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Identifying Attributes for a Virtual Community-based Disaster Preparedness Hub: Examples from two coastal communities

Abstract

Remote tourism-dependent communities are particularly vulnerable to crises and disasters. Using the ORID (Observe, Reflect, Interpret, Decide) method, we identified key attributes for a virtual disaster preparedness hub by conducting focus groups with a variety of stakeholders in both Ocracoke and Hatteras. Participants were asked to 'observe' different types of online hubs from other communities, 'reflect' on the pros and cons of these hubs, 'interpret' ways to create a hub that would be most beneficial to their community, and 'decide' on the best management practices of implementing an online hub. Throughout this process, it became clear that when planning and implementing a disaster hub, it is important to focus on the user experience, allowing for ease of access to information during times of crisis. Additionally, it is important for communities to use a hub to facilitate their disaster preparation and recovery, rather than to replace current infrastructure.

Introduction and Purpose

Remote tourism-dependent communities, like those on barrier islands, are particularly vulnerable to crises and disasters. Tourism destinations around the world have weathered the COVID-19 crisis, but the two that are the focus of this study – Ocracoke and Hatteras, North Carolina, USA – dealt with effects of the pandemic while recovery from the impacts of a major hurricane. In the fall of 2019 Hurricane Dorian brought record flood levels to the community of Ocracoke, a remote island between the Pamlico Sound and the Atlantic Ocean, accessible only by ferry. The 12-square mile island, home to just under 800 residents (US Census, 2020), was covered by nearly seven feet of water, causing widespread damage to built infrastructure. Hatteras village (population approximately 600; US Census Bureau, 2020), located north of Ocracoke on Hatteras Island is connected to the mainland by state highway 12. Hatteras was spared of significant impacts from Dorian, but has considerable experience in recovering from major hurricanes such as Florence (2018) and Matthew (2016). For these communities, recovery from Dorian was a slow process, which was interrupted with the onset of the COVID-19 pandemic in March 2020 when these communities were further isolated and access was restricted to only residents. When public access was restored to Ocracoke and Hatteras they faced a massive influx of visitors bringing benefits (e.g., direct revenues and tax receipts) but also threats (e.g., transmission of the virus in communities with very limited healthcare facilities). These compounding crises forced residents of Ocracoke and Hatteras to make decisions on whether and how to continue living, working, and operating businesses in these remote-tourism dependent communities (Griffin. et al., 2008; Hallegatte, 2011, Ingram et al., 2006; Kaspersen et al., 2003).

An initial study—focused on understanding stakeholders decision making after Dorian—revealed that coastal communities in North Carolina could use a centralized information source for disaster recovery and preparation (Savage et al, 2022). Specifically, these communities expressed a need for a hub (centralized source) that integrates information and recovery resources, facilitates the sharing of strengths and weaknesses in the community recovery process, and fosters learning and partnerships amongst both communities and individual community members. The purpose of this study was to identify a blueprint for creating a virtual community-based disaster preparedness hub. To guide this process, the research team prioritized the community needs both collectively and individually related to hub infrastructure preferences (standalone website vs social media), management practices (government vs volunteer managed), strategies for community input, and methods for communicating with community members.

Methods

To establish a blueprint for the disaster preparedness hub, we first reviewed existing online disaster information hubs. After understanding what other communities were doing and finding examples to share, we conducted three focus groups in the coastal communities of Ocracoke and Hatteras, North Carolina with twenty-one total participants. Based upon the research team’s prolonged engagement with the communities, members of the community with intimate knowledge of the recovery decision-making process were invited to participate in the focus groups. Efforts were also made to reach new community members by sharing notification of the focus groups in local media outlets and through social media. Each focus group lasted roughly an hour and a half and was audio recorded for transcription.

The ORID (Observe, Reflect, Interpret, and Decide) (Hogan, 2003) facilitation method was used to ensure consistent data was gathered from each focus group. Participants were asked to *observe* the

example hubs, making notes of things they liked and disliked. Afterwards, participants were invited to *reflect* on their assigned hubs and share their opinions with the group. Upon sharing, the group was tasked to *interpret* how aspects of these hubs from other communities could be implemented locally. Finally, the participants *decided* on how to best create and manage their own hub going forward. Additionally, each participant completed a worksheet listing the information sources they viewed as most important and most urgent. Verbatim transcripts and the worksheets were analyzed manually in NVivo 12. Transcripts were coded to find common themes related to hub infrastructure, management, and information gathering.

The following efforts were made to ensure the trustworthiness of the data: 1.) prolonged engagement with the study sites over multiple years contributed to credibility and dependability; 2.) purposive sampling of different stakeholder groups across similar communities contributed to transferability; 3.) peer debriefing immediately following data collection and data analysis contributed to dependability; and 4.) creation of an audit trail contributed to confirmability. Engaging multiple researchers with different levels of experience with the communities and methods was found to be a valuable technique in this context. This technique allowed for researchers with less experience in the communities to identify new approaches to challenges and opportunities while researchers with more experience were able to provide rapport with the participants and context for findings.

Key Findings

Infrastructure preferences

While the focus group participants were presented with different hub hosting options during the 'Observe' phase, there was no consensus on which online platform should be used. However, it was clear that social media (Facebook in particular) should not be the complete hosting platform.

"Yeah people do need furniture and this other stuff but when it [Facebook page] is not consolidated it turns online into this like overwhelming echochamber and it is difficult. Even though [Facebook] is a good resource for sharing information, it becomes difficult when it becomes this kind of individual conversation and becomes confusing." - Ocracoke

While social media should not be the main online hub, highlighting specific social media accounts, such as the NC DOT Twitter account on the hub is important.

"The quality of the information is important. People use Twitter for [the] ferry service because it is current and accurate." - Ocracoke

Ultimately, the hub needs to combine the ability to put out relevant information quickly that can be provided by social media and the consistent presence of information on a static webpage into a singular digestible format.

Management practices

When discussing who should be responsible for managing the preparedness hub, the focus group participants discussed the pros and cons of various public and private organizations. Ultimately, it seemed that the organization responsible for the preparedness hub was less important than the quality and relevance of the information provided.

"Regardless of who administers the hub, the quality of the information is important. People use Twitter for ferry service because it is current and accurate. They go to Facebook because it is

current, what is going on right now. If I go to the hub and Facebook is more current, I'm not going back to the hub.." - Ocracoke

In a time of crisis, residents of these communities are seeking the most up to date information they can find to assist with their recovery. These residents are less concerned with who is providing the information and are seeking the most current information for their decision making.

Strategies for community input

Due to the tight knit nature of the communities, participants did not see a challenge in gathering information to share on the preparedness hub. While initial information should be easily obtained, the hub will need to establish credibility if it seeks to continue gathering information in the long term.

"I don't think getting the initial information is hard to get... Ongoing community input is going to be harder but I think it comes back to credibility. If it establishes itself as current and reliable from the start, people will continue to feed information to this source" - Ocracoke

While the participants viewed information as easy to come by, it is important to remember that our participants had an intimate knowledge of the recovery systems within their community. It is important for the hub and its manager to establish credibility early so these people with information know to share it quickly and people who are not as connected can also access this time-sensitive information.

Methods for communicating with community members

After the creation of the preparedness hub, people will still need to be directed to it for use. Our participants discussed some opportunities for initially promoting the hub, ensuring new residents find the information, and general storm preparedness on the island.

"I think it would be multi-pronged. You'd want a website, you'd want it on Island Free Press, you also want the Coastland Times. If you have some print material, everyone goes to Connors? Or Food Lion or Village Grocery, any grocery store. I don't think there is any one place" - Hatteras

While these communities are tight knit, it is important to ensure that people who may be new to the community or may be non-native English speakers also have access to the hub. For example, we learned that to share the hub with community members who are less connected, it would be important to promote and market at the hub at commonly visited places like grocery stores and the post office.

Conclusions

This study revealed insights for designing and managing community-driven disaster recovery and resilience information hubs. Related to hub infrastructure, we suggest that social media should be a component of a hub, however because social media is always updating, it should not be the main hosting platform for recovery information. Additionally, the hub should be easy to read, using icons to direct people quickly to necessary information. These icons in addition to website translation should be utilized to ensure that non-English speakers have access to relevant information. Finally, a system utilizing push notifications to keep residents in the loop should be used.

Concerning management of the hub, it is important that the hub has reliable information that is updated on a regular basis, particularly during the immediate aftermath of a disaster. While participants agreed that the hub manager should be embedded in the community, there was some disagreement as to whether this position should be coordinated by a government employee or if a volunteer should be placed in charge. Nearly all participants noted that local fire departments, emergency management and

NCDOT are the most important information resources. Due to the tight knit nature of these two communities, promotion and finding new information was not viewed as a problem since communication networks between residents are already strong. Finally, some potential challenges to building and sustaining a hub were discussed.

In addition to these suggestions, some emergent themes were identified and will be discussed for communities who are seeking to implement their own disaster preparation hub. Specifically, we recommend that communities consider the following four suggestions when attempting to establish a disaster information hub.

1. It is important to leverage existing networks. Many communities have established networks for gathering information and dispersing it among the community. It is important to view the hub as an extension of this network rather than a replacement.
2. Disaster information hubs should focus on the users rather than the providers. Many organizations who manage disaster relief use unfamiliar acronyms that discourage those in need from leveraging all resources available to them.
3. Future hubs should ensure they engage a broad range of stakeholders. This will ensure that all sources of information are found and potential problems with information gathering and dissemination will be found by the end users.
4. Finally, it is important to remain willing to share information with others. This will ensure that the hub information stays up to date and that relevant information is being shared, maximizing the benefit of hosting the hub.

Ultimately this study provides not only valuable insights for coastal communities in North Carolina to improve their ability to recover from disasters, but also offers insights for many tourism-dependent destination communities. Destination leaders can utilize these recommendations to engage with existing emergency response managers and officials tasked with community resilience to ensure that tourism business owners and workforce members, as well as residents of a tourism destination, are better prepared to respond to disasters.

References

- Griffin, R. J., Yang, Z., Ter Huurne, E., Boerner, F., Ortiz, S., & Dunwoody, S. (2008). After the flood: Anger, attribution, and the seeking of information. *Science Communication*, 29(3), 285-315. <https://doi.org/10.1177/1075547007312309>
- Hallegatte, S. (2011). *How economic growth and rational decisions can make disaster losses grow faster than wealth*. Policy research working paper; no. WPS 5617. Washington, DC: World Bank Group <http://documents.worldbank.org/curated/en/459191468327344243/Howeconomic-growth-and-rational-decisions-can-make-disaster-losses-grow-faster-than-wealth>
- Hogan, C. (2003). *Practical facilitation: A toolkit of techniques*. London: Kogan Page Publishers.
- Ingram, J. C., Franco, G., Rumbaitis-del Rio, C., & Khazai, B. (2006). Post-disaster recovery dilemmas: Challenges in balancing short-term and long-term needs for vulnerability reduction. *Environmental Science & Policy*, 9(7), 607-613. <https://doi.org/10.1016/j.envsci.2006.07.006>
- Kasperson, J.X., Kasperson, R.E., Pidgeon, N., & Slovic, P. (2003). The social amplification of risk: Assessing fifteen years of research and theory. In Pidgeon, N., Kasperson, R.E., & Slovic, P. (Eds.), *The social amplification of risk* (pp. 13-46). Cambridge: Cambridge University Press.
- Savage, A., Knollenberg, W., Seekamp, E., Cutts, B., & Russell, Z. (2022). Critical elements of a community-driven disaster recovery and resilience information hub. Oral presentation at the North Carolina Coastal Conference, Raleigh, NC.
- United States Census Bureau (2020). 2010 U.S. Census Bureau Estimates. Retrieved from: <https://factfinder.census.gov>