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A community-based approach to sharing knowledge before, during, and after crisis events: A case study from Thailand

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ABSTRACT

This study adopts a structuration perspective to examine the knowledge sharing activities within local communities using social media to combat the 7-month 2011 Thai flood crisis using a qualitative case study. The crisis represented a unique situation wherein social media was used extensively during the most catastrophic flood crisis in Thailand. Data were collected from focus groups and in-depth interviews with flood victims, community leaders, NGOs, politicians, large enterprises, and Army leaders. The study divides the crisis event into three phases: pre-, during-, and post-crisis, treating each as both separate and interrelated, due to the changing information needs. The socialization and structuration theories were used as theoretical lenses to investigate how social media can play an important role in knowledge sharing activities in each phase of a crisis. The case study shows that social media can be adapted to fit the information and knowledge needs in each phase. This study's findings are useful and relevant for crisis managers, and clarify the potential usefulness of social media as a knowledge sharing tool during a crisis.

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1. Introduction

The annual damages from the world's natural disasters has been growing since 2005, reaching $378.3 billion in 2011, the highest on record, according to USA Today (Rice, 2012). Hence, minimizing the negative impact of natural disasters has become an important social issue for both government and academia. Mass collaboration amongst the general public in responding to imminent crises is becoming a social norm, primarily driven by social media (Hoffman & Novak, 2012). Social media are 'a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow for the creation and exchange of user-generated content' (Kaplan & Haenlein, 2010, p. 61). The social media and the rapid proliferation of social networking applications, such as Twitter, Facebook, and YouTube have become a great mass communication tool affecting how citizens of the world communicate, collaborate, and coordinate with each other (Lai & Turban, 2008) during a crisis. For instance, the public have turned to social media in the face of natural disasters, including the earthquake in China, the bushfires in Australia, the nuclear disaster in Japan, and the flood in Thailand. Facing uncertainty during such crises, a growing number of people choose social media as a source of updated information about the disaster areas and to share information in support of those who suffer. Governments also use social media to reach people more quickly, to keep people informed of the crisis status, to avoid the spread of false information, to answer questions from victims' families, to monitor the situation, and to direct donations to those affected. Using social media to help the public pull through during a crisis has become a new global phenomenon.

Much theoretical and empirical evidence demonstrates social media's effectiveness as a knowledge sharing tool during crises for governments, agencies, and communities (Lachlan, Spence, & Lin, 2014a; Lachlan, Spence, Lin, & Del Greco, 2014b; Lachlan, Spence, Lin, Najarian, & Del Greco, 2014c; Palen, Vieweg, Liu, & Hughes, 2009;Sutton, 2009). For instance, governments can assess the degree of damage from floods, social pressures, and victims' emotional states based on the nature and content of public discussion in social media communities (Al-Saggaf & Simmons, 2014).

However, most previous studies focus only on the impacts and consequences of a crisis during the crisis and in the post-crisis

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phase. To our knowledge, there is no study focusing on how different stakeholders, including government agencies and communities, are involved throughout the crisis cycle pre-, during-, and post-crisis. There is also a lack of research into how different stakeholders use social media as a mass communication tool to interact with each other and help the general public throughout the entire crisis cycle. Investigating a crisis from a process perspective is a systematic and comprehensive approach to address all activities and strategies implemented throughout a crisis (Seeger, 2006). It is also unclear how social structure or the relationships among users would evolve. To close the research gap, this study addresses two important research questions: (1) How can social media be used for knowledge sharing among different stakeholders throughout the crisis cycle? (2) How does social media change the social structure among stakeholders throughout the crisis cycle?

Hence, this paper offers a detailed case study of how social media was used throughout the life cycle of the 2011 Thai flood, a crisis that lasted 7 months and was the most catastrophic flood in Thailand in the past 50 years. Interestingly, this crisis represented the first time that social media played an important role as a communication medium during a crisis in Thailand. This case study examines several social media platforms, including Facebook, the most popular social media platform in Thailand, Twitter, and YouTube.

In the following sections, we discuss how various types of social media can be used during a crisis and the role of social media as a knowledge sharing tool. Second, we review the socialization theory and structuration theories, the theoretical lens through which this case study is investigated. Third, we outline the methodology and analytical approach. Fourth, we outline the 2011 Thai flood disaster in three phases: before, during, and after the crisis. Finally, we describe the practical and academic implications of this study's findings.

2. Literature review

This study aims to provide insights into the use of social media for knowledge sharing and the evolution of the social structures among all parties involved throughout the crisis cycle. To achieve the first objective, we first examine the different social media-based solutions used to combat natural disasters and share knowledge. After examining the potential of social media for crisis and knowledge management, the socialization theory is adopted to examine the processes through which individuals or organizations share and exchange information and knowledge (Fisher, 1986) in their roles throughout the crisis cycle. To achieve the second objective, the structuration theory is adopted to help describe the evolving structures (e.g. rules and resources) (Giddens, 1984) of those involved in the crisis. Examining the subsequent interactions of all parties involved and how they share knowledge throughout the crisis can clarify how social media influences social structure evolution in a crisis.

2.1. Social media-based solutions to natural disasters

Social media's instant connectivity and open platforms have effectively shortened response times in efforts to coordinate onsite and online activities (Palen et al., 2009) through its instant information sharing and collaboration features (Boyd & Ellison, 2007; Hiltz, Diaz, & Mark, 2011). Social media continues to operate while more traditional methods fail during disasters, providing yet another advantage (Shankar, 2008). For instance, the public used Twitter to disseminate real-time information from the disaster site to international communities to source creative solutions and immediate aid during the 2010 Haiti earthquake, saving many lives (Sarcevic et al., 2012). The public, or general users, are increasingly replacing journalists as front-line reporters sharing information about crisis events, and governments as problem-solvers to propose effective crisis management solutions.

Existing literature on crisis communication (e.g. Seeger, 2006) suggests that government should listen to public concerns, be accessible throughout the crisis, convey a message of self-efficacy, and communicate compassion. Social media are well-equipped to provide governments with the means to conduct all of these communication activities. Social interactions among online community members provide crowdsourced solutions, allowing for egalitarian participation while helping a government assess the current and evolving stages of each crisis (Fung, Gilman, & Shkabatur, 2013). Thus, social media are one of the most useful and appropriate communication tools for crisis management.

In addition, social media are increasingly accepted as effective knowledge sharing tools to combat crises, and different applications have been used to combat recent crises worldwide. For instance, Information portals, such as Wikis and individual blogs provided alternative news sources during the 2007 Southern California Wildfires (Palen, 2008). People in the US used Twitter to share information during Hurricane Sandy (Lachlan et al., 2014a). Lachlan et al. (2014a) also suggested that Twitter may be a useful source of data to evaluate the needs and responses of varying audiences and victims. BP used YouTube as a channel to educate victims, communicate recovery plan, and to restore the company's image during the Mexico Gulf Coast oil spill in 2010 (Muralidharan, Dillistone, & Shin, 2011). Flickr groups were also created to share pictures and report updated status information during Hurricane Katrina and the Indian Ocean earthquake and tsunami (Palen, 2008). Social geolocation systems were used to share geographical locations and their situations during the 2011 flood crisis in Thailand (Kaewkitipong, Chen, & Ractham, 2012).

Adaptability is one major reason that social media have been successfully used to combat crises (Yates & Paquette, 2011), as users adapt social media to fit their needs during a crisis, and to collaborate with others to produce useful content and information and to help others through in the crisis. Additionally, the way in which online community members interact and cope with crisis events can create dynamic and spontaneous social structures. During a crisis, there is no readily available top-down structure directing users in the information exchange process. Bottom-up self-organized communities are a by-product of social media's embedded features. Therefore, its use to cope with each crisis event provides ample opportunities to understand the existing self-organizing social structure and its evolution from the interactions between different components of systems that become disorganized during a crisis (Miller, 2010).

2.2. Social media and knowledge sharing

Collaboration technologies provide appropriate means to share knowledge. Often, information is shared at the early stages of a crisis in a top-down hierarchical fashion or through a chain of command, such as from a government to its people. However, people can use social media to circumvent the traditional knowledge sharing process and communicate directly from anywhere and at any time. It also provides two major benefits during a crisis: (1) the process to reuse knowledge is simple, and (2) it is possible to eliminate the reliance on a formal liaison structure, including personnel and systems (Yates & Paquette, 2011).

A major reason that most knowledge sharing projects fails is they have no effective mechanism to share tacit knowledge because of its “stickiness” (Probst & Borzillo, 2008), and it can only be interpreted effectively in right context. It is thus important to

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