

A Comparison of the Aftermath of Hurricanes Rita and Ike: University Administrator's Perspectives

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On September 24, 2005, Southeast Texas and Southwest Louisiana were devastated by the flooding and 120 mile per hour winds of Hurricane Rita (Mangan, 2005). Hurricane Rita devastated the region with insured losses totaling approximately \$5 billion, although uninsured losses may total as much as two and a half times that amount (Gallaspy, 2005).

As a measure of the damage to institutions of higher education, Lamar University was closed for 24 days following landfall with debris removal and repair to the 70 damaged buildings continuing 24 hours a day (Lumpkin & Whittle, 2007; Mangan, 2005). When classes resumed on October 19, 2005 the university lost approximately 500 of the 10,600 students who had started the semester. One year later fall enrollment, still reeling from the effects of Hurricane Rita, was down to 9,906 students. This was a 6.5% decline compared with the previous year (Lane, 2006). The dilatory effects on the university's enrollment continued to be felt for the next three years.

Three years later, on September 13, 2008 Southeast Texas was once again the victim of a natural disaster, Hurricane Ike. The university was again closed for repairs for an extended period, although only 10 days in this instance, resuming classes on September 25, 2008. The impact on student enrollment was not as severe as with Hurricane Rita since the university lost only approximately 300 students (Lawrence, 2008).

While there have been many works dedicated to discussing the lessons learned from disasters such as Hurricane Katrina, few institutions have had the opportunity to gauge the effectiveness of substantive and procedural changes made from one disaster to the next in such a short time period. The ability of higher education administrators to recognize and reflect on the effectiveness of changes made following the first hurricane (Rita) during the second hurricane (Ike) may have positive implications for administrators facing similar issues of disaster preparedness.

The purpose of this study was to examine higher education administrators' perspectives of change brought about at institutions of higher education by the aftermath of two major hurricanes within a four-year period in Southeast Texas. Through open-ended survey questions, administrators described the impact Hurricane Rita had on the technology infrastructure and computer systems, facilities infrastructure, finance systems, and academic issues at the university. Administrators described policy or planning changes made to address issues or problems found because of Hurricane Rita. Respondents described how changes made because of experiences during the first hurricane impacted the university's administrative policies and practices to mitigate the impact of the second hurricane.

Literature Review

Most colleges and universities are unprepared to effectively and efficiently manage disasters or crises facing them (Dolan, 2006). Cavanaugh (2006) noted that institutions cannot always depend on smooth, uneventful semesters; they are sometimes tested by a myriad of disruptions. While hurricanes have been of most recent concern, many types of natural disasters may affect academic institutions including tornadoes, floods, earthquakes, blizzards, and floods. The literature review focuses on lessons learned by

institution administrators following a disaster to facilitate more efficient and effective leadership when faced with future disasters.

Disaster Planning and Preparedness in Higher Education

Mitroff, Diamond, and Alpaslan (2006) stressed the importance of planning by college and university administrators, especially given that “as the complexity of institutional operations, technology and infrastructure increases, the risks facing universities and their leaders multiply as well” (p.62). Mitroff et al. found most of the institutions they surveyed were prepared only for the crises they had already experienced.

Lipka (2005) noted problems faced by institutions of higher education brought about by Hurricane Katrina pushed administrators at universities and colleges (even in areas not considered to be susceptible to natural disasters) to plan for disasters, both natural and man-made such as terrorist attacks. Foote (1996) suggested that crisis response was especially challenging to academic administrators because of the complexity involved in the system of shared leadership across the various constituencies at the institution. Foote, President of the University of Miami during Hurricane Andrew, emphasized that while disasters are unpredictable, with strong leadership they are manageable.

Information Technology

Kiernan (2005) reported that because of severe problems after Hurricanes Katrina and Rita, higher education institutions nationwide reviewed and, where necessary created from scratch, information technology (IT) disaster recovery plans. Institutions prepared for such routine tasks as obtaining spare parts for required equipment. Kiernan reported a recent survey found only 56% of colleges had such a plan, while an additional one-third indicated they were in the process of preparing IT disaster recovery plans.

Johnson, Nolan, and Siegrist (2006) emphasized the importance of pre-planning including practices of backing up or securing data at a distant site and working with another institution outside the range of the disaster to provide an alternate location for information management operations. Johnson et al. recommended initial post-disaster IT action restore the institution’s student and administrative systems, website, and online course capabilities. This would potentially decrease downtime for the university and its stakeholders.

Collins, Savage, and Wainwright (2008) emphasized the importance of reinstating communications channels, including the institution’s website, e-mail systems, and other critical applications. Critical applications may include employee payroll, student records, and environmental management systems.

Communication

Communication, specifically the ability to communicate with stakeholders (e.g. faculty, staff, students, governing bodies, and parents) was found to be one of the key improvements pursued by administrators (Foote, 1996; Johnson et al, 2006; Mitroff et al., 2006). Foote (1996) noted that, in the University of Miami’s encounter with Hurricane Andrew, their communication plan was the one area of their emergency plan that fell short. Their assumption that at least one form of communication would remain usable following a disaster was faulty since telephones, radios, and televisions all failed. Since roads were impassable, they were also unable to communicate face-to-face. Tarr, Birdwhistell, Birdwhistell, and Schmehl (2007) found that Loyola University, after communication problems were encountered with cellular phones during Hurricane Katrina, made changes to their physical plant disaster plan requiring the use of two satellite phones along with multiple cellular phones with area codes from regions other than New Orleans.

Johnson et al. (2006) discussed the importance of designing a communications plan that could be put into effect in case of a disaster. Johnson et al. suggested that the university website may be the appropriate vehicle for dispersing information to university stakeholders, providing directions for students and employees, and providing information about the university’s plans for recovery from an emergency. Regardless of which system is used, it should provide information about recovery status of the institution. Foote (1996) emphasized the importance of getting and distributing factual information about the disaster to dispel rumors and inaccurate information prevalent immediately after a disaster.

Tarr et al. (2007) suggested that universities use an off-site emergency e-mail system in addition to the institution's website for distributing information. Kiernan (2005) reported the University of Texas required senior officials to obtain a second e-mail address separate from the campus system circumvent problems caused by a potential breakdown of the university's e-mail server.

Lipka (2005) reported university administrators discovered the importance of acquiring proper communications equipment following Hurricane Katrina. In New Orleans when communications broke down because of down telephone lines, university officials were forced to borrow satellite phones from news reporters. Johnson et al. (2006) noted the university's discipline in testing its communications system is a key to its success during an emergency.

Facilities and Infrastructure

Johnson et al. (2006) noted the importance of designating an emergency headquarters from which all disaster recovery efforts could be overseen. Lipka (2005) discussed the importance of immediately establishing a command center as the first step in resuming the operations of a university. Lipka reported that many experts recommend university administrators establish mutual-aid agreements with other colleges or universities to shorten the time required to establish the command center and to ensure access to the necessary equipment and amenities.

Johnson et al. (2006) discussed the importance of identifying a designated person to provide emergency and government workers access as quickly as possible to all buildings requiring renovation. Timely access to buildings should be balanced with the necessity to restrict access to essential personnel (Cavanaugh, 2006).

A key problem facing physical plant personnel at Loyola University following Hurricane Katrina included insufficient diesel stores resulting in generators running out of fuel. Future physical plant emergency plans called for an upgrade of the size of generator fuel tanks as a remedy (Tarr et al., 2007)

Financial Issues

Lipka (2005) suggested institutions consider the possibility of permanently losing displaced students resulting in decreased revenue; consequently institutions must gauge their ability to operate with those losses. Lipka recommended institutions review business-interruption insurance policies. Jarrell, Dennis, Jackson, and Kenney (2008) studied community colleges impacted by Hurricane Katrina and found that up to 25% of displaced students enrolled at other colleges in Louisiana.

Tresaugue (2006) suggested that institutions in regions of recent disasters may suffer through a time of reduced enrollment because of parents' concerns regarding their children's safety. Tresaugue suggests this may have a negative impact on institutional revenue. Watson, Melancon, and Kinchen (2008) suggested the possibility of postsecondary institutions aggressively seeking out grant funding during decreasing levels of state funding, especially after disaster situations

Academic Issues

Jarrell et al. (2008) noted two difficult tasks faced by academic affairs at academic institutions: (a) locating students and faculty, and (b) assembling a listing of course offerings. Jarrell et al. (2008) discussed pitfalls at one institution where time and resources were spent building a schedule of online courses; however, no time or resources went into organizing a system for students to receive financial aid information, transcripts for transfer, and course payment.

Johnson et al. (2006) emphasized the importance of locating displaced students to retain them by using online or face-to-face instruction at remote locations. Tarr et al. (2007) noted that after Hurricane Katrina, Xavier University implemented a policy requiring all faculty members to include disaster contingencies in their course syllabi. At Xavier, all courses are automatically installed in their web-based classroom management system to facilitate course completion in the event of an evacuation.

Jarrell et al. (2008) described a plan implemented at Delgado Community College following Hurricane Katrina where students were offered an option of taking courses online, resulting in students becoming reintegrated academically and socially into the institution. Tinto (1987) found that students were more likely to persist when they were involved academically and socially in the institution. Jarrell et al. (2008) found that a significant number of students chose to participate in online courses; however, challenges

and limitations to that system included faculty inexperienced in delivering online courses and limited technical support.

Methodology

Cresswell (2007) suggested the importance of understanding the experiences common to many in order to make changes necessary for future improvements or to simply understand the experience of the phenomenon. Cresswell noted the purpose of the phenomenological study was to “describe the meaning of the phenomenon for a small number of individuals who have experienced it” (p. 131). This phenomenological study used open-ended survey questions to describe administrators’ views of change and the effects Hurricanes Rita and Ike had on change within their institutions.

Participants

The sample was purposive and included individuals in leadership positions at a four-year institution in Southeast Texas. The officials targeted were chosen based on their experience and employment in administrative positions at institutions of higher education in Southeast Texas during Hurricanes Rita and Ike. All participants were males from various functional areas, e.g. academic affairs, facilities management, and finance.

Data Collection

A survey instrument was distributed through the university e-mail system. The instrument contained open-ended questions where participants described from their perspective the impact Hurricanes Rita and Ike had on their institutions and its stakeholders (i.e. faculty, staff, and students). Participants described ways the institution changed between the disasters based on shortcomings discovered following Rita.

Data Analysis

Cresswell’s (2007) phenomenological method was used to review comments provided by the participants. The participants’ responses were evaluated for “significant statements” (p. 61). Statements were grouped to create themes using Creswell’s data reduction technique. The participants’ detailed experiences of what happened and how it happened were reported in themes. Credibility and trustworthiness were addressed through member checking where research results were returned to participants for examination of its accuracy.

Findings

Five participants returned surveys. Several important themes emerged: (a) lessons learned during Hurricane Rita, (b) how those lessons were addressed through planning and policy changes, and (c) the impact those changes in policy and planning had to better manage the university during Hurricane Ike.

Lessons Learned

Based on observations of the participants responsible for the recovery of the university following Hurricane Rita, many lessons were learned. Two overriding themes emerged: (a) the necessity for planning, and (b) communication in all functional areas. Participants identified problems caused by a lack of planning and poor communication both before and following Hurricane Rita.

Planning. Participants reported that planning prior to Hurricane Rita was not as robust as needed to respond to a disaster of that magnitude. One participant wrote that the university was “less than adequately prepared for the storm.” Effective planning for efficient operation during recovery was needed.

One participant noted that Rita was especially damaging to the institution’s facilities and infrastructure with “virtually every building as well as the grounds suffering damage, power was out for two to three weeks, and restoration/remediation efforts were slowed as several generators failed.” Participants reported that in addition to generator failures, there was also a shortage of fuel for the generators that were functioning.

Participants reported that planning for faculty and staff to continue operations was needed. Because of restoration to damaged buildings and dormitories, students were not allowed access to their possessions nor were employees able to return to work in their offices or classrooms. Participants described that planning for coordination of campus security with local law enforcement during the recovery phase was vital since looting and other hazards existed throughout the campus.

A need for planning for impacts to financial systems and administrative functions was reported by participants. Participants reported that the university lost approximately 700 students whose tuition was refunded. A participant reported on the impact to administrative functions and described the delay to the university's accreditation process with the Southern Association of Colleges and Schools.

One participant described a need for planning for disruption to teaching and research projects. Because the university was closed for 24 days during Rita and 10 days during Ike, class periods were lengthening and final examinations were eliminated. Several research projects were hampered or completely destroyed. The participants' comments supported the recommendations made by Tarr et al. (2007) to have all courses built into the university's electronic course system so that courses could be completed online if the semester could not be completed on campus.

Communication. A participant from academic affairs discussed the importance of communication with faculty, staff, and students and identified it as the "key" to restoring the institution to "normalcy". A major problem at the university during Hurricane Rita was the lack of access to e-mail for several weeks resulting in no organized, institutional method of contacting all faculty, staff, and students. This participant commented on the use of message boards housed on the university's website where there was a free flow of unmoderated information during Hurricane Rita. This participant reported that message boards became a source of "false rumors, bile, and venom."

The university was "less than prepared" for the variety of technology issues and problems. Online courses, e-mail, and registration activities were unavailable for several weeks immediately after Hurricane Rita. This was especially difficult for students as one participant noted, "Students want to continue their studies and graduate on time."

How Lessons Were Addressed

Planning. Respondents reiterated the lack of planning prior to Hurricane Rita, a shortcoming that was addressed over the subsequent three years. Participants noted the most important change made following Hurricane Rita was to create emergency plans. These plans were followed before and after landfall of Hurricane Ike. One official commented that he was "involved in multiple meetings with the President's Emergency Management Committee and the preparations were extensive and well planned for Ike".

One participant noted an obvious and vital observation that "nothing happens without power." Because of this, following Rita and prior to Hurricane Ike, university officials met with utility providers, acquired generators, purchased and stored fuel, and arranged for staff to be available to restore power quickly and safely. Contractors were contacted and poised to move in before Hurricane Ike arrived resulting in more efficient restoration and remediation to buildings and facilities. Emergency planning included instructional scheduling strategies that were developed after Hurricane Rita and were quickly employed immediately following Ike.

Communication system issues. Many participants reported on communication issues discovered during Rita. After Rita the university contracted with ConnectEd to provide an automated e-mail and voice phone-call system to multiple telephone numbers allowing immediate mass communication with students, faculty, and staff. Because of problems found with message boards during Rita, this technology was not used during the recovery from Ike. Satellite phones were purchased and distributed to key administrators to avoid breakdown in cellular phone coverage following a disaster. Finally, the university's e-mail system was kept online until the last possible moment before mandatory evacuation.

Effects of Changes

One participant intimately involved in planning and restoration activities at the university reported that "the changes worked almost flawlessly." He noted that "information flowed steadily; no records or data were lost or compromised, and systems were up and operational in a short period of time." Another participant described the Ike recovery as a "textbook response," noting that the university "responded quickly, efficiently, and strategically."

E-mail access was not available until full, uninterrupted power was restored; however, the university website was mirrored and hosted by a sister institution and was continually operational. The ConnectEd automated system informed faculty, staff, and students of evacuation and return dates. One participant reported the improvements made at the university in response to the first hurricane may have played a

significant part in the decrease of student withdrawals as a result of the second hurricane from approximately 700 following Rita to fewer than 300 following Ike.

Implications for Practice

While many works described lessons learned from disasters such as hurricanes and provided recommendations based on those lessons, very few institutions have had an opportunity to test those recommendations over such a short period of time (Foote, 1996; Johnson et al., 2006; Tarr et al., 2007). The responses shared in this study may inform institutions reviewing or creating emergency preparation plans of potential concerns that need to be addressed. As Kiernan (2005) noted, 56% of colleges had prepared such a plan and an additional one-third indicated that they were in the process of preparing plans. The findings of this study suggest the keys to improving institutional responses following a disaster focus on improved planning and communication.

Summary and Conclusion

The purpose of this study was to examine higher education administrators' perspectives of change brought about at an institution of higher education by the aftermath of two major hurricanes within a three year period in Southeast Texas. The themes that emerged from the participants' responses revolved around planning and communication.

According to participants' responses, planning and communication were the two areas where the institution faced the most challenges during and after Hurricane Rita in 2005. The university addressed its problems in planning and communication and was tested with another hurricane, Ike, three years later during the fall semester 2008. As a result of the changes made by the university, the response to Hurricane Ike "was a textbook response."

Participants note that there are additional improvements that will be made to make future recovery efforts even more successful. The institution is currently considering moving e-mail service off campus to provide for continuous communications. Discussion is ongoing to implement all courses on the web-based course management system. This would eliminate interruption to instruction since courses would be continuously available to students and reduce the impact of evacuation on instructional activities and students' efforts toward graduation.

The results of this study confirm the findings of previous researchers (Dolan, 2006; Johnson et al., 2006; Tarr et al., 2007). The results further illustrate the importance of advanced planning in all areas of the institution and how key the ability to communicate is among faculty, staff, students and administrators following a disaster. With a strong, well-thought-out crisis management plan a university is able to conduct business without interruption and continue to fully support all of its stakeholders.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Provide training for university leaders and managers in the development and implementation of an information technology disaster recovery plan.
2. Maintain a university website providing information about the university's plans for recovery from an emergency.

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