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Preface

This is the eighth in a series of white papers sponsored by the Kean University Center for History, Politics, and Policy. This paper, authored by Dr. Jim Drylie and Dr. Sean Hildebrand, explores the impact of Hurricane Sandy on the University's emergency management plan.

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More than a Storm: The Kean Experience with Hurricane Sandy and Lessons Learned

The Problem

On October 29, 2012 Hurricane Sandy made landfall near Brigatine, New Jersey. The widespread impacts from the storm, which was over 900 miles wide, affected the greater-New York metropolitan area, as well as points along the coast to the north in New England and South in the Mid-Atlantic stretching as far west as Ohio and Kentucky. In the heart of the impact zone lays the campus of Kean University, whose response to the events leading up to and in the aftermath of Hurricane Sandy we examine in this paper. The university's well-established Emergency Management Plan was put into effect the day before the storm struck the east coast. The plan would assist with protecting the critical infrastructure of the university physical plant so that normal activities could and would resume as soon as possible after the storm. This storm would be different, however, and the overall experience of the entire university community demonstrated the need for a reassessment of how the university as an institution, and the vast community that is Kean (students, staff, and faculty) plan and respond to disasters of any potential type.

As with any emergency plan, there would be contingencies that were not considered, and the complexities of this storm would magnify any and all limitations in the overall plan in ways that would stretch the university community to the limit. Typically, the vast majority of emergency management planning, preparedness activities, and response operations occur at the local level while very little consideration, if any, is given to conditions outside of the immediate area. Hurricane Sandy would change that very quickly and in very dramatic fashion.

Kean University was not spared from the storm's effects, which limited access to power, gasoline, communications networks, transportation infrastructure, and other "creature comforts" of life. The main campus shut down for an unprecedented nine calendar days (October 29 until November 6) and the Ocean County campus closed for two full weeks. However, the university infrastructure, including the campus located in Ocean County, suffered negligible physical damage. But, this extended closure caused major issues for the Fall 2012 semester not only in the classroom, but also for all features of campus operations.

The Storm

Hurricane Sandy was more than just a storm, it was a combination of weather related factors and breakdowns in human systems, both tangible and intangible. As the storm approached, an existing high tide and the effects of a full moon compounded the growing tidal surges, estimated at nearly 14 feet in some of the hardest hit locations along the New Jersey coast. The lower lying areas in and around Hoboken, Manhattan and Queens experienced extensive damage to entire neighborhoods and parts of the vast NYC/NJ Mass Transit system (NYC Subway, NJ Transit, PATH Rail, Amtrak) were

pummeled with flooding to rail yards and tunnels. The collateral damage of downed power lines and damaged transformers set in motion a series of breakdowns and interruptions in the flow of goods and services to the entire tri-state area; specifically fuel and gasoline. Thirty-nine years after the gas crisis of 1973, Governor Chris Christie called for odd-even gas rationing statewide. The stage was set for perhaps the largest interruption of the day-to-day operations of Kean University in recent memory.

The overall impact of Hurricane Sandy on Kean University as an institution is limited in the traditional sense of losses calculated in financial terms. The university's footprint in New Jersey is well established, with the main campus in Union, a second branch campus in Ocean County, and satellite campuses including Raritan Valley Community College. For Kean, a disaster such as Hurricane Sandy was not an isolated incident limited to weather related problems. The hurricane created a calamitous domino effect, which impacted all aspects of university operations including student housing, facilities, and academics. Faculty, staff, and students could not remain on campus, nor could they return to campus to help resume normal operations. The heart of the problem for the university as an institution, and the community as a whole, deals with variables that exceeded any expectations with a storm of this caliber.

A Self-Critical Analysis

The literature is limited in analysis of how disasters, specifically weather related incidents, impact colleges and universities (Gutierrez, Hollister, & Beninati, 2005). The majority of the research in this regard focuses on the effect of disaster on the general public (Gutierrez, et al., 2005) and how to plan for potential events by recognizing hazards on campus (Zdziarski, Dunkel, & Rollo, 2007). An extensive review of the literature in the aftermath of Hurricane Sandy that covered preparedness, risk factors, communications, evacuation, and resiliency of populations, was void of any form of analysis related to higher education (Piotrowski, 2013). The question of how Kean responded to this crisis would be limited to a self-critical analysis focusing on how the storm affected the university community.

To gauge the response of the university to this incident, the authors of this paper conducted a university-wide survey soon after a majority of the community returned to some sense of normalcy. The results explained herein identify one glaring limitation shared by <u>all</u> stakeholders: emergency management is not viewed as a shared responsibility within Kean University. The administration and the university community were not in sync in what was expected, what to communicate, and more importantly what is needed for the university to operate as a whole under such adverse conditions. Emergency preparedness transcends any expectation of it being the sole responsibility of any one person or entity; in today's world it is a universal obligation of each and every person to be prepared.

With such little physical damage to the university, or any of the satellite campuses, how did a storm, which was downgraded from a Category 1 hurricane to a post-tropical cyclone the day before making landfall, negatively impact overall

operations? There is no simple answer. While most of the technical aspects of the plan worked as intended and expected under the circumstances, internal reviews since the storm spurred some necessary adjustments in many of these critical areas, including accounting for critical external variables beyond the normal purview of the university. Ultimately, the scope and breadth of Hurricane Sandy impacted a core aspect of the university mission: continuity of academic operations.

A significant, and justifiable, criticism centered on the inability of faculty and students to account for the growing lapse in time for studies. An underlying assumption of many faculty and students alike, was that this was the responsibility, and to some extent the fault, of the university. Namely, it is perceived that the university has a contingency plan in place to adjust for any classroom and employment time lost and it is not the responsibility of those in the classroom to develop their own plans or solutions. Expectations of this sort are clearly not the answer. What was missing before the storm was a university-wide culture of self-awareness and resiliency that would help lead to a quicker sense of normalcy once campus operations resumed. The authors believe that future change needs to occur in an effort to develop a new culture of shared responsibility within the university community. This culture will foster a collective sense of responsibility from the ground up, and familiarize all campus community members with personal preparedness methods. Therefore, the storm provides the campus an opportunity to not only improve its internal planning efforts for catastrophic events, but also to work with students, faculty, and staff to understand that disaster resiliency begins at home; a mantra that the Federal Emergency Management Agency (FEMA) has promoted in the years since the September 11 attacks.

Policy Implications

The university's Emergency Management Plan (EMP), which was previously updated in 2012, is a thorough and comprehensive document that serves as a guideline in planning for and responding to all types of emergencies and crisis situations. The main goal of the EMP is the protection of life, as well as protecting the university infrastructure, which is normally associated with the physical plant, grounds, and property. Plans of this nature evolve over time and both short-term as well as long-term changes are often guided by best practices and lessons learned. Change can be the result of direct experiential learning or from reviewing similar incidents at peer institutions or locations. The fundamental principles of an EMP are mitigation, preparedness, response, and recovery.

One key component of the plan that went into operation as the storm approached and continued throughout the incident was the communication strategies adopted to contact the campus community. The university communicated updates on as a regular basis via traditional mainstream media outlets, the Kean University internet homepage, and social media sources like Twitter and Facebook. Additionally, those who subscribed to the campus alert network received recorded communications via telephone and e-mail. But, in many cases the messages could not be received, or was significantly delayed,

primarily due to the nearly statewide loss of electricity and impact to cellular communications networks.

Seeking Answers

With all of the hard work and effort that is put into developing and implementing any emergency management plan, the work does not end when the crisis or incident is over. In fact, the preparation for the next event is just beginning. Shortly after the campus reopened, the authors of this paper distributed an electronic survey to students, staff, and faculty of the university via e-mail in an effort to gauge their perceptions about their experiences before/during/after the storm as they related to campus activities and the quality of information communicated by the university. It is only through such an honest, self-critical analysis that any organization, institution, or community can start the process of rebuilding and mitigation that will help to improve resiliency and future response capabilities.

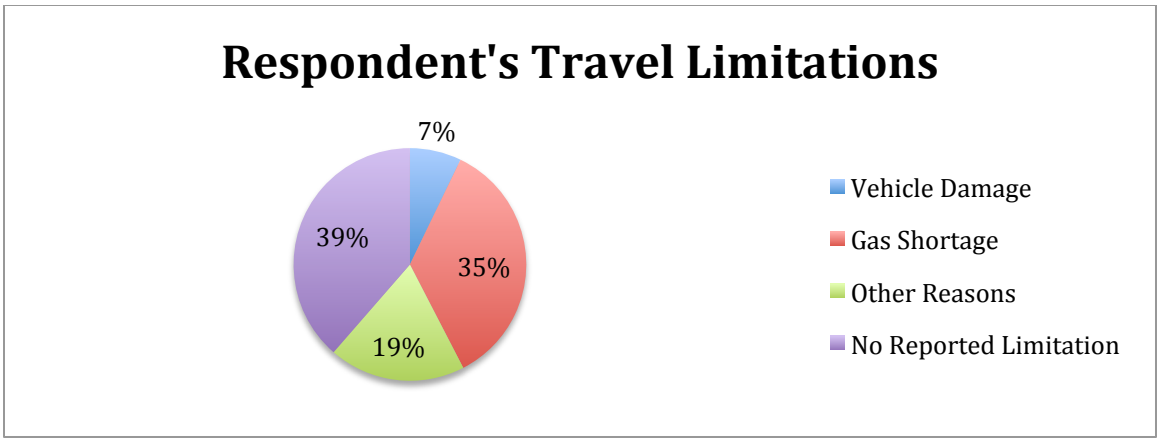
The survey garnered 1,075 valid responses from students (n=743), staff (n=149), and faculty (n=180) on both the main and Ocean County campuses (the Raritan Valley campus was not included)[1]. Eleven percent of the respondents were from Ocean County, with 12 percent of the respondents attending classes at one or both campuses (9% at Ocean and 3% both Union and Ocean). Being a commuter school, Kean relies on the ability for its students, faculty and staff to travel to one, if not multiple campuses.

Survey Findings

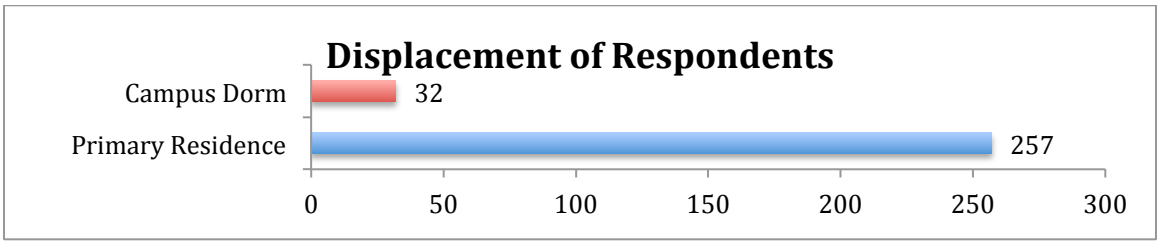
Impact

A total of 660 (61%) of the respondents experienced some type of limitation in travel due to vehicle damage, the gas shortage, or another reason as a result of the storm.

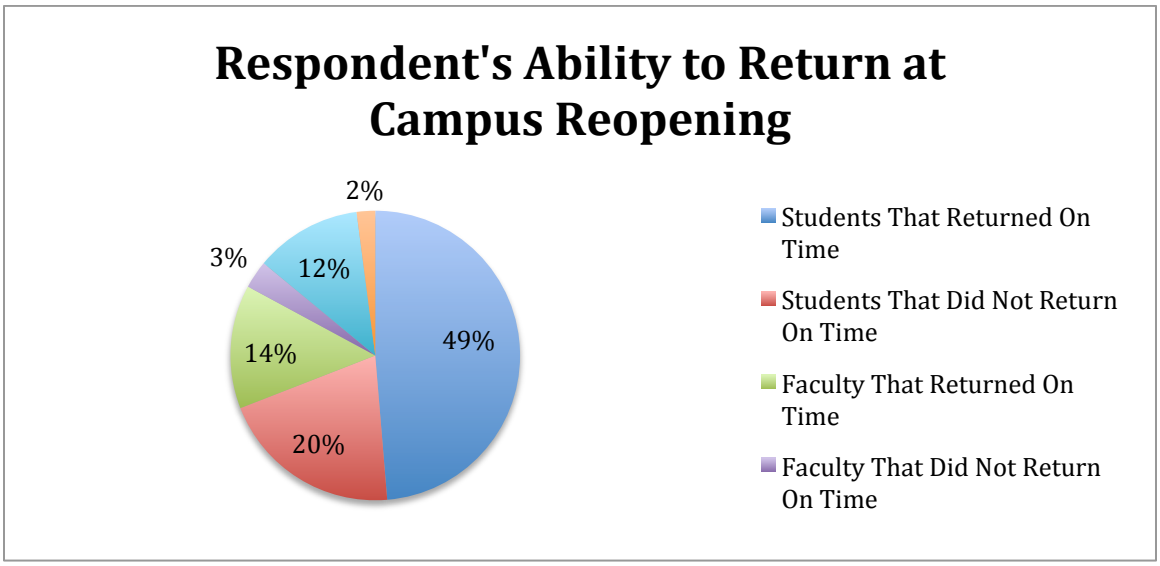
[1] The exclusion of Kean students from any of the satellite campuses was due to the construction of questions focused on the main and Ocean campuses. The obvious limitation of the study in this regard serves as a reminder of the expansiveness of the university system, and future plans and decisions need to be made with this in mind.



Furthermore, the storm's effects displaced 289 (26.9%) of the students, faculty and staff responding to the survey, including one author of this report. This impacted the ability of these individuals to return to campus upon its reopening.

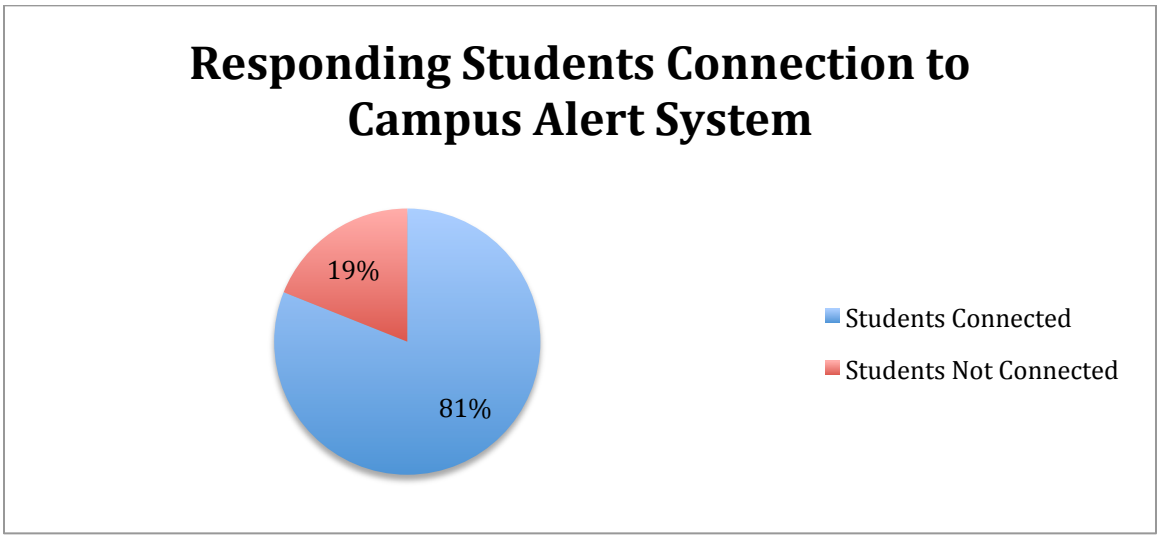


The previous issues precipitated by the storm impacted the ability for many to return to campus when classes resumed. A significant portion of both faculty and staff at the main campus, and the majority at the Ocean County campus were unable to return at the designated time. In total, one quarter (25.6%) of respondents did not return to campus at its reopening.

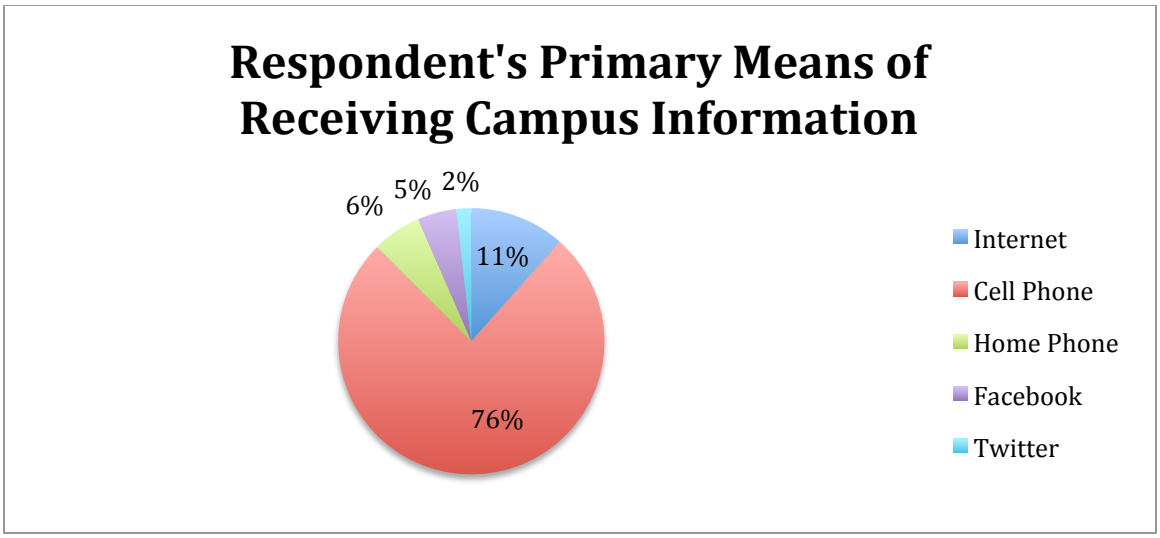


Communication

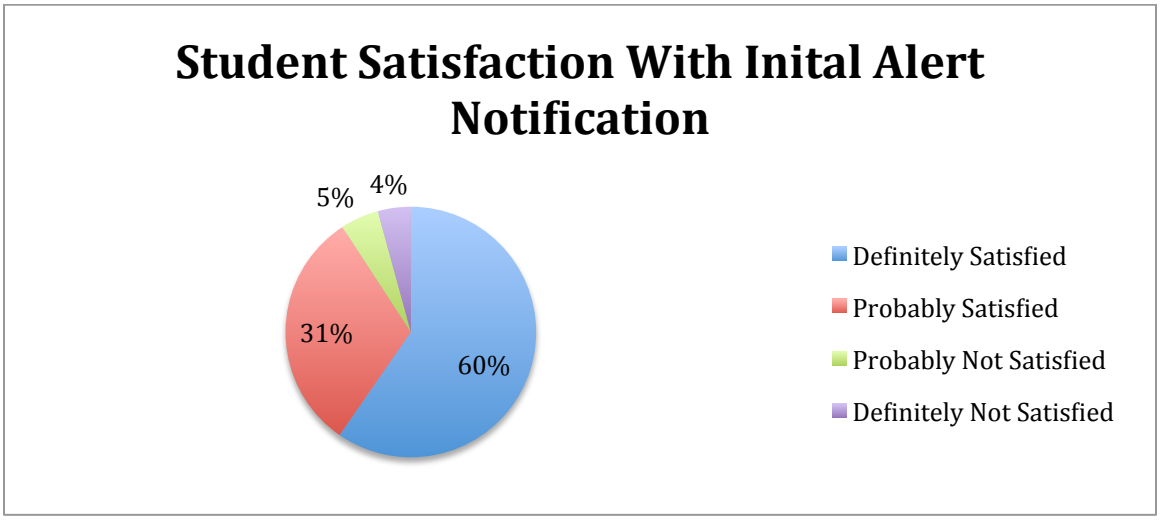
Over 84% of the respondents connected to the university's Campus Alert System. The responses show that a greater percentage of students and faculty at the main campus are connected to this system than their counterparts at Ocean County. This could be due to students and faculty at OCC using the system established by that school, rather than the Kean system.

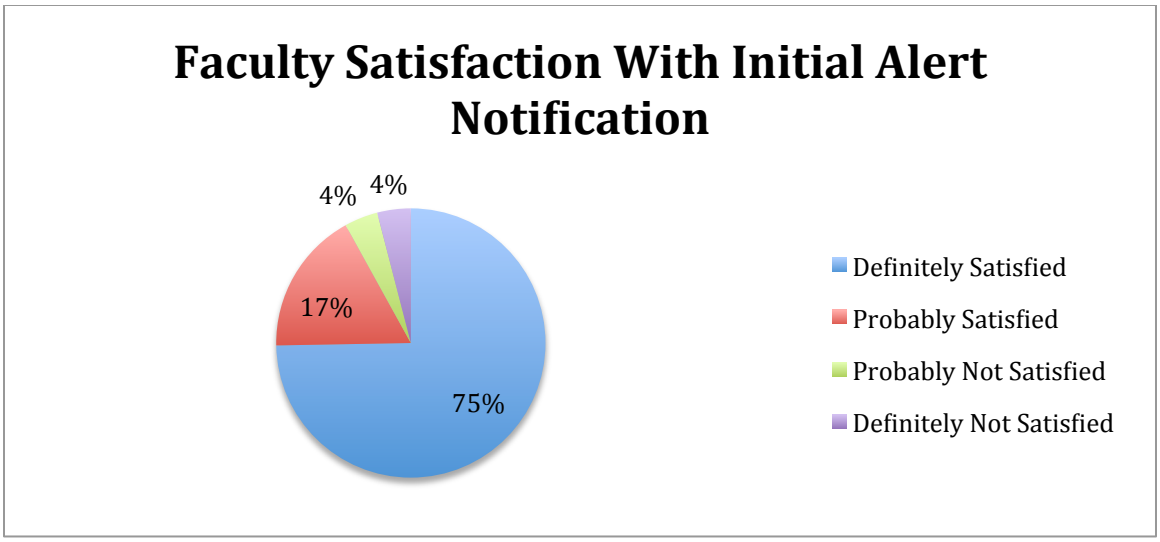


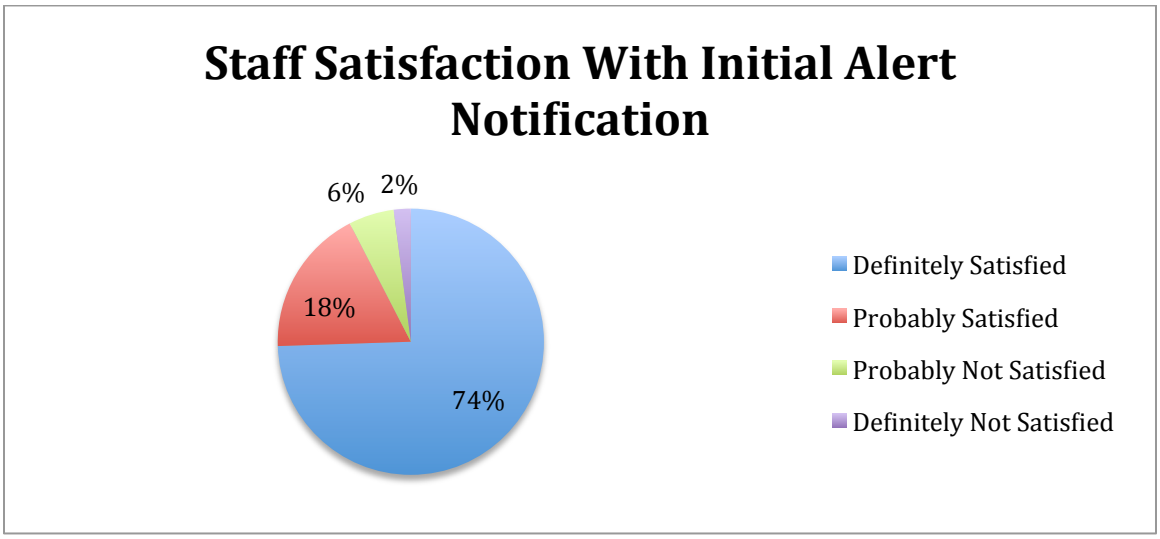
Given the myriad of communications difficulties during and after the storm, the use of this system was supplemented by social media outlets, such as Twitter and Facebook. The Kean University homepage also provided important updates regarding the status of the main and Ocean County campuses. The following table indicates how students, faculty, and staff received updates, which may have come from multiple mediums. What is interesting to note is that the primary means to receive this communication was through the university's Campus Alert System. This could be expected, however, given that land and cellular phone networks remained more active and available as compared to the array of power outages that likely limited the effectiveness of social and mainstream media outlets. The results of the survey show that Twitter, a medium designed for communication in these sorts of situations, proved to be the least useful to the students, faculty, and staff when compared to the other means of communication.



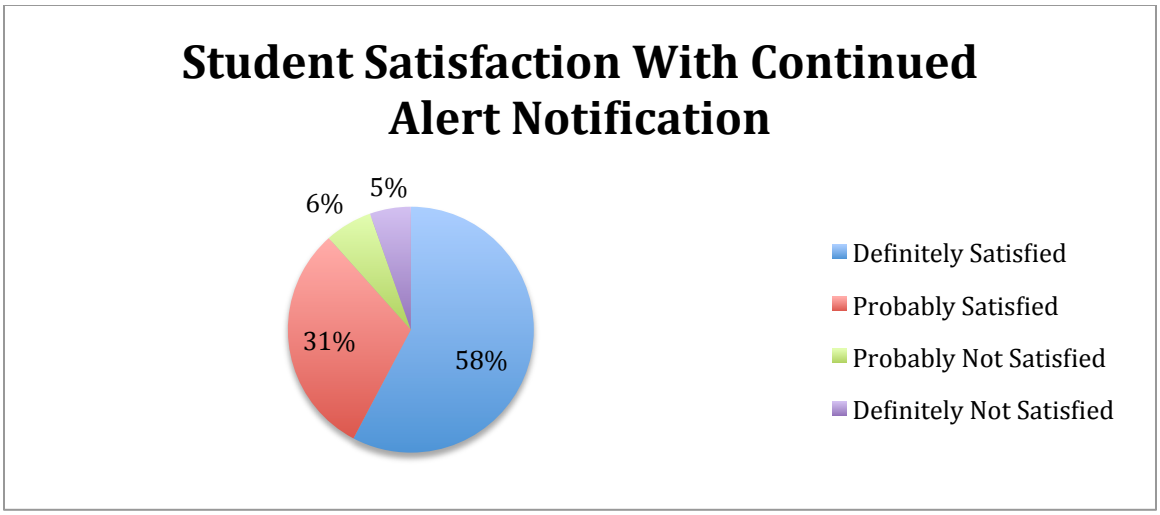
The overwhelming majority of students expressed satisfaction with the initial notifications of the closing of campus. Students at the main campus expressed the highest rate of dissatisfaction, though those numbers were very limited when compared to those satisfied with the notification. Faculty and staff were also generally satisfied with the initial campus closing notification messages. A slightly greater percentage of staff members expressed dissatisfaction when compared with their faculty peers.

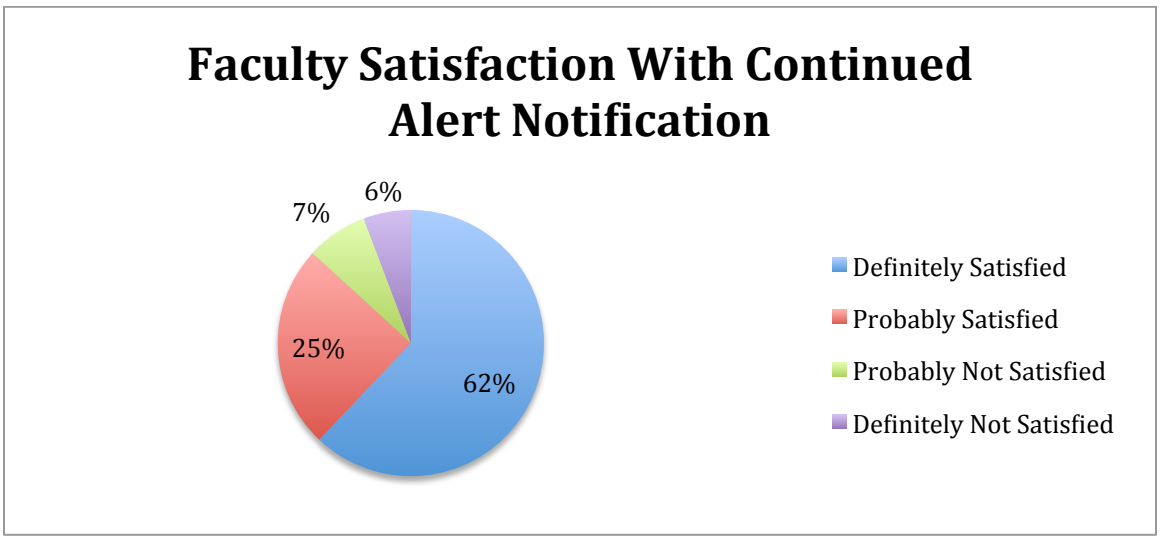


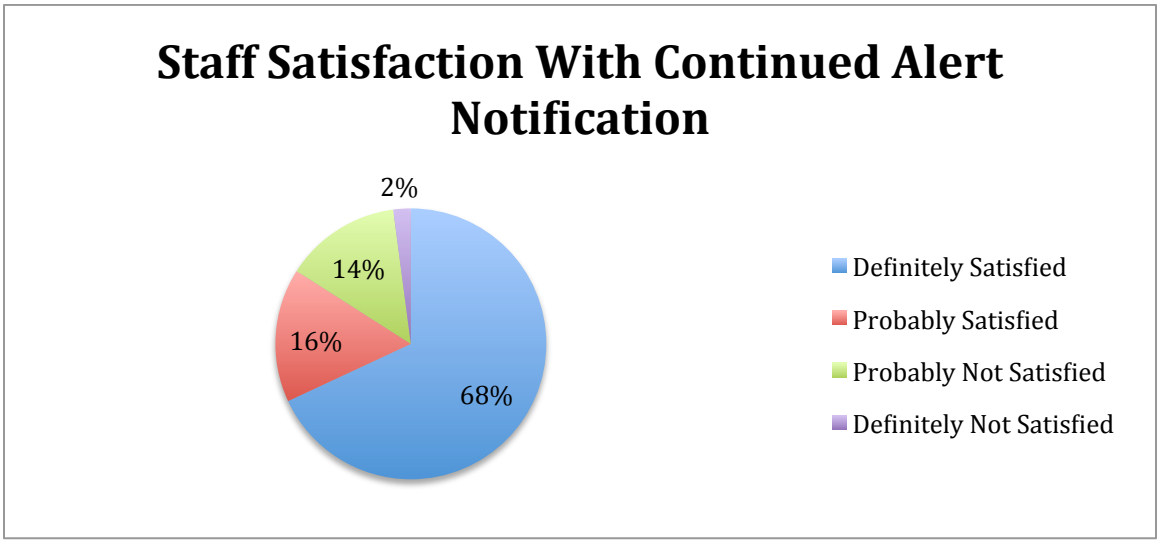




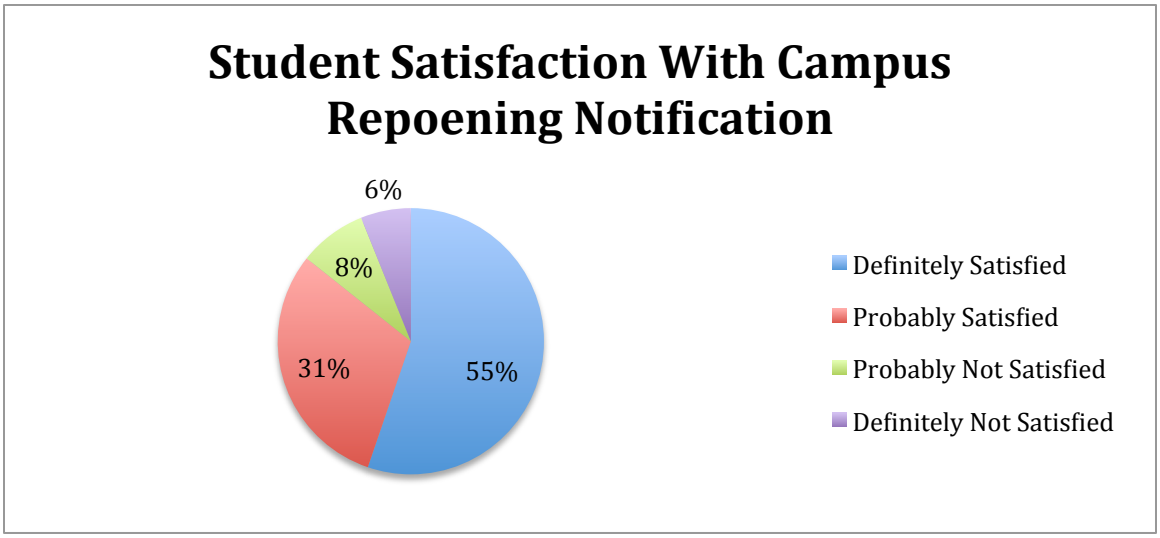
While a great amount of satisfaction remained evident with continued updates provided via the Campus Alert System and social media networks, there was a growing amount of dissatisfaction evident among students after the initial notification. Faculty and staff also expressed slightly higher rates of dissatisfaction with the continued updates over the duration of the university's closure as compared to the initial update.

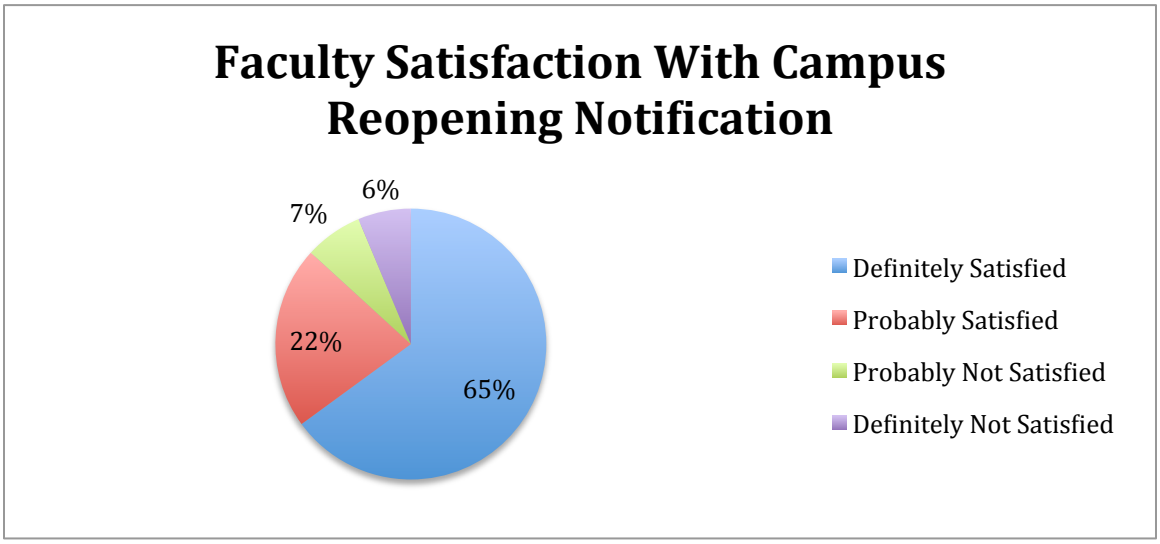

Student Satisfaction With Continued Alert Notification
6%
5%
31%
58%
Definitely Satisfied
Probably Satisfied
Probably Not Satisfied
Definitely Not Satisfied

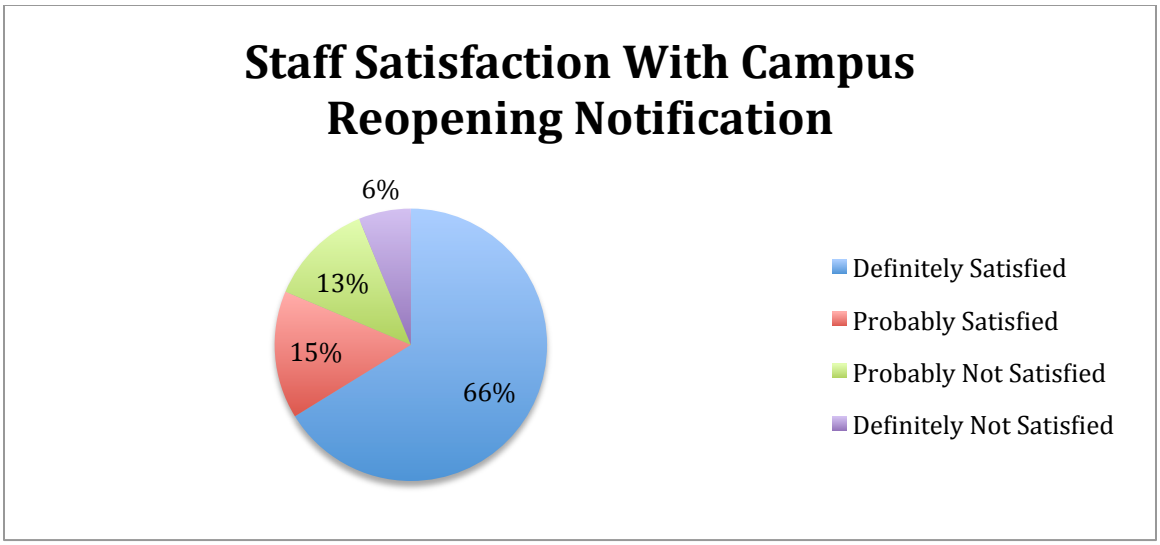

Faculty Satisfaction With Continued Alert Notification
7%
6%
25%
62%
Definitely Satisfied
Probably Satisfied
Probably Not Satisfied
Definitely Not Satisfied


Staff Satisfaction With Continued Alert Notification
2%
14%
16%
68%
Definitely Satisfied
Probably Satisfied
Probably Not Satisfied
Definitely Not Satisfied

Finally, the survey queried respondents about their satisfaction regarding the notification of the resumption of campus activities. Respondents expressed a high rate of satisfaction, although the percentages are slightly lower than the previous measurements among students at the main campus.







Putting a Face on the Storm

The survey also allowed respondents to elaborate on their thoughts and feelings as to how overall improvements can be made to responses in the future. Each of these comments have merit, they are expressions of what respondents experienced and offer suggestions and recommendations based on personal experience and knowledge. The key is to view these comments positively with an eye toward improvement, to demonstrate the need for shared responsibility by all stakeholders. (Author's comments will follow in parenthesis):

Off Campus Locations

- *Remember you're* (sic) *rvcc campus nursing students. Rvcc was closed longer than Kean but that was never relayed to the students.*
- *Please include the Kean-Ocean Campus updates. After the first alert, the Ocean campus was not mentioned again.* (Critical points to establish since the university operates multiple campuses. Demonstrates the multi-dimensional nature of the university and the need to be cognizant of the differences between campuses and satellite locations.)

Inaccuracy of Notifications

- *Do not announce classes would resume before being certain they would resume*. (This type of response is indicative of similar criticisms by many respondents. The university needs to develop models projecting operable windows based on similar scenarios.)
- *Notifications were inaccurate. Opening dates changed several times. An emergency operations plan (EOP) needs to be created. A communication plan is part of the EOP. An office of emergency management needs to be established within Kean University.* (Similar thread in many responses regarding the inaccuracy of the notifications. The university's EOP was in place and in use. Improvements in communications are necessary.)

Need for Flexibility

- *If campus must reopen after extreme weather, do not count lack of attendance against students.* (This too is a common thread in many responses. Faculty, as a part of the university must be prepared to make allowances under circumstances such as this.)
- *Understand that a MAJORITY of your students commute, so a day in advance is not well enough notice. Along with that, realize maybe plenty of people had difficulty getting to class and being prepared, that professors should be more accommodating.* (A common thread in many responses was that faculty were found to be rigid in adhering to deadlines and due dates. This response also reflects the need to communicate in a timelier manner.)

Beyond Traditional Boundaries

- *We did not have cell phone or internet service, so we were unable to receive any updates for two days. We were also stuck in our neighborhood due to downed trees for two days. None of these issues were under Kean's control, however.* (One of the few responses acknowledging that the situation was multi-dimensional and beyond the control of the university.)

Sending the Wrong Message

- *After the second or third day, it would have been better to cancel the entire week rather than have day-to-day announcements. It made the University appear as though it lacked an understanding of its own situation.* (A logical as well as powerful observation given the myriad of issues in the surrounding communities.)

Planning for the Future

As the university moves forward, the lessons learned from events like Hurricane Sandy will become the foundation for developing and building a stronger and more resilient community. The university is developing a long range strategic plan to help ensure Kean's ability to provide quality education in a safe and secure environment, not just on the main campus, but all university locations and activities worldwide. Although the university's 2013-2020 strategic plan is not a result of or in response to an incident such as Hurricane Sandy, the overall mission of the university can and will be adversely affected by any type and form of disaster. In order to plan for the continued success of the university, now and in the future, proactive steps need to be taken to ensure that all members of the university community, students, faculty, and staff, are cognizant of their own personal responsibilities as they relate to health and safety. The strategic plan consists of 10 specific goals overall, Goal #10 is intended to foster a culture within all aspects of university life that generates and maintains awareness of relevant and applicable health and safety standards. The goal specifically seeks to:

> "Develop, operationalize, and sustain a forward-thinking culture of public health and safety awareness rooted in adherence to all external and internal standards

(fire, safety, etc.), and reaching out to every aspect of Kean University life (personal, educational, and institutional)."

The goal includes three objectives that help guide the university over a prescribed time frame. This first objective seeks to educate and raise awareness of the university's commitment to protecting health and safety in all areas of university operations. Among the many actions suggested for the first objective is to develop a university wide marketing program related to public health and safety information, as well as to prepare for any extreme following the guidelines established by FEMA. This objective cannot and will not work in a vacuum, there needs to be unilateral support from the entire university community. Incorporating this objective into the day-to-day lives of faculty and students can help to mitigate the interruptions in the classroom as was the case with Hurricane Sandy.

Through the Ready.gov website, FEMA stresses personal responsibility in the preparation for any type of hazardous event. The "Campus Ready" program focuses not only on infrastructure and business continuity, but ways to prepare the campus population for different types of incidents. Kean, having experienced not only the brunt of Sandy, but also Irene the previous year, and similar traumatic events in the past (such as 9/11) has a population which is likely fertile to learning more about what can be done to mitigate, prepare for, respond to, and recover from catastrophes of an accidental, natural, or purposeful make-up. This includes developing personal action plans for all types of events, starting with having a disaster kit in one's home or dorm room, as well as volunteer outlets that are available to assist others in the community when the next incident occurs.

Another consideration based on the findings in the survey is to enhance communication strategies that convey crucial information about the status of the campus[2]. (Even while writing this paper, the Campus Alert System was activated for a threatening thunderstorm, however the message was received via the telephone system after the brunt of the storm passed.) Any message that is delivered in an untimely manner, especially after the audience has moved on to other problems like the loss of power or flooding after the storm, is not really a delivered message at all. Additional means to supplement the Campus Alert System, like a siren system or portable wireless transmission towers, can assist in the conveyance of information before, during, and after any type of emergency event.

Similarly inconsistent messaging, such as the constant altering of when the campus would reopen only increases anxiety, dissatisfaction, and undermine the credibility of the university. While the situation after Sandy was somewhat unique, better planning and understanding of student/staff/faculty issues during the crisis would assist in creating a more resilient campus population. After all, plenty of college campuses have experienced far worse events, and their experiences, as well as that of Kean's before/during/after Sandy can help to create best practices for future incidents of any

[2] The status of the campus would be an all-inclusive status to include satellite and branch campuses as well.

type. The key to success for the Kean community in the face of any future adversity is developing and maintaining a university-wide culture of awareness and increased individual responsibility that becomes the mainstay of normal day-to-day life at Kean University. Establishing a culture of personal and institutional health and safety awareness that becomes the fabric of all aspects of university life is an affordable ounce of prevention. Finding the resources for a pound of cure is a much more daunting task, one that no institution can gamble with.

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