominal (either Yes or No), so there is no expanded range of data to analyze for

correlation. Also, a chi-square test (p-value) is not prudent to use since there is no expected data to compare with the survey results.

The data did not confirm my prediction that most IHE administrators implemented hazard mitigation tools in response to pressure from students. Only five emergency managers (of the 55 respondents who had implemented hazard mitigation) thought their administrators acted in response to pressure from the student body.

Though involving students is not an entirely new approach to emergency management planning at IHEs, involving students is not pervasive, as was confirmed by the more than 60% of the survey respondents whose IHEs did not involve students. Regulations such as the Clery Act, the Higher Education Act Reauthorization, Campus Sexual Violence Elimination Act, Violence Against Women Act, and the proposed Safe Campus Act and Fair Campus Act require IHEs to engage their students within committees and community outreach. The timing of this investigation with the above regulations will encourage IHEs to investigate for their own particular situations whether it is beneficial to involve students in the mitigation or preparedness stages of their own emergency management planning processes.

Some respondents' answers on multiple questions potentially conflict. All six of the IHEs that did not have more than two people on their planning team (answered No to Question 5) reported that their administrations support involving multiple stakeholders. Also, the seven IHEs that did not have administration's support for multiple stakeholders (answered No to Question 6), did have multiple stakeholders (more than two) on their emergency management planning team (answered Yes to Question 5). It may be that the

positions that administrations support have not be realized in the composition of the planning team.

Recommendations for Research

One of the more glaring data differences was between Question 12, where 66 of the 70 respondents felt non-employee stakeholders should be involved with the emergency management planning team, yet only 27 IHEs had students involved. I want to know from the 39 IHEs why they want non-employee stakeholders, but not students on the team. The answer to that question may illuminate the reasons many emergency managers do not currently work with students on the team.

Further investigation into this subject could explore varying degrees of the subjects of the survey questions. For instance, future research could seek to determine if student involvement is more valuable for small emergencies (those with a short duration, low financial cost, and no loss of life) or large disasters and crises. An investigator could ask the respondents to answer more in-depth questions about each of their answers for a more granular view. This survey was not designed for a granular view of the many nuances of emergency management mitigation and preparedness phases.

Further research may be conducted in connection with the Federal Emergency Management Agency, National Fire Protection Association, and the International Association of Emergency Managers. These organizations draft guides and/or inform on best management practices for emergency management. These organizations consider studies, like this one in drafting and discussing revisions to the guides. Question 15 about the level of student involvement did not seek to clarify whether it was the student's fault they lacked engagement or whether the IHE did not earnestly encourage engagement

from the student. Assessing the environment that contributed to students who were not deeply engaged is important to maximizing the potential contributions of students in the emergency management processes. Even if student involvement is encouraged in best practices guides, if either the student or IHE sabotages the ability to add value to the planning team, the involvement of the student will have no positive effect, and possibly will degrade the social dynamic of the team.

Future research could test whether involving students in the emergency management planning process yields implementation of more effective hazard mitigation tools compared with the effectiveness of mitigation tools implemented without the involvement of students. Also, investigations could determine the comparable costs or cost-efficiencies of hazard mitigation tools implemented with or without student involvement. For IHEs, such as the University of New Orleans, that already involve students, a longitudinal study should be considered. Other topics could include whether the student body was better informed as a result of the student involvement on the planning team, or what types of topics are best suited for students or inappropriate due to security concerns. Col (2007) states that emergency management administrations should be connected with scientific data. Therefore, future research should strive for quantified and/or monetary data that can assist IHEs with their decision to include students.

The IHEs that completed the survey constitute less than 5% of the IHEs in the country. The survey cast a broad net using three listservs. Future research could target smaller groups of IHEs to achieve a higher response rate. Also, a researcher could follow up with the 62 people who viewed the survey, but did not complete it. To aide with

survey design, it would be helpful to know why those who received the survey request did not view or complete the survey.

Recommendations for Practice

The data shows that involvement of students within emergency management planning has productive benefits for mitigation implementation. Another perspective that future practice could explore is to reverse the engagement – is it productive to involve emergency management practitioners in the efforts of student life and student affairs programs. For many IHEs, significantly more money is invested in student affairs activities and planning than in emergency and safety purchases (excluding the built environment). Perhaps emergency management efforts could see greater buy in, funds allocation, and campus-wide involvement if student affairs took a lead role in promoting and implementing emergency management efforts, such as training and exercises.

Summary

The answer to the research question is that IHEs that involved students in their emergency management planning processes (in the preparedness or mitigation phases) were 17% more likely to implement hazard mitigation tools than IHEs that did not involve students. The results add to the body of knowledge in providing quantitative data validating the benefits of involving students in emergency management planning. Future research should investigate further this topic to inform IHE emergency management practitioners and campus administrators.

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Appendix A
Survey Instrument

Informed Consent Statement

Investigation of Hazard Mitigation Tools at Institutes of Higher Education

I invite you to participate in a web-based online survey that is anonymous. Managers of emergency management planning at institutes of higher education will be surveyed. Your participation in this survey is very important.

The survey is part of a master's degree research project to assess implementation of hazard mitigation tools at institutes of higher education. Examples of implemented hazard mitigation tools are providing weather radios to offices; retrofitting buildings for seismic protection; building floodwalls; utilizing a behavior intervention team; training employees and students to identify, report, or rectify dangers; or department/campus-wide drafting of continuity of operations plans.

The survey should take less than 10 minutes to complete.

Participation in this research project is voluntary:

There are no direct benefits to you for participating in this research. There is no financial or reimbursement benefit for your participation in this study.

Participants may request a copy of the results by sending an email to the address below.

You may decline to participate in this survey or you may decline to answer certain questions. The web-based survey can be stopped at any time.

Your information will be kept confidential.

The web-based survey is administered through QuestionPro. QuestionPro does not collect or maintain any information that would identify who has taken the survey. Only the answers to the questions are recorded. There is no way for the researcher to know who completed the survey or who answered which question(s). All questions will be compiled into a database for analysis. There are no questions in the survey that could lead to the identification of any individual taking the survey. Any contact with the researcher must be made separately by email from the individual taking the survey.

Statement of Risk:

There is no foreseeable risk other than the brief time involved to take this survey.

Questions about the research study or this survey:

You may contact Robert Jackson directly at rjackson29@atu.edu, or the Department of Emergency Management at Arkansas Tech University at eam@atu.edu.

QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT:
THESE MAY BE DIRECTED TO DR. MARY GUNTER – DEAN OF THE GRADUATE COLLEGE, ARKANSAS TECH UNIVERSITY COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (479-968-0398).

By proceeding past this point in the survey you are indicating that you consent to participation in this study. Please print out a copy of this consent form for your records.

Thank you for your time,
Robert Jackson
rjackson29@atu.edu

Q1: What description below most closely matches your job duties at your institution?

- Emergency management
- Police or security
- Environmental health & safety
- Facilities
- Risk management
- Student affairs
- Academic affairs
- None of the above

Q2: Are you considered as a decision maker regarding emergency management (i.e., campus safety) at your institution?

Yes or No

Q3: Is your school considered a:

- Two-year (or less) institution
- Four-year (or more, including research) institution
- Other

Q4: Is your institution considered residential? That is, does your institution have on- or near-campus housing? (Whether the housing is owned or operated by the institution is not important.)

Yes or No

Q5: Does your institution have an established emergency management planning team or at least more than two people (i.e., multiple stakeholders) who are responsible for drafting emergency management documents and procedures?

Yes or No

Q6: Do you feel the institution's administration supports the concept of involving multiple stakeholders in the emergency management planning process? If you do not know, please answer No.

Yes or No.

Q7: Have stakeholders who do not work for the institution been invited to participate with the emergency management planning team? Examples might include a food service vendor, local government, American Red Cross, community organizations, etc. If yes, please list as many types of external stakeholders as you can.

Yes or No

Q8: Has your institution implemented hazard mitigation tools or projects, including physical infrastructure or training for campus groups, such as staff, faculty, or students? If no, skip to Question 12. If yes, please list the hazard mitigation tools your institution has implemented.

Yes or No

Q9: Of the mitigation tools/projects implemented, which group(s) was the driving force for bringing the idea to fruition?

Campus Safety Departments, like police or emergency management
Administration
Faculty and/or Staff
Students
External Stakeholders
Other

Q10: Do you think the administration moved to implement the hazard mitigation tools/projects wholly or partly in response to pressure from the student body?

Yes or No or Don't Know

Q11: Do you think the administration implemented the hazard mitigation tools/projects wholly or partly in response to pressure from other stakeholders? If yes, describe the other stakeholders in question.

Yes or No or Don't Know

Other Stakeholders in Question _____

Q12: Do you feel that non-employee stakeholders should be involved with emergency management planning?

Yes or No

Q13: Have you ever had a student on your emergency management planning team? If No or Don't Recall, skip to Q18.

Yes, No, or Don't Recall

Q14: Approximately how old was the student? If you are uncomfortable guessing, answer Don't Know. If you have had students of both age categories, answer Both.

Younger than 25 years, 25 and older, Both, or Don't Know

Q15: In your opinion, was the student deeply involved with the planning discussions, providing thoughtful input and asking purposeful, probing questions to advance the objectives of the team, or was the student there more simply to check the box of inclusion that the student body was asked and involved?

Yes, engaged; or No, simply for inclusion

Q16: In your opinion, when the student was involved in the emergency management planning, were any hazard or risk mitigation tools suggested for implementation as a result of the team's efforts?

Yes, No, or Don't Recall

Q17: In your opinion, when the student was involved in the emergency management planning, were any hazard or risk mitigation tools implemented or planned to be implemented as a result of the team's efforts?

Yes, No, or Don't Recall

Q18: Do student organizations (such as the Student Government Association, school newspaper, radio station, or any other official or unofficial voice for the student body) discuss the emergency management efforts of your institution? If you do not know, please answer No.

Yes or No

Appendix B

Table 1. From Question 7, respondents' list of external stakeholders invited to participate with the emergency management planning team

county emergency managers, state area field officers, health department, fire, law enforcement, nws, road department, voad's, LEPC's, red cross
All campus contract vendors County emergency services City police dept City fire dept
fire department
Local Police Department, Sodexho (food vendor on campus), FBI (for threat assessment)
we have a shelter operated by the county and the American Red Cross
local police, fire departments
police, region EMO, city EMO, City fire, nuclear planning commission
Food services WFF-Custodial Services Emergency Response Vendor Local Police, Fire, Medical Aid City and County regional planning groups
Red cross, sheriff's office, county office of emergency management, county office of public health, fire department
Food vendor, St. Louis Fire, St. Louis EM, American Red Cross, hospitals
Local government, fire and police. Food services.
Local, fire and police, local hospitals
Local fire, police, and emergency management agencies
Local Government (Police, Fire, Utilities), COmmunity Colleges, Residential Management Groups (apartments complexes/residence hall)
local government, hospital, American Red Cross

County Emergency Management, City Police, City Fire Marshal, City Fire & Rescue, fellow state-system universities, and local hospital
Police, Fire department, ambulance, city officials, other colleges, Red Cross, county, outside vendors and service providers.
County Sheriff, Town Police and Fire, County 911, other municipalities in County and State agencies
The following have all been invited to give input and to participate as observers in our exercises. However, they are not formally members of our planning team: county sheriff; city police; state highway patrol; district fire; county and city emergency management offices, federal forest service; local peer higher ed institutions; insurance broker; Red Cross; local VOAD; Sodexo
New London Police Department
County EMA, Fire Department, Public Safety
Tucson Fire, Tucson Police, Pima County Sheriff
Active shooter training with surrounding law enforcement, joint trainings on how to respond to fires/incidents on campus.
Local Fire Department, Public Health State and Local.
Fire, Police, City/County Emergency Management, LEPC, Public Health, Hospitals
City, hospitals
City, LEPC, SERT, CERT
Sheriff's Dept, Fire Department, Citizen Corps, Dept. of Emergency Management
County Emergency Management, National Weather Service, Health Department
Fire, Sheriff, Ambulance/ALS, Dispatch, ARC, State Department of Military, County EMD, Higher Education Network, PIO Network, Food Services, State EOC, Hospitals, and local media.
city, county, state, federal agencies; military; NGO, businesses, student housing complexes, contractors,
Local, county, and state officials. Red Cross, Salvation Army, local church groups, and other IHEs.

State EM, local police department and fire departments, American Red Cross, local colleges
Invites and future meetings are scheduled to include non-employee stakeholders. Members of our Emergency Preparedness Committee work with outside stakeholders daily. This includes: local government, local Emergency Management, Local Emergency Planning Committee, Tennessee Emergency Management Agency, Northeast Tenn. Regional Public Health, Local Public Health, Red Cross, regional hospital coalition, Amateur Radio Club, and local first-responders.
County Office of Emergency Management, New Mexico Department of Agriculture, New Mexico Department of Health
Town, county and state
American Red Cross, Colorado Springs Police Department, Colorado Springs Fire Department, Colorado Springs Office of Emergency Management, El Paso County Office of Emergency Management, El Paso County Public Health
City, State, neighborhoods
Local fire, police, emergency management, CTDHS, CT DPH
fire, police, multiple vendors
Local EM invited, but rarely show up
American Red Cross, Charlotte-Mecklenburg Emergency Management Office, Charlotte-Mecklenburg Police Department, National Weather Service
Public Safety Finance and Administration Facilities Planning and Operations Student Affairs University Communications and Marketing Kent Student Center and Dining Services Residence Services University Health Services Office of the Provost Information Services Environmental Health and Safety Human Resources University Counsel
Fire EMS Mutual Aid Law Enforcement Local and State EM

National Weather Service Federal Homeland Security
food service vendor, port authority, sheriff's office, local police department, economic development councils, fire departments, K-12, other federal offices nearby
Fire Dept. 2; Police 1; Sheriff Dept 1; Border Patrol 1;
ARC, local law enforcement, fire, property owners, and residents.
Local Fire and Police
Local county LEPC and EMA, Red Cross, amateur radio operators
Local Police, Sheriff, City/County Emergency Operations Center, West Tenn. Health Corp,
Sullivan County EMA Sullivan County Sheriffs Dept. Tri-Cities Regional Airport
Local government(Police,Fire, District Rep.) School Districts
City/County Emergency Management, safety experts, CERT programs
Currently, we do not have an emergency manager in place. We have hired one who will start in January 2016. We do partner with two cities around us, but we need to step up planning and preparedness again once the EM is on board.
LEPC
Hospitals , oil and gas industry, local government
Insurance company Local Haz Mat team
I'm new tith institution;however, I began inviting state coordinators, county and local emergency managers, and other regional stakeholders to participate in meetings and planning efforts.

Table 2. From Question 8, respondents' list of implemented hazard mitigation tools

active shooter training, bldg. coordinator training, facilities projects for infrastructure, awareness campaigns such as display tables, safety newsletters and bulletin board messages on emergency preparedness, physical area safety assessments, etc.
tabletop exercises live exercises
training, exercise participation, collaborative projects
We have an alert system that will send multiple texts simultaneously to subscribers. We encourage everybody (students, staff & faculty) to register with this emergency notification system.
training regarding active shooters and tabletop exercises
limited training, installed outdoor P.A. system, implemented emergency text/email messaging.
only for lab safety in the radiation and nuclear labs (at this point)
Infrastructure surveys with written reports Trained Built Environment personnel to screen Buildings for re-occupancy Host critical support policies, procedures and key documents to a cloud service as a back-up Established and communicated Emergency Procedures and Evacuation assembly points Details a summary of key infrastructure, back-up power, hazardous materials locations
Armed intruder response training, early intervention training, mass notification system,
Recently contracting with engineering company to survey all facilities and identify best area of refuge.
Continuity of Operations Plan. Emergency Operations Committee. Web-based emergency outreach to key personnel. Web-based notification system for students, staff and faculty.
Safety training applicable to job (lab, machine shop, etc), job specific for some, e.g. electricians.
Flood control improvements, training for staff
Tree Fall Area, Hazard assessments, Training, Various OSHA compliance measures, MOU's with medical providers

No specific tools. We always evaluate the use of a building to determine the need for back up power when building new or doing extensive remodels.
physical infrastructure (access control systems, cameras, blue light phones, etc.), training (ICS/NIMS, active shooter, Run-Hide-Fight, fire extinguisher, fire evacuation, etc.), and various other tools / projects
Training with tabletops, videos, drills
Active shooter training for all associates, CPR/First Aid Training, CERT training, local emergency planning, and TEECHs trainings
Training, Emergency Response Team, Emergency Response Equipment.
Training for employees/students Emergency plans for buildings Emergency generators for key bldgs. & shelters Identification of severe weather refuge
HIVA plan, past FEMa HMGP grants
Too numerous to list.
Completed 2 @ 5 year Hazard Mitigation Plans. Submitted to County and FEMA. Training on Mitigation Plan presented to Program Leaders
Training and mitigation planning
We have prepared, trained in, and implemented C.E.M.P. and DMA 2000 Hazard Mitigation planning. There is a collaborative effort on campus and a committed team of faculty, staff, and students who work together to mitigate issues and solve problems.
Structural hardening, building codes, university design guidelines; training and exercise; education and outreach; prevention.
We had a DRU grant. We also use tools provided by our local Office of Homeland Security.
We have a FEMA Approved Hazard Mitigation Plan
ETSU has applied for the Hazard Mitigation Grant Program - Planning Grant and will begin constructing a formal Hazard Mitigation Plan in the Spring 2016 Semester

HLS-CAM, training for all staff, distribution of emergency response guides, remainder are classified.
Hazardous risk assessment Hazardous mitigation plan
Risk and Vulnerability Assessments, department training opportunities
FEMA Pre Disaster Hazard Mitigation Plan Campus Community Emergency Response Team Warning Siren Lightning Prediction Storm Ready
Various fire, hurricane, protestors etc. we are also a state emergency distribution site for national stockpile medication as well as emergency shelter ops.
Primarily Risk Management Fire Mitigation projects (ongoing) -adding sprinkler systems to older buildings; fire evacuation drills(training) Personal injury/Worker Safety (ongoing -some of these are vendors) Tornado/Severe Weather shelter drills (training) Active Shooter Exercise
ice melt system in renovated outdoor steps, active shooter training (on request), CPR training (HeartSafe Campus)
training, training and more training
1st aid/CPR, emergency management classes, active shooter training, threat assessment workshops, small fire suppression training
Active shooter - classroom only Fire evacuation
OSHA-required training
Local Drills with Police, ambulance, fire dept. drills and tours of facility.

<p>SAFE Northeast Emergency Preparedness Procedures and Training Severe Weather Alert Drills Active Shooter Shelter in Place Drills Fire Drills Voluntary CPR / AED classes Rape Aggression Defense (RAD) training</p>
<p>We obviously look at surrounding area to college, identifying hazards that may impact students, staff and faculty. We have established coordinated approaches to whatever may impact campus. My yearly objectives are the International Fire Code requirement of at least 10 evacuations, 4 lockdowns and 2 shelter in places. I also have 49 Campus Emergency Response Personnel who train once a month and participate in exercises.</p>
<p>Use the local hazard mitigation plan, as well as UASI Assessment tool. Also simple 'safety assessment' tool for OSHA purposes - used by the Safety & emergency Planning Committee to conduct safety walks around the campuses.</p>
<p>We completed a THIRA, which identifies the threats and identifies where we need to step up our preparedness. I try to educate our community through a newsletter article to the threat assessment categories that have been identified, what it means and how we plan to avoid risk and mitigate effects. We have a regional EOC and work with local cities to train and exercise. We are working on an evacuation policy now for the campus to ensure people get themselves to safety and participate in exercises.</p>
<p>Great Shake Out</p>
<p>I plan to use The regional protective security advisor Economist GIS mapping tools with CIKR data</p>
<p>Participation in the county hazard mitigation plan, training for faculty, staff and students, including emergency management and fire in the planning of new buildings.</p>
<p>Significant Training - fire safety (prevention, fire extinguishers, evacuation), active shooter response, personal safety, chemical safety. Table top exercises (3-4 times per year) on a variety of topics. Constant investment in personal protection items to prevent hazards.</p>
<p>ICS training, TEEX classes, attending and participating in Local and County tabletops and full-scale exercises, active shooter awareness training, review and endorsement of safety and security policies, Behavioral Intervention team. One main one is 911 addressing for campus. We have implemented Alertus Desktop and Rave Guardian. We have had Everbridge Aware. The communication between all these opportunities has been getting better.</p>

<p>Purchased and installed indoor and outdoor mass notification systems.</p>
<p>Disaster Resistant University grant helped us create a Pre-Disaster Mitigation Plan. We participate regularly in training for safety in office spaces (e.g. securing bookcases, placing heavy items on lower shelves). We use our HAZUS-MH AEBM Earthquake Loss Estimation study in our Facilities Master Planning process.</p>
<p>Active shooter training, lockdown training, training on door locks (manual and electronic) and training on emergency notification system activation and response.</p>
<p>Buildings are located and constructed with due consideration of current flood maps. Emergency teams are trained and equipped at each campus (13 locations). Crime awareness and prevention programs. Security enhancements. Behavior intervention teams. EHS and Emergency Management training and prevention programs. Hazard identification/evaluation, due consideration flood plains in site selection/construction, emergency teams at each campus to help implement emergency procedures, emergency management programs, security management programs, crime prevention and awareness programs, health and safety programs, behavior intervention teams at each campus</p>
<p>Fire Code Compliance</p>

Table 3. Other stakeholders that pressured the administration

state and national requirements, best practices, or recommendations.
Other colleges, parents, local emergency groups/code enforcement.
Faculty and staff
Upper management due to compliance with regulations
Board of Governors
Insurance companies.
Capitol projects staff
Florida Statutes
Regents office and state government.
Dallas County Community College District has 7 Campuses each with their own Police Department and Emergency Management, along with District Risk Management. All the colleges implement specific mitigation projects based on day-to-day organizational operations. In most cases, I train and conduct exercise more than other campuses. Unknown why?
County and Cities in the Operational Area
City
Legislation, nuclear and lab regulation
Researchers and Housing and Food Service

