LESSONS LEARNED FROM THE USE OF SOCIAL MEDIA IN COMBATING A CRISIS: A CASE STUDY OF 2011 THAILAND FLOODING DISASTER

Completed Research Paper

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Abstract

Social media have played integral roles in many crises around the world. Thailand faced severe floods between July 2011 and January 2012, when more than 13.6 million people were affected. This 7-month disaster provides a great opportunity to understand the use of social media for managing a crisis project before, during, and after its occurrence. However, current literature lacks a theoretical framework on investigating the relationship between social media and crisis management from the project management perspective. The paper adopts a social media-based crisis management framework and the structuration theory in investigating and analyzing social media. The results suggest that social media should be utilized to meet different information needs in order to achieve the success of managing a future crisis project.

Keywords: Project management, Social media, Crisis management, Self-organization, Structuration
Introduction

Social media are transforming the dynamics, behaviors, and structures of our society. Billions of people in more than 60 countries are currently adopting social media (Hutton and Fosdick 2011) for a wide variety of purposes, including personal, community, business, politics, and public affairs (Hoffman and 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 the creation and exchange of user-generated content” (Kaplan and Haenlein 2010, p. 61). The advent of social media along with rapid proliferation of social networking applications, such as YouTube, Facebook and Twitter, has greatly affected how citizens of the world communicate, collaborate, and coordinate with each other (Lai and Turban 2008).

The adoption of social media to combat and manage crises has become a new global phenomenon. Social media played prominent roles in many recent natural disasters, including earthquake in China, bushfires in Australia in 2009, as well as earthquake and nuclear disaster in Japan, and several months of flooding in Thailand in 2011. In the face of uncertainty during disastrous moments, a growing number of people choose social media as a solution to retrieving updated information about the disaster areas, and disseminating information to support those suffering. Governments also use social media to reach people more quickly, keep people informed of crisis status, avoid the spread of false information, answer questions of victims’ families, monitor the crisis situation, and direct donations to those affected.

Although the use of social media for effective crisis management has drawn strong interests from both researchers and practitioners (Crowe 2010), only a few theoretical frameworks have been developed from such disasters, and most of them are not validated using a real-life crisis. In addition, it is necessary to consider how stakeholders such as government agencies, communities, and social media providers can use social media to combat disasters. From a project management perspective, these stakeholders can use social media to manage valuable information before, during, and after crisis. Examining the project lifecycle of managing a disaster project based on an empirical framework is also lacking from previous study. The demand for an empirical framework to understand the effective use of social media through the lifecycle of a disaster can provide insights into the effective management of crisis projects.

In order to develop such a framework, we first discuss how various types of social media can be used in time of crisis. Second, we discuss a seminal theoretical framework for the use of social media in crisis management and further improve it by incorporating the time dimension. Third, we take the 2011 Thai flooding disaster as a case to validate the usefulness of our proposed framework for the management of a crisis project before, during, and after its occurrence. Practical and theoretical implications are provided based on the findings of this study.

Social Media in Disaster Management

Social media are helping narrow the gap in response time between on-site and online crisis response activities because of their instant connectivity on the open platform (Palen et al. 2007). Social media can be used in various situations during the time of crisis because of their information sharing capability (Boyd and Ellison, 2008). Citizens can share information, coordinate various disaster relief events, and collaborate to execute those events (Hiltz et al. 2011). For example, Twitter was used to disseminate real-time information from the disaster site to the international community during the 2010 Haiti earthquake (Sutton 2009). During the crisis, a small number of Haitians in the disaster scene decided to use social media on smart phones to tweet key information and send pictures to the outside world to urge immediate aid. The effective use of social media in this particular event helped save many lives (Sarcevic et al. 2012). Social media are increasingly accepted in terms of their usefulness as effective information-sharing tools to combat crises. Table 1 explains how different social media have been utilized to cope with these disasters.

Table 1 shows that many social media have become useful tools during crises. People start adapting social media to suit their needs during a crisis. This adaptation is actually a spontaneous order which emerges from how people in an online social network interact. The self-organization concept (known as spontaneous order) can be adopted to explain such emergence well. The concept concerns a process in which order or coordination emerge, usually unexpectedly, from interactions between components of
unorganized systems (Miller 2010). Therefore, examining the use of social media during a crisis through the lens of self-organization, we hope to identify and understand emergent structures which positively as well as negatively impact the management of disaster.

Table 1. The application of social media in crises (Adapted from White, 2011)

<table>
<thead>
<tr>
<th>Types of Social Media</th>
<th>Social Media Application During Crisis</th>
<th>Social Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Sites</td>
<td>Online community members can use social media (e.g. Facebook) to communicate with each other. They can also get together to form groups for different crisis management needs. The authorization mechanism can be used to assign different roles (e.g. administrator, facilitator) to members depending on their needs. The authorization mechanism can enable government agencies to work closely with online communities to share sensitive information with each other. Blog is another social medium enabling people to make comments and share information (Reuter, Heger and Pipek, 2012).</td>
<td></td>
</tr>
<tr>
<td>Document Management</td>
<td>Social media in this category can help organize documents and schedule events. The ability of these media to store documents in a centralized fashion can help people easily share information and systematically update it. People can also collaborate in producing the most accurate and up-to-date information that can be retrieved from a central location (Crowe, 2010).</td>
<td></td>
</tr>
<tr>
<td>Multimedia Sharing</td>
<td>Social media with the multimedia sharing capability enable people to share pictures, videos, and sound clips. These files can be used to update the public with the current state of the crisis. The multimedia sharing media can play an important role in reporting live events happening at disaster sites. Experts can also use these channels to share their opinions on the best practice of crisis management (Idugboe, 2011).</td>
<td></td>
</tr>
<tr>
<td>MicroBlog</td>
<td>People can send short messages to the public via their mobile devices or computers. The mobility of disseminating information during a crisis can provide real-time information updates (Yin, Lambert, Cameron, Robinson and Power 2012).</td>
<td></td>
</tr>
<tr>
<td>Social Geolocation Systems</td>
<td>People can use these social media to report live events based on geographical locations.</td>
<td>Gaming.org, Microsoft Vine</td>
</tr>
</tbody>
</table>

Social Media and Disaster Management Conceptual model

The overall cost of damage from the world's natural disasters has been growing since 2005 and has reached $378.3 billion dollars, the highest on record, according to USA Today (Rice 2012). How to minimize the negative impact of natural disasters has become an important social issue. Theoretical and empirical evidences have substantiated the importance of social media as effective communication tools.
during crisis for governments, agencies, communities, and social media providers (Sutton 2009; Palen et al. 2009). However, most previous studies fail to establish a theoretical framework that is applicable to most crises. Ahmed (2011) asserts that social media could be used for different purposes to help streamline the crisis management process. He proposes an overarching model to improve our understanding of managing crisis projects with social media (Figure 1).

![Figure 1: Use of Social Media in Various Dimensions of Interaction in Disaster Management (Source: Ahmed, 2011: 9)](image_url)

The model suggests that social media should be used to facilitate interactions between users in the same and different communities. Depending on the purpose of each interaction, different social media can be utilized. For instance, YouTube video can provide issue warnings, education and updates about disasters. Facebook can offer moral support and help members communicate and collaborate with each other. Twitter can help victims quickly connect with the rest of the world so that relief can be immediately mobilized to minimize the impact of disasters. However, the framework does not consider the roles that social media play in different disaster management phases. The disaster management literature asserts that a disaster should be managed in phases (Quarantelli 1996) because problems and needs can be more specifically identified and analyzed (Mills et al. 2011).

From the project management perspective, the end of each phase is a milestone that can be used to help define project scope, identify the most important activities, set schedule goals, and monitor progress (Schwalbe 2010). For instance, some software projects adopt retrospective analysis at the end of a major milestone or phase to identify possible root causes of problems or success, as well as increase participation of team members (Bjornson et al. 2009). Preventing, combating, and recovering from a crisis are projects conducted by different stakeholders. Integrating these projects via social media involves risks, such as misaligned perceptions among stakeholders, cost overrun, schedule delay, unavailability of human resources, and poor communication (Pokharel 2011). Hence, analyzing the roles of social media at different phases of crisis management can help not only understand and control the development of each disaster, but also minimize their impact and save lives. Figure 2 is an improved framework incorporating the time dimension into Ahmed’s framework and dividing the crisis into three phases: before, during, and after crisis.

The 2011 Thai flooding disaster, which lasted for seven months, provides a great opportunity to validate the usefulness of the proposed theoretical framework in examining the use of social media to combat crisis throughout its lifecycle. In the following section, we will discuss Thai flooding disaster and apply the proposed framework to examining this crisis before, during, and after its occurrence.
Implications of Structuration Theory for Social Media Project Implementations

Both self-organization and structuration theories emphasize that a social system recursively produces or self-evolves via social interactions among members (Mingers 1996). In other words, human interaction and social structure play a reciprocal relationship (Giddens 1984). Humans interact with each other, thereby changing the social structure. The newly formed social structure will change again as humans continue to interact with one another. Uncertainty is the major driver of social dynamics because the self-organizing or structuration process can help reduce it and reproduce new rules of interaction (Kuppers 1999). Structuration theory is particularly applicable to understanding a division between inter-human communication and intentional actions in the process of reducing uncertainty (Leydesdorff 2010).

The use of social media in coping with Thai flood crisis emerged from the increased uncertainty and social instability that are beyond the control of the Thai government. The public decided to adopt social media and self-organize how they interact with each other and government agencies. In the process of restructuring social dynamics before, during, and after the crisis, structuration theory can help explain the way in which social uncertainty is reduced or increased via the social media-based interaction between agency and community. The structuration theory provides a framework to help explain the dynamic interaction process between community and agency, community and community, as well as agency and agency during social media implementations. More importantly, the human factors (e.g. communication), when introducing a social media in coping with the crisis, can be assessed and further resolved via this theory.

According to the structuration theory, human interaction and social structure are comprised of three distinct dimensions. Each dimension of these two elements is moderated by three modalities, as shown in
Figure 3. First, human communication takes place when human actors draw upon stocks of knowledge to justify their actions. Their actions will produce structures of meaning. Second, human agents use their powers to allocate materials, information, and other resources to produce a structure of domination. Finally, human agents sometimes sanction their actions by norms or standards of morality to reproduce social structures of legitimization. Each dimension of human agents and social structure are inextricably interlinked, moderated by these three modalities.

<table>
<thead>
<tr>
<th>Social Structure</th>
<th>Signification</th>
<th>Domination</th>
<th>Legitimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality</td>
<td>Interpretative Schema</td>
<td>Materials, information, and other resources</td>
<td>Norm</td>
</tr>
<tr>
<td>Human Interaction</td>
<td>Communication</td>
<td>Power</td>
<td>Sanction</td>
</tr>
</tbody>
</table>

Figure 3: Analytic dimensions of duality of structure (Giddens, 1984)

The following analysis of this case study will draw on both Ahmed’s disaster management model and Giddens’ structuration theory. These two theoretical lenses can provide some insight into social media implementations for crisis management from and for theory.

Use of Social Media before, during, and after the flood in Thailand

Severe flooding in Thailand began in July 2001, and did not stop until mid-January 2012. More than 80% of provinces and over 7,500 square miles were affected. This disaster caused 815 deaths and made 13.6 million people homeless. The Thai government considered this 7-month long flooding the worst in terms of the amount of water and people affected. However, the disaster’s impact could have been minimized if warnings had been issued by the government earlier and correct measures taken before its occurrence. The insufficient response to the flooding zone further aggravated the crisis. After the crisis, the slow path to recovery was also heavily criticized, and frustrated with the incompetence of the Thai government, the public began the self-rescue process by turning to social media. The ability to access various social media sites through mobile phones during the crisis played a prominent role during the crisis. The Thai flood disaster was similar to the Haiti earthquake in terms of how people accessed and disseminated useful information through social media sites by using their mobile phones. In both situations, the traditional means of landline communication was either damaged or destroyed. The landline network and other electronic devices were unusable on a regular basis. In addition, people were always on alert and had to be on-the-move, thus the traditional networks such as television or newspaper were uncritically treated by the disaster. Hence, access to social media through mobile networks was critical to the information dissemination for most users during the natural disaster. The mushrooming of messages posted on social media became an alternative solution to improving the desperate and helpless situations faced by the public.

Once the threat of one of the worst flooding disasters became severe, many stakeholders began to use social media as a tool to cope. In retrospect, the use of social media in combating Thai flooding took place in three phases: before (mitigation and preparedness), during (response), and after (recovery). Work culture is distinctly different in each phase because different stakeholders are involved and have different project goals to achieve. Communication is critical to the success of project implementations in a virtual environment with such a diverse work culture environment (Pokharel 2011).
To overcome issues in each phase, social media were exploited to improve the communication and collaboration between agencies and agencies, between agencies and communities, and between communities and communities.

**Phase 1: Pre-Crisis or Mitigation and Preparedness Phase**

Before a crisis occurs, pre-disaster actions can be taken to identify potential risks in order to reduce its negative impact on human lives and properties (Van de Walle, Turoff and Hiltz, 2010). Effective mitigation and preparation efforts in the pre-crisis phase can enable prompt and adequate response to a disaster. Before Thai flooding occurred, Thai government agencies and users in different social communities turned to social media for precautionary measures as follows:

**Agencies to Agencies**

July is the rainy season in Thailand. It is a common practice for the Thai government to monitor any abnormal changes in the weather and precipitation. All precautionary measures taken by the Thai government to avoid flooding in 2011 were not so much different from those in other years. In the sense of upcoming crisis, the government decided to use websites to improve the communication among government agencies with regard to the ongoing development of weather, precipitation, and water level. The central government has been publicizing weather-related information updates on its website so that local governments can be aware of the new development of the potential crisis. However, little was known about how different government agencies coordinated and collaborated via social media in this phase because of their preference for the one-way communication mode.

**Agencies to Communities**

To communicate better with the public about the potential flooding development and its potential impact on them, the Thai government chose to build two websites and use them to broadcast flooding related information to the public. Thaiflood.com was used as a portal containing all information about the potential flooding crisis. Opencare.org is a not-for-profit organization using its site to facilitate emergency communication about flooding disasters.

**Communities to Communities**

In anticipation of the flooding disaster, users in different social communities were pioneers in adopting social media, including Facebook and Twitter, to share information and knowledge (e.g. how to observe water level; how to lay sandbags) with each other (Figure 4).

In the pre-crisis phase, social media played the most active role in the communication between community and community. The Thai government did not consider social media an effective medium to communicate with the public in this phase. Instead, the government agencies chose websites and information portal as means of disseminating information to other agencies and social communities.
Structuration Theoretical Analysis of Preparation Activities

The Thai flooding crisis was a novelty project with a high degree of complexity with regard to project goals and structures, as well as the context in which the project took place. In the face of such high uncertainty and complexity in project requirements and environment factors, the Thai government adopted a regulative model based on previous flood-fighting experiences. A creative model to propose new solutions (e.g. aggressive use of social media for effective public communication) is more suitable than the regulative model to manage novelty projects (Jaafari 2003). As a result, the project scope was underestimated and social media for effective public communication were not considered in the pre-crisis phase (Figure 5). The Thai government adopted the top-down approach to legitimate the social structure and sanction human interaction. The traditional channel (government website and/or portal) became the communication norm for agency and community. The potential benefits of using social media in this phase were ignored.

Figure 5: Legitimation and Sanction Processes

Phase 2: During-Crisis or Response Phase

The main activities taken in this phase address the needs of victims by providing immediate help, such as medical services and evacuation (Van de Walle et al. 2010). Social media were used to facilitate communication among government agencies and social communities during the Thai flooding crisis.

Agencies to Agencies Sub-subsections

During the crisis, the Thai government primarily used TV as the main medium to broadcast live news in order to keep local agencies aware of the ongoing flooding development. Social media began to gain its momentum and were used as the secondary channel to disseminate updated flooding warnings and information on the resources of local government agencies. However, government social media usage
began late, and it was unclear how they were able to collaborate with each other.

Agencies to Communities

The national government agency (www.thaiflood.com) also collaborated with online social communities (e.g. www.kapook.com) to establish the “Thailand Information Center”, where local information about victims in different affected areas was updated, aggregated, and disseminated on a daily basis (Figure 6). During the crisis, already fully stretched government agencies dedicated limited resources to front-line aid efforts. Although they tried to divert some efforts to deal with perceptions of social media, most information received from different resources was unfiltered, and some of it was rumors or inaccurate information. Consequently, the use of social media for communication between agencies and communities added further chaos to the situation.

Figure 6: Thailand Information Centre – collaboration between agencies and online communities

Communities to Communities

Online social communities in Thailand mushroomed during the crisis after the public was disappointed with government agencies’ ineffectiveness at dealing with persistent flooding. More than 50 Facebook groups were formed during the crisis and most of them were established in Bangkok, the capital of Thailand, because it was the least affected city. These social sites did a great job in updating information and news about water levels in different affected areas, and the whereabouts of missing loved ones. Live pictures and videos sent by people from the affected areas were quickly updated on these social sites and shared among community members (Figure 7). This useful information enabled government agencies to prioritize the allocation of its limited resources.
Another successful example of using social media to cope with the crisis was the Roo-Soo-Flood (Know How to Cope with Flood) online community. This community was formed by a group of volunteers with experiences in combating flooding crises. They creatively used YouTube to educate people on effective measures of dealing with varying flooding issues and avoiding unnecessary panic. Issues addressed in this particular online community included the formation of emergency response plans, the timing of evacuation, and so forth.

**Structuration Theoretical Analysis of Response Activities**

From the structuration theoretical perspective, social communities decided to mobilize resources (e.g. social media, information, flash lights, food, sand bags) to rescue their loved ones in the affected areas (Figure 8). The grass-root movement became stronger after social communities gave up relying on the government’s one-way efforts (e.g. TV broadcasting, rescue teams) to search for family members. The already fully stretched government agency was busy with front-line aid efforts and hardly divert its limited resources to dealing with helping perceptions of efforts on social media. Without enough resources dedicated to filter information received, the agency often posted inaccurate information on its information portal. Consequently, the social media effort not only diluted agency efforts, but also created further chaos. In the face of imminent danger, the communication between agencies and social communities became disrupted. Social structures were separately formed to fit individual needs of agency and social community. Human interaction primarily took place among members within their own social structure. No global efforts in managing social media projects in combating Thai flood were achieved.

**Phase 3: After-Crisis or Recovery Phase**

The primary objective in this phase is to enable individuals and organizations to return to normal life and begin their daily activities.
Agencies to Agencies

After the crisis, government agencies began to publicize information, such as successful recovery activities executed by volunteer groups, and various medical services available to victims in different locations. Facebook was the main social medium used by government agencies to offer these after-crisis services. To prevent similar disasters from happening in the future, the Thai government launched the National Flood Prevention Initiative to aggregate and archive past information related to the flooding crisis in a central repository database for future reference. The ultimate goal was to turn this initiative into a national-level flood prevention program involving all agencies participating in all rescue efforts in this flooding crisis.

Agencies to Communities

After the crisis, government agencies and many online social communities began to share information about volunteering activities available to assist victims in their recovery process. Many agencies continued their corporate social responsibility (CSR) efforts by building relationships with people who were actively involved in various rescue efforts during the crisis.

Communities to Communities

An increased number of people teamed up to organize and promote recovery activities on Facebook and Twitter to help recover flooded areas (Figure 9). These social members also used these two media to send out moral support to each other and victims. Other social communities used YouTube to share funny and home-made video clips with victims to help reduce their stress level during the recovery process.

Figure 9: Use of social media to call for volunteers

Structuration Theoretical Analysis of Recovery Activities

During the recovery phase, both government agency and community recognized their inefficiency and ineffectiveness in dealing with such a large-scale project with high degree of uncertainty. They began to identify the importance of global efforts in leveraging social media to their advantages. The National Flood Prevention Initiative is a global effort in archiving all lessons learned from this disaster, and using them to avoid making similar mistakes in future disasters. Their actions produced new structures of meaning for the use of social media to combat flooding disasters (Figure 10). In the meantime, social communities continued to use social media to help disaster areas by drawing upon stocks of knowledge (e.g. recovery advice and jokes) from the public. Social media became a new platform for both information- and love-sharing. Their actions also produced new structures of meaning for the use of social
media in the recovery phase.

![Signification and Communication Processes](image)

**Figure 10: Signification and Communication Processes**

### Important Lessons Learned about Using the Organic Nature of Social Media as a Communication Platform to Manage Crisis Projects

From the case study discussed above, this paper attempts to address positive and negative impacts of the use of social media on efforts to manage the disaster. A better understanding of the issue will yield important lessons on managing complex, large, and lengthy projects as it possesses similar characteristics as the flooding disaster.

It can be seen from the use of social media before, during, and after the flooding disaster discussed above that there was spontaneous emergence of order out of seeming chaos. Both agencies and communities, without a thorough planning, have co-created a knowledge base of how to cope with floods and also a central hub to disseminate information during and after the disaster. As evident in past crises in New Orleans, Brisbane, and Fukushima, government agencies’ uncoordinated efforts in communicating with the community seems to be ineffective. Thai flooding crisis is another incident affirming the importance of effective communication. In the face of overwhelming natural force, the last thing a government should do is exercise political efforts to maintain the appearance of efficiency without adopting effective communication media for the affected community.

Social media appears to be useful in facilitating bottom-up collaboration and developing knowledge from each community. It enables people in different areas exchanging news, information, and knowledge (e.g. how to protect a car from flooding). In addition, coordination among online communities, such as those on Facebook, has successfully pulled resources and help from the wider society. Several volunteer groups emerged not from the online communities, but as a result of their information dissemination, which revealed the true situation in various areas and amplified the needs for help. Gamling.org was a good example of utilizing social interpretation and collaboration in indexing flood areas and also a level of severity. This generated a structure of information and a self-organized pattern of information exchange, which added relevancy and usefulness to the distributed information.

Therefore, in order to facilitate the emergence of structures out of the unmanaged use of social media, the government should empirically examine the dynamics of the online social networks to understand how coherent categorization schemes of information emerge from unsupervised posting and sharing by individual users. Although the use of social media by individuals cannot be fully controlled or managed, setting a central hub to coordinate is helpful and important. Government needs to be quick in setting up such a hub. The hub should: 1) validate and correct information, 2) gather and distribute useful information, 3) reduce information redundancy and overload. Besides, an appropriate categorization scheme of information initiated by such a hub will help ensure the emergence of structures and help increase effectiveness of coordination among the social networks.

On the negative-impact side, inappropriate use of social media created several issues. Five important project management lessons can be learned from the real-life example of managing a crisis project with the use of social media before, during, and after its occurrence.

First, prior to the flood disaster, the Thai government should have conducted a thorough risk assessment with regard to the benefit and cost of using social media to educate and communicate with the public about important flood-related issues. A simple tool, such as Risk Breakdown Structure and Risk Registers,
can be used in this instance to assess the potential impact of all identified risks in project scope, time, cost, and quality (Zacharias et al. 2008). Ignorance of this important project management activity has made government agencies underestimate the potential of social media for crisis management. Rather, these agencies, such as the Department of Water Resources and Department of Royal Irrigation, chose, as usual, websites to publicize all critical information. They expected that the public would visit their sites and assess their own situations. Over time, the public developed concerns about the potential impact of flooding crisis on their lives. Since they would not be able to find answers to their personal questions on agencies’ websites, they began to use social media to discuss and speculate about the worsening situation.

The voluntary use of social media before the crisis caused panic in society and government agencies feared losing their credibility. If a proper assessment of social media for this crisis were conducted, the Thai government would have been more prepared for using social media to communicate with its agencies and the public (Jennex 2010). From the structuration theoretical perspective, agency and community could have engaged in effective communication if a stock of knowledge about risk scenarios were established in the first place. All actions to be taken could be discussed and justified against the knowledge base. Without the structures of meaning being established in the first place, uncertainty was amplified (Giddens 1984). As a result, agency was not be able establish the structure of domination and caused panic in the community.

Second, the absence of an effective team development, including technical training for the use of social media for crisis management, was the reason behind the lethargic performance of government agencies. When the public began to adopt social media to prepare for crisis, government agencies as an important stakeholder in this project, might have wanted to respond quickly to the public’s demands by forming an ad hoc team, whose members go through the first three stages of team development, namely forming, storming, and norming (Tuckman and Jensen 1977). Efforts in the team building activity should have equipped government agencies with the capability of using social media to meet the crisis project requirements of the public for real-time information updates (Mendonca et al. 2007). For instance, a performing team should be able to monitor and share critical information, such as rainfall volumes, river water level, and irrigation capacity, with social communities, before its occurrence. Despite the legitimate power held by government agencies, they abused their power by ineffectively or inefficiently allocating materials, information, and other resources to combat the disaster. The community sensed the incapacity of agency and decided to produce their own structure of domination via social media. As a result, conflicts emerged and two separate structures of domination (agency vs. community) were created.

Third, the rapid adoption of social media was the grass root movement during the flooding crisis. The social media were primarily used among members of different social communities. Critical information exchanged by members during the crisis was primarily related to the new development of disaster areas. Social media users were anxious to know about the water level in areas near their homes, relatives’ homes, and workplaces. Social media users in safe areas were concerned whether their daily routine would be disrupted by new situations in their neighborhoods. Since most users would need public transportation such as buses or military vans and boats to commute to their workplace, they turn to governmental agencies for updated information on bus schedules and official working hours. All this information can help social media users plan for their daily schedule. Social media users who need more knowledge about how to survive the disaster turned to YouTube. However, the proliferation of social media as an uncontrollable communication platform had created information redundancy, information inconsistency, chaos and rumors among all social communities. A simulation study shows that a small-degree note made of a few neighbor members in the social media (e.g. twitter) needs only eight rounds of communication in order to spread rumors to more than 88% of the entire network members (Doer et al. 2012). From the project communication perspective, social media became an ineffective communication tool during the crisis since many rumors were left to proliferate faster than the Thai government could control. Social media should be considered as one of many communication channels during the crisis and assessed with regard to their receptivity to the public. Crisis-message strategies should vary with the communication needs of stakeholders (Stephens et al. 2005). If the Thai government agencies had conducted a stakeholder communication analysis, they would have seriously used social media to their advantages. In the process of interacting with social communities, agencies should have filtered all the information received and sanction the efforts of social media users who spread rumors. Without being able to establish a new norm of social media use throughout the disaster, the efforts in reproducing social structures of legitimization were void.
Fourth, an important lesson learned from the Thailand flooding crisis is that risk control should take precedence over risk analysis. Although it was too late for government agencies to conduct risk analysis during the crisis, they could still have monitored the emerging risks of the chaotic use of social media and taken actions to correct mistakes. Two risk monitoring activities could be executed to minimize the impact of social media-related issues. Firstly, government agencies should have quickly identified emerging risks and assessed any changes with regard to their impact. If negative impact had increased, correct actions, such as calling for ad-hoc meetings to communicate effectively with stakeholders, and brainstorming ideas to minimize the negative impact of social media that spread rumors, could have been taken. If positive impact (e.g., more people are saved by using information on social media) had increased, social media could have been encouraged and enhanced to non-users. Secondly, government agencies and community members should report identified risks and their changes to each other. This action could help increase the awareness and the effectiveness of any actions taken to contain or reduce identified risks. Agency and social community are human agents in the structuration process. Their actions are inextricably linked and constantly moderated by different modalities, including interpretative schema, resources, and norm (Giddens 1984). Unlike most structuration processes underlying a social system, the Thai government agency reversed its cycle by trying to establish a norm, followed by domination and communication. Because of the lack of effective communication, the norm artificially established by agency was quickly overthrown and the entire Thai society entered nine chaotic dark months.

Fifth, after the crisis government agencies felt no urgency to use social media to assist the public. They returned to the use of websites to publish official information, such as fatality reports and compensation for people in disaster areas. The passive approach of sharing information did not help government agencies earn public trust because citizens were still struggling with the aftermath of the crisis, such as cleaning up mud, avoiding health-related diseases, and searching for lost family members. Social media thrived again to direct attention to some disaster areas needing immediate help, and providing advice for fast recovery. Issues which emerged during the crisis remained after the crisis because the use of social media was still unorganized. Government agencies and communities should learn from these lessons and consider using social media in a structural manner to help expedite the recovery process and lessen victims’ pains during the process.

Conclusion

This study has shown that social media could be an effective and efficient communication channel because of its instant connectivity for ideas and information sharing (Palen et al. 2009). In addition, social media could be used to express and share emotional support with other community members (Hughes et al. 2008). However, Thai government agencies and social communities have not been able to capitalize on these good qualities of social media before, during, and after the Thai flooding crisis. One major reason is the lack of experience in managing various projects during the disaster as well as the poor practice of effective management for crisis projects.

The findings of this study suggest that information needs change not only with stakeholders but also in different phases of a disaster. Although social media have the potential of meeting the changing information needs of different stakeholders, it is imperative to adopt a directed, focused effort in transforming these media into an effective communication channel to combat crisis. From the project management perspective, government agencies should try to manage different projects during future disaster events according to the proposed lesson learned from the 2011 Thai flood. Government agencies should conduct a risk assessment of social media use for crisis projects, and develop a team equipped with skills and knowledge about the use of social media to combat a crisis before it occurs (White 2011). Also, government agencies should provide a wide variety of training to members to make sure that all parties understand their roles and how they can use social media to collaborate with one another. Furthermore, during the crisis, government agencies should conduct stakeholder communication analysis, and constantly monitor risks emerging from the use of social media by online social communities (FEMA 2009). Agencies should focus on how to control and ensure information quality that is being disseminated to the public to lessen the panic and chaos during the crisis. By acting early and establishing trust among its citizens, government agencies can minimize various risks that may come with the false or misleading information being broadcast during the crisis. Although the crisis may end, the aftermaths will never (Shklovski et al. 2010). In addition to making an official closure to the crisis management project,
government agencies should learn from the lessons of each crisis and initiate a new recovery project to help victims resume their normal lives. The government agencies should look at social media as a relationship building tool. They need to keep informing citizens of the disaster aftermath and, most importantly, persuade them that they will be better prepared in future.

The emergence of social media provides innovative solutions to combating the increasing number of crises. Future research should continue to explore the various roles played by social media in coping with different crises during, before, and after their occurrence. As the frequency and impact of each crisis intensifies, government agencies and social communities should seriously assess the effectiveness of social media and work more closely than ever to increase the chance of survival for people.

Finally, the paper contributes to the project management and structuration literature in the area of managing urgent, complex, and lengthy projects from the structuration theoretical perspective. It is essential that a project manager is always aware of spontaneous orders that could emerge from within and outside of a project environment and learns how to handle and benefit from such emergence. A project management method, which focuses more on social interactions such as social project management, might be helpful and lends itself to complex and lengthy project more appropriately than a traditional one.

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