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Research Article

## ICT-Enabled Community Empowerment in Crisis Response: Social Media in Thailand Flooding 2011

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### Abstract

*In this paper, we examine the emerging use of ICT in social phenomena such as natural disasters. Researchers have acknowledged that a community possesses the capacity to manage the challenges in crisis response on its own. However, extant IS studies focus predominantly on IS use from the crisis response agency's perspective, which undermines communities' role. By adopting an empowerment perspective, we focus on understanding how social media empowers communities during crisis response. As such, we present a qualitative case study of the 2011 Thailand flooding. Using an interpretive approach, we show how social media can empower the community from three dimensions of empowerment process (structural, psychological, and resource empowerment) to achieve collective participation, shared identification, and collaborative control in the community. We make two contributions: 1) we explore an emerging social consequence of ICT by illustrating the roles of social media in empowering communities when responding to crises, and 2) we address the literature gap in empowerment by elucidating the actualization process of empowerment that social media as a mediating structure enables.*

**Keywords:** *ICT-Enabled Community Empowerment, Crisis Response, Social Consequences of ICT, Digital Enablement, Case Study.*

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## 1. Introduction

In the past few decades, we have seen an intensification in the occurrence and impact of natural disasters (Noordegraaf & Newman, 2011). According to a paper by International Monetary Fund (Lafra amboise & Loko 2012), damages inflicted by these catastrophic events have risen sharply, from about US\$20 billion a year in the 1990s to about US\$100 billion a year during 2000 to 2010. During 2013 and 2014, more than 700 natural calamities that have affected over 450 million people have struck the world. Some of these remain a fresh wound, such as the 2004 Indian Ocean tsunami, the 2005 Hurricane Katrina, the 2010 Haiti earthquake, and the 2011 Japan tsunami. Besides physical destruction and economic loss, natural disasters bring about devastating human suffering and social impact. Recognizing that crises are erratic and difficult to prevent (Yang & Hsieh, 2013) and that poor crisis response can result in a humanitarian catastrophe of far larger magnitude than the damage caused by the original event itself (Junglas & Ives, 2007), a growing body of IS research has emphasized the importance of crisis response (Hiltz, Van de Walle, & Turoff, 2010; Leidner, Pan, & Pan, 2009; Pan, Pan, & Leidner, 2012). Often, these studies highlight ICT's ability to facilitate information flow amid a crisis's urgency (Majchrzak, Jarvenpaa, & Hollingshead, 2007).

However, these IS studies are largely situated in the top-down, command-and-control model of disaster management, where the role of community is inadvertently undermined. Often, they investigate the role of ICT resources and capabilities from the crisis response agency perspective (e.g., Leidner et al., 2009; Pan et al., 2012; Yang & Hsieh, 2013). Some studies, while incorporating the role of community stakeholders, tend to view them as a constituent in the command-and-control model (e.g., Gao, Geoffrey, & Rebecca, 2011; Grabowski & Roberts, 2011; Sheth, 2009), such as in citizen sensing. In hindsight, this insinuates that the community is a "victim" that can only play a "reactive" role in crisis response. Conversely, we argue that researchers should pay more attention to community's competent role. We posit that a community's active role in crisis response has hitherto been constrained due to a lack of "mediating structure" (Berger & Neuhaus, 1977) that enables community action.

However, in recent years, this constraint has been surmounted through the emergence of social media as an alternative communication channel in crisis response (White, 2012). According to the American Red Cross (2011), 33 percent of American citizens have used social media to gain information about an emergency. With the prevalence of social media, the former National Incident Commander of the United States, Admiral Thad Allen, asserted that "there will never be a major disaster that won't involve public participation" (Berinato, 2010 p. 78). More importantly, social media has given rise to self-help communities in crisis. In a few renowned examples such as the 2010 Haiti earthquake, 2011 Japan earthquake and tsunami, 2012 Hurricane Sandy, and 2013 China Lushan earthquake, communities involve themselves actively, not only in requesting help, but also in responding to pleas for help through social media. Social media has empowered the community: it has allowed them to transform from a victim community to a competent community that may "use its own resources and abilities to manage the challenges through self-determination" (Van den Eynde & Veno, 1999). With this emerging phenomenon in mind, we ask: "How does social media empower the community in crisis response?"

To address this question, we conducted an in-depth case study on the 2011 Thailand flooding disaster, the world's fourth most severe natural disaster, in terms of the economic consequences as of 2011, with US\$45.7 billion losses (World Bank, 2011). In Section 2, we begin by reviewing social media in terms of crisis response and empowerment. In Section 3, we provide details of our research method. In Section 4 and 5, we present our case and findings. The study makes two theoretical contributions, which are elaborated in Section 6: it illustrates the roles of ICT in empowering communities during crisis response, and it also theorizes the actualization process of empowerment that is enabled by social media. Finally, in Section 7, we conclude by outlining the study's limitations.

## 2. Literature Review

### 2.1. Crisis Response, ICT, and Social Media

Crisis management comprises three stages: crisis prevention, crisis response, and crisis recovery. We argue that researchers should pay more attention to the crisis response stage in order to reduce and absorb the effects of disaster as they occur (Albala-Bertrand, 2007) because crisis prevention can be futile given that crises are usually unexpected (Yang & Hsieh, 2013). Moreover, effective crisis response can lessen crises' indirect impact, and may help to "reverse the direct effects" (Albala-Bertrand, 2007) in crisis recovery. The crisis response phase is a complex set of quick, unexpectedly occurring events. In order to overcome these circumstances, three types of social support are critical (Orford, 1992): informational, material, and emotional support. Informational support updates communities on the latest crisis information, and guides them in unfamiliar situations (Endsley, 1988); material support helps channel the practical aids, goods, and services to the victims (Orford, 1992); and emotional support acts as a buffer to stress (Kaniasty & Norris, 1993). More importantly, this support has to be delivered in a short time frame to alleviate the impact in the crisis response phase.

Given its efficiency in facilitating communication and coordination, ICT is adopted in crisis responses to enhance information processing and coordination. However, IS studies have conventionally focused on ICT's role from the perspective of crisis response agencies. These agencies use ICT to develop various types of management and decision making tools such as geographical information systems (e.g., Grunfest & Weber, 1998; Thomas, Kivanc, Ertugay, & Kemec, 2006). Moreover, Yang and Hsieh (2013) and Leidner et al. (2009) have examined IS resources and capabilities in agencies. Other studies extend ICT's role to improve coordination among agencies or between agencies and other stakeholders (e.g., Chen, Sharman, Chakravarti, Rao, & Upadhyaya, 2008; Day, Junglas, & Silva, 2009; Pan et al., 2012). Day et al. (2009), for example, present the coordination challenges between agencies and supply chain partners, while Pan et al. (2012) examine the information network between agencies, victims, and the public. Implicitly, these studies adopt the traditional top-down, command-and-control model of crisis response (Moynihan, 2008; Rosenthal & Kouzmin, 1997; Turoff, Van de Walle, & Hiltz, 2010), and emphasize agencies as rational actors with the capacity to control chaos during crises and communities as the passive recipients of aid. Even though some studies (e.g., Sheth, 2009) incorporate the community as being more than an information receiver, they view community as a "data sensor" on the ground, or a constituent in their plan. In other words, the community remains an actor with limited capability in a larger command-and-control model. In our view, communities' role is largely undermined (Turoff et al., 2010).

The above-mentioned proclivity of IS research is likely to have stemmed from a widespread view of the "community as the victim" mentality in the disaster research (Van den Eynde & Veno, 1999). It suggests that a community is broken by the disaster, not only physically but also in terms of its capacity to manage its own problems. In line with the call to get past the conventional model of "state intervenes, citizen receives aid" line of thinking (Lagadec, 2006), we argue that researchers should pay attention to community's competency for two reasons. First, we can acknowledge that the command-and-control model of crisis response rooted in the community as victim is ineffective in the face of the unpredictability of disasters (Yates & Paquette, 2011). Such crisis response plans are often based on an imaginary disaster that may not accommodate the reality in the field (Bonabeau, 2009; Majchrzak et al., 2007). Moreover, ritualistic and inflexible execution may straightjacket the response team in volatile times, or result in failure when the authority structure breaks down as occurred in Hurricane Katrina (GAO, 2005). Second, the reserve of human capital in diaspora communities is invaluable in tackling disasters (Schmidt & Cohen, 2013). Given its proximity to the disaster, the community possesses critical situational information (Liu, Palen, Sutton, Hughes, & Vieweg, 2008). Community members are often the "real first responders" (Palen, Vieweg, Sutton, Liu, & Hughes, 2007) to reach out to help those in danger or suffering (Turoff et al., 2010). Moreover, communities are the best judges of their own vulnerability and imperative needs (Yodmani, 2001).

We corroborate our argument through the recent rise of community in crisis response, enabled by the prevalent use of social media. During the 2007 California wildfires, the public turned to social media to

seek event updates that were contributed to by the community on the ground due to the slow response of traditional media and officials (Sutton, Palen, & Shklovski, 2008). The creation of a crisis map in the magnitude 7.0 Haiti earthquake in 2010 using citizen-provided information epitomizes the role of social media in expediting the flow of real-time, situational crisis information (Liu & Palen, 2010; MacEachren et al., 2011). In the 2011 Japan tsunami, citizens used Twitter and Facebook to send warnings, request help, share disaster scene information, and connect to families and loved ones (Skarda, 2011). When a magnitude 7.0 earthquake flattened the villages of Lushan, China in April 2013, the victims reported their locations on social media in order to direct the responder teams to rescue them.

Our review of the use of social media in crisis response shows that this area of IS research is still at a preliminary stage. Most studies have positioned social media as a channel in tapping the knowledge, capital, and collective strength of community (e.g., Cheng, Sun, Hu, & Zeng, 2011; Gao et al., 2011; Hui, Tyshchuk, Wallace, Magdon-Ismael, & Goldberg, 2012). For example, Gao et al. (2011) focus on the information propagating capability of social media to gather and integrate data from the community. This is an exemplar of crowdsourcing in generating collective intelligence. At the same time, the information flow in social media has been studied in great detail: Hui et al. (2012) and Cheng et al. (2011) examine the information-diffusion pattern in social media to better extract useful information for crisis response effectiveness. Moreover, Oh, Agrawal, Rao (2013) and Oh, Kwon, and Raghav (2010), adopting the perspective of informational analysis, present the duality of social media in rumor and informational convergence. By shifting away from information focus, Grabowski and Roberts (2011) delineate how social media is used in a bi-directional engagement between agencies and communities, which enhances situation awareness and develops a shared culture in crisis. In our view, these studies have inherited the command-and-control view. Although they move away from viewing the community merely as helpless victims, few IS studies advocate for the competent community view that we have observed in reality. Comparing this situation with Gaventa's (2006) spaces of participation (i.e., closed space, invited space, and created space), we posit that the current study of social media in crisis response has extended the closed space (restricted to crisis response agencies) to an invited space, with community being engaged in a more-inclusive channel. However, social media's potential to afford a "created space" (Gaventa, 2006) for communities to self-organize remains underexplored.

In addressing this gap, we explore the role of social media in facilitating community involvement, which we have observed in recent crises. We adopt empowerment as our theoretical lens for three reasons. First, empowerment is rooted in the principle of self-help (Gutierrez, 1990), which is a key essence of a competent community in terms of crisis response. Indeed, disaster management studies have suggested that empowerment is a "vital necessity" in bringing the community back to the loop (Lagadec, 2006) and in reducing their dependency on outsiders (Rowlands, 1996). Second, empowerment buffers communities from impacts in tough times (Sutcliffe & Vogus, 2003) by dismissing the helpless feeling and enhancing their resilience. Since empowerment may moderate stress (Spreitzer & Doneson, 2005), it is critical in helping communities to return to a state of calmness and accelerate the speed of their betterment (Hur, 2006). Third, empowerment lifts communities' limitations in discovering indigenous resources and helping itself (Zimmerman, 2000). Empowerment rejects the notion of reliance on professionals or experts that reside outside a community. Instead, it encourages communities to build on their strengths and resources in handling negative situations (Van den Eynde & Veno, 1999). In Section 2.2, we review the empowerment perspective.

## 2.2. Empowerment

The concept of empowerment emanates from the "social action" ideology of the 1960s and the "self-help" perspective of the 1970s in social studies (Kieffer, 1984). From its beginnings in the civil and women's rights movement, empowerment has been studied in diverse fields such as community psychology, management, political science, education, health studies, and sociology (Hur, 2006). In principle, empowerment is concerned with alternative approaches to social development for the underprivileged, disadvantaged, or oppressed (Parpart, Rai, & Staudt, 2003) in gaining greater control, efficacy, and social justice (Peterson, Lowe, Aquilino, & Schneider, 2005). There are a number of definitions of empowerment (e.g., Ersing, 2003; Perkins & Zimmerman, 1995; Rappaport, 1987);



however, since we focus on empowerment at the community level, we define community empowerment as a mechanism in which a community gains mastery over its affairs (adapted from Rappaport, 1987, p. 122).

While our definition reveals our conceptualization of empowerment as a process, many studies examine empowerment as an outcome (e.g., Parpart et al., 2003; Spreitzer, 1996). Hence, to understand how social media empowers the community, we first need to know what constitutes community empowerment as an outcome, and how the empowerment process can occur. More specifically, the discourse of community empowerment is distinctive in terms of members' collective strength (Pigg, 2002). Collectivism in an empowered community is succinctly represented when individuals, groups, and organizations join forces to break their solitude, support and help each other, and develop competence for collective action (Boehm & Staples, 2004; Fetterson, 2002). Ultimately, community empowerment's purpose is to address imperative community needs (Zimmerman, 2000) that failed to be fulfilled by those institutions with authoritative or resource power, such as central crisis response agencies in disasters. Our review shows that extant research has conceptualized community empowerment as three different outcomes: collective participation, shared identification, and collaborative control (Table 1).

**Table 1. Community Empowerment as an Outcome**

Community empowerment as an outcome	Sources
Collective participation <ul style="list-style-type: none"> <li>• Community takes part in processes that affect themselves (Breton, 1994)</li> <li>• Community engages in the decision-making or change effectuating processes (Boehm &amp; Staples, 2004)</li> </ul>	Baillie et al. (2004), Zaldin (2004), Hur (2006), Kieffer (1984), Boydell & Volpe (2004)
Shared identification <ul style="list-style-type: none"> <li>• Community alleviates the feeling of alienation and sustains activism (Zimmerman, 2000)</li> <li>• Community collaborates effectively to exercise collective strength (Drury &amp; Reicher, 2009)</li> </ul>	Hur (2006), Boehm & Staples (2004), Peterson et al. (2005), Peterson & Reid (2003), Gutierrez (1990)
Collaborative control <ul style="list-style-type: none"> <li>• Community possesses strength and ability in problem ownership and role assumption (Conger &amp; Kanungo, 1988)</li> <li>• Community manages resources and overcomes problems independently (Zimmerman, 1990b)</li> </ul>	Breton (1994), Zimmerman & Zahniser (1991), Itzhaky & York (2000), Bowen & Lawler (1992), Gist & Mitchell (1992)

Next, we explore how empowerment takes place as a process. Our review indicates three key dimensions in empowerment: structural, psychological, and resource. The basic tenet of structural empowerment is that power can be delegated to the powerless (Kreisburg, 1992; Lincoln, Travers, Ackers, & Wilkinson, 2002). Underlying this argument is the presumption of inequity in social structures that leads to an uneven distribution of power and, hence, the oppression of options and alternatives of one group by another (e.g., government) (Ersing, 2003; Gutierrez, 1990). Structural empowerment is situated in an objectivist view that assumes that provision of a facilitating environment will necessarily result in empowerment, or that structural antecedents are an indication of empowerment themselves (Spreitzer & Doneson, 2005). Therefore, the nature of this empowerment process can be characterized as being facilitating based: it focuses on improving the objective external conditions (such as organizational, institutional, social, economic, political, and cultural conditions) to give the power to take actions (Spreitzer & Doneson, 2005; Thomas & Velthouse, 1990). A direct mechanism is the removal of structural barriers that impede community access (Friedmann, 1992) to information, opportunities, resources, and so on. A straightforward example would be the removal of physical barriers in empowering disabled citizens (Pigg, 2002). Other examples include providing empowering community settings (Maton, 2008), changing policies and practices, installing a reward system (Conger & Kanungo, 1988), expanding the level and area of

involvement (Wandersman & Florin, 2000), and affording a platform (such as social media) for the establishment of social network (Bertot, Jaeger, & Grimes, 2010).

Another dimension widely discussed is that of psychological empowerment. Structural empowerment is restricted only to the "behavior" aspect of superiors, and overlooks the "perceptual" aspect of powerlessness (Conger & Kanungo, 1988); it does not necessarily lead to the feeling of being empowered (Spreitzer & Doneson, 2005). This gives rise to psychological empowerment, which emphasizes the feeling of empowerment a community experiences. In a classic work on empowerment, Thomas and Velthouse (1990) illustrate the essence of psychological empowerment as a sense of meaning, competence, self-determination, and impact. Together with Bandura's (1986) efficacy theory, subsequent empowerment studies have enriched knowledge of psychological empowerment. Assuming an internal urge for confirmation and influence (McClelland, 1975), the literature of psychological empowerment suggests empowerment as actions that strengthen the values of self-sufficiency or that weakens learned helplessness (Maier & Seligman, 1976). Therefore, we can characterize the nature of this empowerment process as being motivating based: it focuses on improving social psychology and intrinsic motivation, or on individuals' subjective interpretations (e.g., self-confidence, self-awareness, assertiveness) so that they feel in control of their own destiny (Spreitzer & Doneson, 2005; Thomas & Velthouse, 1990). Some examples of psychological empowerment include providing emotional support (Kieffer, 1984), cultivating a supportive climate (Spreitzer, 1996), bridging social divisions, and facilitating others' empowerment (Christens, 2012).

The last dimension is resource empowerment, which arises due to two reasons: first, the concept of structural empowerment (e.g., authority delegation) lacks the dimension of competence (Lee & Koh, 2001); second, "feeling empowered is not the same as being empowered" (Jacques, 1996 p. 141) given that the real ownership and control over resources remains in the hands of the powerful. Although less explicitly mentioned, this dimension is gaining increasing attention. Resource empowerment posits that access to resources is different from possessing or controlling resources, in the sense that the latter gives true power to the owner. Hence, while many empowerment studies are preoccupied with providing a facilitating environment and enhancing people's esteem rather than looking at their power over resources (Riger, 1993), empowerment from this dimension argues in favor of paying attention to identifying and capitalizing on local assets in communities (Van den Eynde & Veno, 1999). As such, we can characterize the nature of this empowerment process as being equipping based (i.e., focused on improving the competence and ability of the powerless in acquiring, controlling, and managing resources) (Hardy & Leiba-O'Sullivan, 1998). More importantly, cultivating collective resources in a situational context may contribute to effective behavioral change and social action (Kieffer, 1984). When power over resources or the ability to control the resources grows, more innovative resources and capabilities may be developed, expanding the community's social capital (Ersing, 2003).

Despite the abundance of empowerment studies, they suffer from two limitations. First, extant studies fail to consider empowerment's multi-dimensional characteristics (Ersing, 2003; Hur, 2006). Most studies are situated in a uni-dimensional perspective such as structural empowerment (e.g., Adamson, 2010; Bowen & Lawler, 1995) or psychological empowerment (e.g., Christens, 2012; Drury & Reicher, 2009; Gutierrez, 1990; Spreitzer, 1996; Zimmerman, 1990b). Therefore, the longstanding limitations of these studies have remained. While structural empowerment assumes that provisioning empowering conditions will necessarily lead to empowered outcome (Conger & Kanungo, 1988), researchers have argued that delegating power (a form of structural empowerment) may not empower the employee psychologically (Spreitzer & Doneson, 2005). More importantly, ultimate power (e.g., power over resources) often remains in the hands of authorities or top management despite employees or citizens feeling empowered. For example, studies about psychological empowerment have always been challenged by the question "where is the power?" (Spreitzer & Doneson, 2005). As such, we argue that these dimensions, when viewed independently, are insufficient to empower a community to achieve effective social change.

Second, extant studies neglect the actualization of power in empowerment (Perkins, 2010). We argue for a need to return to a fundamental understanding in which power is not something to be possessed, but rather, something that can only be exercised in and through relationships (Kieffer, 1984; Wilke &

Speer, 2011). In other words, one is not empowered until the behavior to exert control is displayed (Zimmerman, 1990a) or that power developed is exercised. In existing studies, this has been overshadowed by the focus on empowerment as a developmental process such as enhancing people's feeling of control (Christens, 2012). Since empowerment does not occur in a vacuum but transpires in the relational spaces between individuals and groups (Jacques, 1996; Patton, 1998; Weber, 1946), there is a need to place emphasis on the role of connectedness and community in human life (Christens, 2012; Riger, 1993) to avoid a situation where exercising power is conflated with power's developmental process, or disregarded in empowerment studies.

Overall, we explore how social media empowers the community in a crisis response. We acknowledge Christens's (2012) position, and posit that the empowerment roles of social media are enacted only when the actualization of power takes place. Therefore, we incorporate the three dimensions of the empowerment process in order to conduct a comprehensive analysis because Kieffer (1984) suggests that the simultaneous development of these intersecting dimensions will help us to go beyond the "limited way" of empowerment and move towards power actualization. In addition, based on the outcomes of community empowerment, the case analysis is predisposed to the process of how community attains collective participation, shared identification, and collaborative control by using social media. By applying empowerment as a theoretical lens in analyzing the case of 2011 Thailand flooding, we derive findings on ICT-enabled community empowerment or how social media empowers the community crisis response.

### 3. Methodology

The focal phenomenon of our study is an emerging, intricate, and yet rare occurrence of an event that has begun to attract IS researchers' attention. Hence, we adopted the case study research methodology because it is appropriate for such exploratory research (Siggelkow, 2007). This qualitative method allows us to unearth operational processes (Gephart, 2004) that are not easily separated from the contexts to provide a solution to the "how" question (Pan & Tan, 2011; Walsham, 1995). Recognizing that there is no established theoretical model applicable to investigating the ICT-enabled community empowerment process (Christens, 2012), we adopt an interpretive approach (Klein & Myers, 1999; Walsham, 1995). By using the existing knowledge of the empowerment perspective as the theoretical lens that serves as a "sensitizing device to view the world in a certain way" (Klein & Myers, 1999 p. 75), this interpretive approach not only allows us to conduct the study and data analysis with certain expectations based on prior theory, but also allows new, unexpected findings that are not identifiable at the outset of the inquiry to emerge from the data (e.g., Ravishankar, Pan, & Leidner, 2011).

We selected the 2011 Thailand flood because it fits the context of our study. First, various members of community were involved, which constitutes a natural environment for a community study. The seven-month long deluge is known as the worst disaster of the country in the past half-century in terms of water volume and the number of people affected: more than 80 percent of the country's provinces were inundated, 815 people were killed, and more than 13 million people were affected. The scale of the disaster triggered the active involvement of community members, including victims, volunteers, professionals, universities, community leaders, and emergent groups. Second, researchers have asserted that empowerment is a response to helplessness and powerlessness (Gutierrez, 1990; Perkins, 2010), and that these characteristics defined the state of the Thai community during the flood. During Thailand's floods, social media use prospered because the community was disappointed and frustrated with the government's ineffectiveness, such as their slow response and inaccurate information updates in managing the disaster (Bland, 2011; UPI, 2011). In other words, they experienced powerlessness caused by institutional liabilities, which set the stage for subsequent community empowerment by social media. Third, the outcome of community empowerment is evident in the prevalence of self-organized communities and relief actions in social media. More than 50 Facebook groups were formed during the crisis, updating information such as water levels in different areas, mobilizing volunteers, and coordinating the flow of donations (Kaewkitipong, Chen, & Ractham, 2012). In short, we selected the 2011 Thai flooding based on the criterion of theoretical sampling (Mason, 2002); rather than selecting it as a



representative case for generalizability purposes, we chose for its potential to generate an understanding of social media's role in empowering the community.

In applying empowerment as the theoretical lens, we closely follow the uses of theory in an interpretive study by Walsham (1995). First, the theoretical lens serves as an initial guide to design and data collection (Walsham, 1995). The theoretical lens takes account of previous knowledge, and creates a "sensible theoretical basis to inform the topics and approach of the early empirical work" (Walsham, 1995, p. 76). For instance, our awareness of the lack of studies that consider empowerment as a multi-dimensional construct shaped the design of our research, and our knowledge about the three outcomes in an empowered community (collective participation, shared identification, and collaborative control) directed the design of our data collection. Second, the theoretical lens is involved as part of an iterative process of data collection and analysis (Walsham, 1995). According to Walsham (1995, p. 76):

*Although theory can provide a valuable initial guide as described above, there is a danger of the researcher only seeing what the theory suggests, and thus using the theory in a rigid way which stifles potential new issues and avenues of exploration. It is desirable in interpretive studies to preserve a considerable degree of openness to the field data, and a willingness to modify initial assumptions and theories. This results in an iterative process of data collection and analysis...*

In our study, we use the three dimensions of empowerment process (structural, psychological, and resource empowerment) as categories of analysis that allow us to objectively study the empowerment process. Simultaneously, our choice of methodology and interpretive stance allow us to anticipate the emergence of findings (i.e., the empowerment actualization process). In Sections 3.1 and 3.2, we provide the details of our data collection and analysis.

### 3.1. Data Collection

We collected our primary data in two phases. The first phase started as soon as the flood subsided in early 2012. From January to May 2012, we collected the archival data in social media by screening for the community-created content in Facebook, Twitter, and YouTube. The source of this archival data included 25 community-established Facebook pages, a book containing the archival data of a Facebook page created by Dr. Teerachon Manomaiphikul, nine community-created Twitter feeds, and 12 YouTube videos (a complete list is available from the authors). The second phase occurred in March 2013, when we conducted an onsite visit comprised of semi-structured interviews and focus groups. We interviewed 56 subjects from different community groups, including victims, civil volunteers, flood-related professionals, non-profit organizations, university students, community leaders, emergent groups, and government agencies (see Appendix A). Each session lasted an average of one hour. We involved community members from different background (non-profit, private, governmental, academic etc.) in providing specific contextual considerations in the use of social media during the flood. The third and fourth authors further enhanced our collective contextual understanding of the case because they were flood victims and had conducted an earlier study on the flood. Moreover, we collected secondary data from various sources (e.g., government websites, reports, news, articles, books, journals, and conference papers). At the same time, we reviewed top management, sociology, and IS journals for concepts that could potentially form our theoretical lens (Walsham, 2006). This led us to a set of pertinent constructs and arguments that we used to build our "sensitizing device" (Klein & Myers, 1999). As we mention above, the theoretical lens served to guide our data collection; to, for example, ensure we elicited data relevant to the processes of attaining the three outcomes of community empowerment. Table 2 summarizes our key methodological guidelines.

**Table 2. Key Methodological Guidelines with Illustrations**

Aspect of study	Considerations	Application of the guideline
Field entry	Entering the field with credibility	Entry was negotiated through the third and fourth authors, who were from a reputable local university in Thailand. It granted the researchers an immediate “legitimacy and credibility” (Patton, 1990 p. 254).
Design of data collection	Gathering archival data of social media	Two research assistants manually reviewed the Facebook, Twitter, and YouTube page of community groups that our interviewees mentioned or the news reported. We obtained a published book from one of the interviewees, which contained his Facebook archival data. These archival data afforded by social media contributed to alleviating the problem of ephemeral (Quarantelli, 2002, p. 107) or perishable data (Bourque, Shoaf, & Nguyen, 1997) in disaster-related studies. These freely-available data allowed us to “observe” the events that occurred in the immediate aftermath of crisis, even after the fact (Oh et al., 2013; Stallings, 2007).
	Gathering data via interviews	We adopted a specialized role strategy (Dubé & Paré, 2003) where one researcher led the interviews while the others make analytical notes so that the interviewees were not overwhelmed. The lead interviewer and moderators were native Thai speakers. The researchers used the interviewees’ terms, whether in asking for clarification or for further elaboration. We avoided academic terms or jargon during the interviews. To improve the quality of disclosure, we followed Myers and Newman’s (2007) guidelines.
	Designing semi-structured interviews	Every interview began with broad questions, and progressed to questions specific to our theoretical lens. Whenever new themes emerged during the interviews, we formulated new questions to elicit further information that could explain, deny, refine, or enrich the arguments or modify the theoretical lens. Appendix B shows the excerpt of interview topic guides.
	Designing focus group interviews	We discussed specific topics with each group, which we generally characterized as flood victims and volunteers. Appendix B shows the excerpt of group interview topic guides. We elicited the experience of all participants in a semi-structured and open-ended format to allow the talk of participants to stimulate other participants in the group (David & Sutton, 2011). In order to avoid dominance of particular individuals (David & Sutton, 2011) and group conformity (Babbie, 2007) in the focus group, the moderators would ensure that everyone expressed their views and that the sequence of reply was randomized.

**Table 2. Key Methodological Guidelines with Illustrations (cont.)**

Aspect of study	Considerations	Application of the guideline
Choice of interviewees	Identifying suitable interviewees	Corresponding to our research topic and unit of analysis, we identified various community groups as our targeted interviewees, including citizens, victims, online social communities (initiators and followers), non-profit organizations (leaders and volunteers), and project leaders of government agencies. Based on these target groups, we identified suitable interviewees based on the news reports that suggested well-known and impactful individuals and groups during crisis, and on the third and fourth authors' insider knowledge. For focus group interviews with citizens and volunteers, we recruited the participants through intentional sampling (Grumbain & Lowe, 2010). The target participants were the flood victims and student volunteers of a flood evacuation center.
	Ensuring representativeness of interviewees	The interviewees were from different segments of a community in crisis, including victims, civil volunteers, flood-related professionals, non-profit organizations, university students, community leaders, emergent groups, businesses, and government agency members (see Appendix A).
Recording of data	Various representations of data	We recorded all the interviews and transcribed them in Thai. Two research assistants who were present at the interviews later translated them into English. We took photos of the session, site, whiteboard drawing, and so on to capture the research team's observations. The data collected amounted to about 648 pages of transcripts, field notes, and secondary data, and 142 photos.

### 3.2. Data Analysis

We began analyzing data as we collected it (Eisenhardt, 1989; Pan & Tan, 2011). The empowerment perspective sensitized us to the related information of the three outcomes of community empowerment (i.e., participation, identification, and control). We summarized the narratives about social media's use and community involvement in tabular form, which formed the main corpus of the data we used for subsequent analysis. We highlighted descriptions related to different dimensions of the empowerment process, including structural, psychological, and resources. From the descriptions, we identified tentative explanations that depicted the practice of the community members in using social media to overcome their helplessness and regain control during the crisis. In other words, we attempted to look for new "regularities in social life" (Babbie, 2007, p. 11) driven by the use of social media. We did this independently for each of the outcomes of community empowerment.

Next, to examine and identify the "underlying coherence" (Taylor, 1976, p. 153) through our interpretation, we juxtaposed the tentative explanations for each empowerment outcome. We focused on the further "abstraction" of the tentative explanations to derive the overarching empowerment process enabled by social media and the community processes in using the social media. At this stage, we focused on identifying the coherence in each outcome rather than comparing them across the three outcomes. An example of the abstraction of the process was the identification of structural empowerment and resource empowerment in the process of attaining collective participation. As we proceeded, each cycle of the abstraction improved the clarity of explanations as we developed a better understanding of the data and the theory in this inductive reasoning process. In addition, to better reflect our "renewed" interpretations of the fundamentals beneath the seemingly disparate actions, we refined the tentative explanations. We reiterated these two steps—abstraction of the empowerment process and refinement of tentative explanations—until we accounted for all the tentative explanations and we achieved a temporal internal agreement.

Subsequently, we began to look for underlying patterns across different empowerment outcomes. In adopting the logic of constant comparative analysis (Charmaz, 2000), we constantly compared the patterns of these empowerment processes to tease out their distinctiveness. For instance, although psychological empowerment might appear in the processes of attaining shared identification and collaborative control, differences in the nature of psychological empowerment in these two processes could be identified. During this comparison process, we repeated the processes in previous paragraphs to reveal and further refine the core element of the mechanism. With the emergence of our findings in the above stages, we consistently ensured alignment between data, theory, and findings (Klein & Myers, 1999) until we finalized the findings. To ensure the interviewees' interpretations converged, we applied the rule of triangulation (Dubé & Paré, 2003): we used multiple data sources (interviews, focus groups, news report, and archival data) to filter interviewees' and researchers' "false preconceptions", which ensured that the data was consistency. Throughout the data collection and analysis, we applied Klein and Myers's (1999) principles to conduct interpretive work.

## 4. Case Description

In June 2011, Thailand was overwhelmed by heavy rain and tropical storms. Although the country was no stranger to annual flood season, it was caught off guard by the extended scale and widespread impact of this flooding crisis that began in northern Thailand and persisted until early January 2012. The prolonged inundation submerged 65 of Thailand's 77 provinces, turning the rich fields of the world's biggest rice-exporting nation into murky lakes and damaging more than 7,510 industrial plants. Some notable companies affected include Toyota, Honda, Mazda, Nissan, and Sony. Many roads were washed away and Bangkok's secondary airport was forced to shut down. The UNESCO-listed Ayutthaya historical park was not spared either, where the floodwaters rose to almost three meters high. It was the worst flooding disaster the country has seen in five decades.

The enormity of the crisis revealed the powerlessness experienced by a helpless community. Since people could do little to prevent the impact of natural disaster, they were particularly concerned about accessing updated and accurate crisis information for survival, evacuation, and the removal of valuables. Nonetheless, they were disappointed by the government's ineffectiveness; for instance, the Flood Relief Operation Center (FROC) was set up to coordinate with all ministries only after 25 provinces were submerged. There was a serious lack of clear, consistent, and updated information. Moreover, news via traditional media reached people with a time lag. Although an online website was used to provide crisis information, citizens were confused and frustrated by the constantly changing information.

Despite the government having apologized to the citizens for its slow response (Bangkok Post, 2011), the community's trust in authorities waned. The people soon discovered social media to be an alternative channel to obtain information and organize on their own. During the flood, more than 50 flood-related Facebook pages were created to share information. A remarkable example was that of "Nam Kuen Hai Reeb Bok" ("When water rises, quickly tell"), created by a 23-year old girl to provide a space for ordinary people like her to share the flood situation. In a fortnight, the page's number of "likes" surged to 200,000 (Bangkok Post, 2012). The community also widely embraced another volunteer-run website, *Thaiflood.com*. Its Twitter account (@thaiflood) had more than 100,000 followers, which was 10 times higher than the number of followers of the government-run FloodThailand Twitter account (OCHA, 2012). In addition, individuals with professional knowledge such as Arjarn Sasin Chalearnlarp, an environmentalist and the secretary general of a nature conservation foundation, and Dr. Teerachon Manomaiphul, the ex-Deputy Bangkok Governor, were able to share their knowledge with the public via social media. In Sections 4.1 to 4.3, we provide details of how social media gave rise to an empowered community that demonstrated collective participation, shared identification, and collaborative control.

### 4.1. Collective Participation

The 2011 flooding crisis caught people by surprise on account of its exceptional scale and impact. The water that lingered in more than 80 percent of Thailand provinces severely disrupted livelihoods and threatened people's survival. In such a critical situation, they depended heavily on the news from the government, the de facto trustworthy source of information that citizens expected. Nonetheless,

the community was disappointed by the inaccessibility of traditional media and even more so by the government's inability to provide information on time with assurance. For instance, the director general of the Royal Irrigation Department told Reuters news on 14 October that "I can confirm that Bangkok is going to be spared from the flood" (Reuters, 2011), yet parts of Bangkok were flooded days later.

With a loss of confidence in the government and the availability of information in social media, more and more people were attracted to using it. Social media provided an open space for everyone to "speak and act", whether it involved sharing their knowledge, voicing their opinions, or searching for information. These platforms afforded the opportunity for individuals to reach not only their friends, but also world audiences. For instance, Dr. Teerachon Manomaiphul, the ex-Deputy Bangkok Governor, was able to share his insider knowledge, such as the reasons of the flood, without having to go through restricted traditional channels:

*I used Facebook because I have been forced to not going to the television program, but I think I have to say something to let the Bangkok people know. So I choose Facebook... It is a fact that many newspapers are supported by some politicians. When we send the information to them, they just won't put it in the newspaper. (emphasis added)*

In another example, two girls in their 20s created a Facebook page, Charun Fight Flood, to disseminate and gather flood-related information. Their action was triggered by the lack of availability of flood news in their area (Charun) because the media focused its attention on Bangkok. One said:

*The school was closed down and the exam was postponed. I had nothing to do but to watch TV all day and keep trying to find the information of the flood in my area. There was no news about the flood in my area – Charun, only the area of Bangkok. So I thought I could help by creating a Facebook page of the flood information near Charun area. I was so surprised that my page had more than 1000 "Likes" after one day. (emphasis added)*

As long as one posted information that was of use to others amid the confusing news from the government, they could be "found" and followed on social media. When followers began to share this information, they would further push the information to their own network of friends in social media. The information would spread virally, and further enticed more people to use social media. As Dr. Teerachon Manomaiphul said:

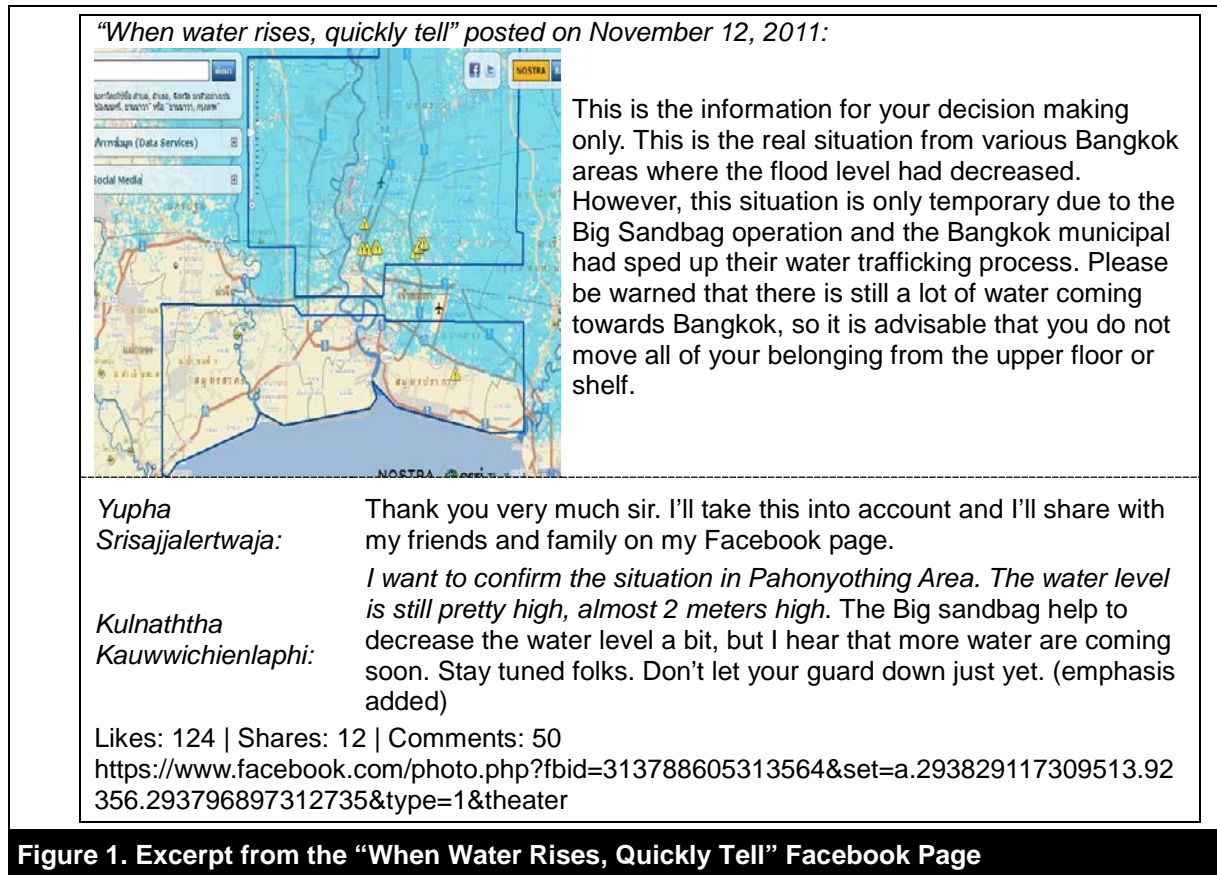
*The people who came to my Facebook were looking for information at the beginning. Once they got the information, they started sharing. So sharing helped my page to become more active. I would say that starting from 500 views a day, it became 10,000 views a day. At that time, it went up very quick and it came from sharing. Once people trust the information, they just share. (emphasis added)*

As a result of the active sharing, more people became aware of the availability of useful flood information on social media, and subsequently changed to use social media as their source of information. According to one poll (Tech in Asia, 2011), social media surpassed newspapers as a source of information during the Thailand floods, with usage increasing from roughly 19 percent to 25 percent of total users polled. In this period, the number of social media users also increased drastically in Thailand: from 600,000 Twitter users in September to 720,000 in October 2011 (OCHA, 2012) and from just over 7 million Facebook users to more than 12 million in 2011 (AFP News, 2011).

When more people began using social media to access information, they also made active contributions in various forms. For example, victims shared the photos of their homes and the flood, and the knowledgeable ones uploaded their advice and analysis about the situation. In the example of the Charun Fight Flood page, 50,000 members participated actively by contributing flood



information in different areas of Charun. In Figure 1, we show an excerpt from the “When water rises, quickly tell” Facebook page that demonstrates followers’ active contributions.



In another case, Arjarn Sasin Chalearmarp, an environmentalist and the secretary general of a nature conservation foundation, put together some YouTube videos with his knowledge of geology to explain the occurrence and situation of flood without jargon. His most popular video has been watched more than 440,000 times:

*Social media is good... It gives people an outlet to talk to one another in any topic. My tool was Map and picture. I usually combined the two to get the most accurate information. Only a picture alone may be misleading. I gathered all of the information from various sources; I even use a lot of GISTDA (Geo-informatics and Space Technology Development Agency of the government) and then explained the flood situation in layman's terms via social media. I used all the resources to make it easy to understand. I guess one of the advantages I have is that I am very knowledgeable about the land and forest. Therefore I was able to integrate the flood information I found from GISTDA and other places with the map. The way I explained it was easily understandable. (emphasis added)*

<i>Amornrut Songserm:</i>	Thank you for sharing this information. I really appreciated your thoughtful mind. Keep it up. I love you ☺
<i>Annie Handicraft:</i>	<i>I really like your information. It's simple and very understandable. The warning messages I hear from TV are really gibberish with difficult concepts and wordings. I'll share your information to others (emphasis added)</i>
<i>Virat Ratna:</i>	<i>Your information is straightforward. Thank you so much. (emphasis added)</i>

**Figure 2. Some Replies to Arjain Sasin Chalearmrlarp on his Facebook Page**

More importantly, social media could accommodate a diversity of reports that were likely to be missing in the controlled traditional media. As a student volunteer at an evacuation center suggested, newscasters often came in to the evacuation center to look for “sellable” stories that featured dramatic victims crying in front of the camera even though things were going fine. Relatively speaking, information shared by the community in social media were more transparent, open, and personal since the information contributors were from the ground. In addition, social media allowed everybody who wished to help to work collectively in enhancing the value of the information in social media. This is demonstrated in an example of the Charun Fight Flood:

*I think social media was very useful in helping others during the flood... but it can also be bad if the information is mismanaged... For example, I once posted a picture about poisonous snake that might be floating near Charun. I misunderstood that it wasn't poisonous. Luckily a snake expert sent me a message informing us that the snake was very poisonous. I took down the post on Facebook immediately. Luckily no one got bitten or died from it, or I would have got into trouble... But the good thing about Facebook is that the members will come in and try to correct the wrong information by contributing their knowledge. That's why our page is a bit special; we value information accuracy highly and we organize the information very systematically. We got a lot of people in the community who sent us the material and we tried to verify them before we post on our FB. We, the administrator, were the facilitator of the information gathering. (Founder of Charun Fight Flood, emphasis added)*

Therefore, when more individuals contributed their local knowledge and information, the publicized and useful information formed a pool of resources in social media, which attracted more people to participate in using social media.

#### 4.2. Shared Identification

As the water continued to shift southwards to Bangkok during October 2011, people were stranded. Water levels in 470 locations of Bangkok rose to a minimum of 80cm, and some central provinces were two meters underneath the water. About 1.96 million houses were affected, 19,000 of which were totally damaged (World Bank, 2012). Many were forced to stay in temporary shelters or evacuation centers at stadiums, universities, temples, and government buildings. In addition, some were isolated by the sea of water that submerged their homes and they relied on the relief supplies sent by boat or airdropped by helicopters. Having lost family members and undergoing a prolonged period of deprivation, people increasingly felt alienated and helpless. At least 700 contemplated suicide and a stressed-out man even fired gunshots into the air near a medical team in Ayutthaya province (The Nation, 2011).

People felt alienated because they were disconnected from others. In the past, they had few effective options to stay in touch with others during crisis. In Parichart Village in the outskirts of Bangkok, for example, the community leaders had failed to spread the flood-related news to the villagers via SMS and email. The Web portal, too, merely served as a passive way of connecting less than 100 people from 2,000 households with 8,000 villagers. Feeling the frustration, one of the residents, Arjain Wanchai,

initiated a Facebook group called “345 Parichart” to look for information and help in vicinity. In the first week, almost 2,000 people joined group, including people outside Parichart Village. Although they did not know everyone in the group, they shared stories, and consoled and supported others who were living in the same village or experiencing similar difficulties. Besides extending emotional support to each other virtually, they became involved physically in recreational group activities organized via social media. For example, they organized water-based recreational activities such as boat racing, snorkeling, and scuba diving. These activities helped relieve the stress and tensions of living amid so much water. Gradually, the collaborative efforts and companionship alleviated the feeling of sadness, isolation, and helplessness. This was illustrated by the committee member of the group:

*We posted a lot of pictures and videos on Facebook and YouTube. We made a couple of funny videos that went viral [They made a video called Water Park Parichart, with villagers pretending to have fun at the “Water Park”—their flooded village]. We even have short clip of “Daily Report” on YouTube to give information to others. At one point, we decided to make things less stressful by making it funny instead of being depressed about the flood. We even created our theme song: “water world, water park, it looks so nice. There was like sunset and sunrise over the roofs...” (emphasis added)*

As the committee member mentioned, Parichart Village group posted a few funny videos: one featured the old folklore of a guy paddling a boat to woo the girl with the classical music background, and another one was themed as the “Parichart Water Park”, imitating the Water Park Fun Land where everyone in the village was having fun with the flood. The videos were well-received in the community, which the YouTube comments below show (see Figure 3).

Panom Parichat (the Parichart village member) posted folk song video on Oct 17, 2011:  
[http://www.youtube.com/watch?v=5UfmLj7a\\_sM](http://www.youtube.com/watch?v=5UfmLj7a_sM)

<i>Gammez69:</i>	this is great!.. so funny haha
<i>Jaigai Ratigaan:</i>	Now that is very romantic way of looking at our village under water haha
<i>PongPang666:</i>	hahaha... it's so creative and funny. Big Thanks... it is sad to see my house in the video underwater but this is a bit of relief for me. Good job creating the YouTube video.
<i>MooAuy Somruedee:</i>	Less stress... Great job! ^^
<i>Siripong Ekmaharaj:</i>	I laughed until I broke down in tear. This is very funny hehe

Views: 16,395 | Likes: 104 | Comments: 24

Panom Parichat (the Parichart village member) posted water park video on Oct 26, 2011:  
<http://www.youtube.com/watch?v=xCNryBgpy3o>

<i>somprach wungnatun:</i>	haha... the Thailand biggest water park (Suan Siam) can't compare to our Parichart Water Land hehe.. we are better ☺
<i>Siamrath Thaweesak:</i>	hahaha... our village become the Water Park... we should charge an entrance fee. Haha
<i>Somchai Supa:</i>	I don't live in Partichart but live in the nearby Village. You guys are so funny with the video haha... Parichart Water park... classic!
<i>Maewdoi:</i>	Ahh... I see my own home under water haha

Views: 3,721 | Likes: 25 | Comments: 4

**Figure 3. Comments to the Community Self-Created YouTube Videos**

Similarly, the student volunteers of Thammasat University were motivated by their Rector, Dr. Somkit Lertpaithoon. During the floods, Thammasat University served as one of the largest evacuation centers. Through social media, Dr. Somkit influenced the students at Thammasat. He constantly updated the flood situation around the campus via Facebook by posting texts and photos. Even when some parts of the campus were submerged under two meters of water, he went around checking the situation in a bigfoot truck. His commitment to the university motto of "To love and help people" affected the students who followed him on Facebook. Inspired, many of these students stepped forward as volunteers at the evacuation center. As Dr. Somkit proudly mentioned in our interview, "The volunteers who participated will have the people in mind. They were very proud of helping the people." In addition, his followers responded actively to his Facebook by sharing information and offering suggestions about the management of the evacuation center. This reinforced people's belief in not only Dr. Somkit, but also other followers. The following excerpts from the interview show how Dr. Somkit's commitment influenced his students:

*When I started using Facebook, many people criticized me. Facebook has something good something bad. But during the flood, I knew that everyone would like to know about their university. They want to know how high the flood is, their hostel rooms, and the dogs that they feed in the science building. I would go to the science building where we have about 10 dogs to find out. I am doing this because people are eager to know. (Dr. Somkit Lertpaithoon, emphasis added)*

*We had to keep checking the information on the news as well as reporting what is going on in the center to the outside world. People were hungry for accurate information. People who needed help would send requests to our Facebook page or Twitter. A lot of people did not believe in information from TV or the government sources. We also followed Dr. Somkit's page. We were the real fans of Dr. Somkit. He is our Social media hero. (Volunteer S, emphasis added)*

When people were freed from feeling vulnerable and when they adopted a positive attitude in dealing with dire situations, positive energy accumulated and attracted more people of a similar mindset. In the case of Parichart Village, a villager from a nearby village joined the Facebook group of Parichart Village and was deeply moved and inspired by the action of the community. Besides helping the Parichart people, she also provided advice and lessons learnt from Parichart to another village that also made use of Facebook to communicate with fellow villagers:

*Some might say that Facebook is a good tool to get city-folk like us to "connect", since our lifestyle is very individualistic. It was like we were in a virtual deserted island together on Facebook and we had to help one another to survive. One of the admin doesn't actually live in the village. She lives in a close by area, but she joined the group and helped out. (Committee member of Parichart Village group, emphasis added)*

*I also found out that another village nearby Chaiyapruet 2 [a relatively new village] has their own Facebook group of 500 household. I am also an administrator of that group. I told them that they needed to join and learn how to use Facebook. (Committee member of Parichart Village group: the committee member who did not live in Parichart Village, emphasis added)*

Similarly, in the example of the evacuation center at Thammasat University, people who wished to contribute in the flood could reach out to influential figures such as Dr. Somkit, who was otherwise difficult to access. This would facilitate the connection among people who shared the eagerness to help the victims. As Dr. Somkit mentioned, some useful ideas could not have reached him without social media:

*To fight the flood, we must use the sandbags. At that time, some people recommend to me via Facebook to get the sand from Nakornsawan Province. They gave me the contact of the person, and I did contact him. It was helpful because few people have our*

*[management of Thammasat University] telephone number. They cannot call me. As the director of Thammasat University, I receive many phone calls but I don't pick up them because I don't know who it was. It could be up to about one hundred, two hundred or three hundred per day. But now you post in the Facebook. You can contact me by the Facebook. (emphasis added)*

Besides expanding relations with different community members, social media also allowed the deepening of ties with a selected group. Although social media was an open platform, it was up to the community how they managed the use of social media. In the example of the Parichart Village Group, the group realized they could strengthen the relations with people who shared a similar mindset in the floods. According to a committee member of Parichart Village Group:

*At our peak, we had more than 2,000 members in the group. At some point, the discussion turns political. Many political related groups try to come in to the community and try to do political favor that mess up some dynamic of the group. The founding committee set up another closed group to work among ourselves, because if we were to work in the open group with 2,000 people, things can turn political real quick. We needed to make many important decisions about what to post and not to post, so we had our own Facebook group to do that. It was like a group under a community type. We used it to communicate privately shared information before we could share them with others in the community. (emphasis added)*

Therefore, when more individuals were connected to people of a similar mindset, the networked community gave rise to a sense of togetherness and collective energy in social media, which encouraged more people to believe in their inner strength.

#### 4.3. Collaborative Control

In the 2011 flooding, people were forced to face threats to their lives and extensive inconvenience for months. They were no longer able to study, work, travel, or live the way they used to. Property loss and separation from others also deprived them of the basics of life. Everything turned out to be uncertain: they were not sure when the flood would end, whether their homes would be flooded, what they could do, or whether help would come to them. There was little that they could do to change the situation other than waiting for help. Such uncertainties may persist even with help. For example, some of the victims taking shelter in evacuation centers were moved twice or more. A manager of Save the Children foundation told the press: "One boy I spoke to had already moved twice in one week, and now might have to move again as families are being evacuated from his current shelter" (Thomson Reuters Foundation, 2011).

With social media, collaboration among the individuals were made possible, and people were encouraged to contribute in their own capacity. It could have been as simple as their physical presence, such as what happened in the Charun Fight Flood Facebook group: people who were informed via social media of the sorry plight of a stranded mother and baby waded through the water to bring milk to them. In addition, the Flood Relief Volunteer Centers formed by Democrat Party (the non-ruling party during the floods) made heavy use of Facebook to gather volunteers for relief activities. Through their wide network of community leaders and volunteers on the ground, they were able to verify information in Facebook and issue accurate flood warnings to Bangkok people and industry, even before the government did. Social media helped to mobilize resources, which Vittayen Muttamara, Director of the Flood Relief Volunteer Centers, describes:

*We could call a lot of people very quickly. For example, if we wanted to pack 2000 survival bags on Thursday, we could gather like 500 to 1000 people within 2 days by calling for help via our Facebook page. During the flood, more than 700 people came to help us pack survival bags. Eventually we had more people than bags and items we needed to pack, and we had to buy more supplies so that people could pack the bags... We also validated the information we received before sharing anything. We validated it*



*with our team who was in or around an area. We have our team (party members) almost everywhere, so we could cross-check with them whether the area really needed help. Sometimes we asked our people who were in the area to investigate the real situation and report the kind of helps that were actually needed.*

Democrat Party posted on October 17, 2011:

We have to make the dike along “Hok-wa” canal 0.5 meters higher to prevent flood. Please come out and help fill up sandbags for the dike at “Ritthiwannalai 2 School” in Saimai district all night. Those who live in the areas of Saimai, Donmeung, and Bangkhen, please come out and help.

*Beer Varatchaphon:* How to get there. Please provide me a direction and map.

*NuAng Zilla:* If just around 100,000 people (around 1% of Bangkok population) fill 15 sandbags each, we will be able to protect Bangkok.

*Mec Supply:* Trucks filled with sand and empty bags heading to “Hok-wa” canal. *Let’s help protect the area...let’s go.* (emphasis added)

*Suhatcha Wonganusorn:* *My son went there to help twice. We are glad and proud to take part in this.* (emphasis added)

Likes: 253 | Shares: 100 | Comments: 34

**Figure 4. An Excerpt from Democrat Party Facebook Page**

On the other hand, the founder of Roo-Soo-Flood Group, Kriangkrai “Ping” Wachirathamporn, while volunteering to make sandbags and packing stuff, said he was wondering: “Can’t we do something more than this? We studied communication arts and we have potential to help people who are drowning in a flood of information.”. Eventually, a team of volunteers assembled and contributed their skills in graphic design, marketing, technology and film to develop a creative solution: an infographics video that explained the flood data using graphics. The members of Roo-Soo-Flood Group used a whale as a character in the video to represent the 10,000 million cubic meters of water that needed to be drained to the sea. The representation of whale made the number that was announced by the authorities more easily comprehensible. After it was uploaded in October 2011, the video was viewed more than 750,000 times in a week, and this helped people to understand the flood and what to do when it came. As one of the key member of Roo-Soo-Flood Group recalled:

*A lot of people liked our video. It is easy to understand and they said it is fun to watch. We addressed the “need” of our target customer... There were more than 300,000 views in just a few days. It went viral very fast.* (emphasis added)

From the initial group of 10 persons, the group expanded and resources, advice, knowledge, and information poured in, which further supported the group’s effort in developing 11 subsequent videos (see Appendix C for the number of views, shares, and subscribers).

*After the video went viral, a lot of people lent a hand. Famous academics from all over Bangkok lent their knowledge to us and we produced other videos. Basically, we gathered all the useful information from various people and made sure the message was processed and distributed in an easy-to-understand way.* (Key member of Roo-Soo-Flood Group, emphasis added)

When the collaborative efforts generated outcomes that were visible on social media, people became more convinced about using social media to resolve issues in floods. It made community members realize that they were capable of solving their own problems without being totally dependent on government. In other words, social media helped to reduce the feeling of passiveness and reliance by encouraging the

community to believe in their capacity. This included initiators such as the Roo-Soo-Flood Group and other community members. Initiators needed to be acknowledged for their efforts. In this sense, the number of “likes”, “sharing”, or “views” of a posting in social media, which served as an indicator of how popularity could generate a sense of recognition to the initiators. For Roo-Soo-Flood Group, the widespread sharing and acknowledgement of their first YouTube video served to recognize the contributors. Hence, they were encouraged to develop 11 more videos to give advice on dealing with flood, evacuation, water treatment, and so on. This was shown in the interview excerpts and Facebook page below:

*We have to say that it was beyond our expectation that we had such a good response initially and the popularity grew so quickly. We kept producing the episode and broadcasted them through social media. It was such an effective tool.* (Key member of Roo-Soo-Flood Group, emphasis added)

*We were just citizens that got together via social media, but we created a huge impact by spreading the right information. We got the chance to apply our skills to real projects or crises. We learnt a lot from it and we felt good too.* (Key member of Roo-Soo-Flood Group, emphasis added)

Roo-Soo-Flood posted on October 29, 2011:



Good practices for everyone who stay at temporary evacuation centers... well... actually this is for everyone no matter where you are. If you can follow these practices, you will stay healthy and be able to survive. Let's have a look.

- Somchai Pongkasem:** Oh...this is great. Thank you very much
- Nithima Lorsubkong:** Many thanks
- Porrawan Doungrat:** Thanks for sharing. This is helpful.
- Chawetsan Namwat:** Many thanks to the Roo-Soo-Flood team for sharing this. I can see the power of social network and the young bloods that care about our society.

Likes: 814 | Shares: 551 | Comments: 57  
<https://www.facebook.com/photo.php?fbid=278068965567412&set=a.275202462520729.722.29.274866165887692&type=1&theater>

Figure 5. An Excerpt from Roo-Soo-Flood Facebook Page

The successful use of “infographics” in the Roo-Soo-Flood videos became a model for the community members who wished to contribute. With a reference, they felt less uncertain about what they could do during the flood. This was evident when people tried to replicate the “infographics” way of conveying message, which one of the key members of the Roo-Soo-Flood Group illustrated:

We used infographics to explain the data and change it to digestible information. It was very effective. After that, it seems like a lot of people tried to do the same thing... *The good side is that people can understand the information easily through infographics. The use of infographics through social media can really help our society during the crisis. We are very proud of that. People can understand and believe in themselves that they are a small piece of the puzzle. When they use social media, they can help others with the press of a button.* (emphasis added)

Therefore, when more individuals believed in their potential in overcoming issues during the flood, their collective efficacy led to the expansion of their confidence and capacity, facilitating actions from more people in contributing and organizing resources.

## 5. Discussion: ICT-Enabled Community Empowerment in Crisis Response

In Section 4, we illustrate how the people of Thailand used social media during the 2011 flooding crisis to overcome their reactive stance as victims. In this section, we analyze how social media empowers the community during crisis response.

### 5.1. Social Media Enables the Community to Attain Collective Participation

Our analysis shows that social media empowers communities in crisis response by enabling them to collectively participate. Before social media is used, communities are powerless due to the ineffectiveness of crisis response agencies and authorities. In times of crisis, communities depend heavily on agencies that legitimately hold resources and control access to decision making and disaster response processes (i.e., a government who monopolizes the broadcast channels). This means that institutional conditions constrain communities from taking a larger part or even participating in crisis response, which constrains them as people who need help from outsiders. They are confronted by structural inequalities (Christens, 2012) that prevent the withdrawal of their sufferer’s role.

The empowerment perspective suggests that circumstances may be improved by overcoming obstacles that hinder a community’s access to resources (Ersing, 2003), which delegates power to the community. Our analysis demonstrates that social media affords the channel for the community to share informational resources as opposed to receive the information passively from the crisis response agencies. In other words, social media enables the community to participate in crisis response. As such, the power previously contained in the hands of government agencies shifts to the people. In particular, our data reveals that two types of empowerment process are salient in enabling community’s participation: structural empowerment and resource empowerment. It is through the interaction of these two processes that communities are empowered in a crisis.

#### 5.1.1. Structural Empowerment

From structural empowerment’s perspective, social media removes hindrances to participation by affording an avenue for communities to involve themselves proactively in crises (Torbert, 1991). In contrast to the command-and-control crisis management model with a closed space, social media creates an open space (Gaventa, 2006) for previously powerless actors to take part in the crisis response. This overturns the inherent communication and information network structure in the crisis response because communities have the option to engage proactively as information senders, rather than remaining a recipient. With social media, communities may be involved in crisis response activities that were exclusive to government agencies or authorities in the past by posting photos of the crisis incident, “liking” or sharing of others’ post, or following or subscribing to someone’s page.

Moreover, the variety of social media (e.g., Facebook, Twitter, YouTube) and different options of participation (e.g., follow, share, post) generate alternatives for people to choose their level and area of involvement (Wandersman & Florin, 2000), according to their capacity and interest. Hence, community participation can be scaled up (Adamson, 2010), which neutralizes governments' and traditional media's authority.

More importantly, this initial participation can engage more people to take part in community activities through the connections in social media. Our findings show that this can be realized in two ways: first, the underlying social network of community members that is already established in social media serves to radiate the participation of an individual and informs others about the possibility of exercising their rights. Second, the openness and transparency of social media allows for one to search and access useful resources and information. This extends the increasing use of social media by attracting more people to join the network.

### **5.1.2. Resource Empowerment**

From resource empowerment's perspective, social media reduces communities' dependence on crisis response agencies by providing a holding place for resources that the community contributes. As a result of structural empowerment, the diversity of community members and the resources that they can contribute increases. Compared with traditional sources, information in social media is often more contextualized (Majchrzak, Wagner, & Yates, 2013), localized, and up-to-date. When community members benefit from this information, they are likely to reciprocate by creating resources such as specialized knowledge and supportive messages, before they channel them onto social media. This is made possible because social media creates the conditions under which people can "take from" and "give to" the community (Breton, 1994). When these resources are channeled onto social media, a force multiplier is formed that leverages entire communities' resources (White, 2012).

At the same time, communities contribute to filtering the resources. Social media, as a two-way communication channel, allows communities to process, refine, and act on the resources (Crowe, 2012). Everyone is involved in influencing and shaping the existing resources pooled in social media (Breton, 1994) such that it becomes more useful for communities to counteract a crisis's negative impact. When the value of the resources increases, it becomes more appealing to those who have not engaged in social media. As a result, communities' participation increases, which reinforces the process of structural empowerment where the community network expands.

## **5.2. Social Media Enables the Community to Attain Shared Identification**

Our analysis also shows that social media empowers communities when responding to crises by enabling them to attain shared identification. Disasters "debond" (Van den Eynde & Veno, 1999) a community by disrupting the daily norms and disconnecting people from the established social network. People constantly worry about their safety and basic life needs, such as shelter, food, and water. The anxiety they experience about their own livelihood, coupled with physical separation, leads to a sense of detachment from the community. As a consequence, communities' inherent strength remains intrinsic at the individual level, which results in feelings of isolation, alienation, and helplessness. Reinforced by the traditional victim community view, this feeling of powerlessness can self-perpetuate, leading to social impotence (Kieffer, 1984). In other words, the psychological limitation places a restraint on communities, which holds back from helping themselves.

The empowerment perspective suggests that psychological restraint can be alleviated when communities acknowledge and release their latent strength (Hur, 2006). Our analysis demonstrates that social media connects individuals, releases and amplifies their collective inner energy, and, thus, enables the individuals to identify with the community in crisis. As such, the power or energy that is previously fragmented and suppressed in the individuals of a community can be unleashed. In particular, our data reveals that two types of empowerment process are salient in enabling community's identification: psychological empowerment and structural empowerment. It is through the interaction of these two processes that communities are empowered.



### **5.2.1. Psychological Empowerment**

From psychological empowerment's perspective, social media enhances emotional resilience by diffusing individuals' expressions. Social media allows for free expression. Through social media, community members can share their ideology, thoughts, opinions, and feelings. In a helpless community that has been denied the right to have a voice, these speeches or actions that are expressed and shared freely challenge existing paradigms (Drury & Reicher, 2009). While some community members may express their devastation, others show their emotional support and positive mentality. When community members provide emotional support to each other through social media, they become interdependent and attached to each other (VeneKlasen & Miller, 2002). Moreover, the visibility in social media of outcomes from people participating in a crisis augments the effect of learned hopefulness (Zimmerman, 1990b). Even under conditions of unsatisfactory results (such as, in our example, the student volunteers that experienced accusations from the public), the community's conviction of their own effectiveness in taking proactive action can be raised (Conger & Kanungo, 1988).

At the same time, participants can become more-effective agents of civic action (Christens, 2012) that can influence others. In our example, this was evident in the case of community leaders such as Dr. Somkit and Arjarn Wanchai. Through social media, the expressions or the influence of effective agents can be broadcasted to an entire community (Crowe, 2012), which can motivate them through social persuasion and emotional arousal (Bandura, 1986) and free them from a constraining mindset. In addition to one's existing social network, which serves as a personal invitation for others to participate (Ospina & Foldy, 2010), the relevance of contributors' content, affiliation, and reputation of and the content's popularity (as seen through, for example, its number of likes or views) can propagate the dissemination of these expressions and inspire more people (Freire, 1973) in communities to depend on fellow community members. Together, these bring about a new form of social solidarity (Boehm & Staples, 2004) that can "dispel the oppressive social values and practices" (Watts, Williams, & Jagers, 2003 p. 187) and enhance communities' resilience.

### **5.2.2. Structural Empowerment**

From structural empowerment's perspective, social media overcomes the distance and alienation in a community by bridging the gap between displaced community members. As a result of psychological empowerment, people are emancipated from their constraining environment. They are further encouraged to connect to those whom they would otherwise unable to reach out to without social media. Hence, while social media's connectivity enables communities to reconstruct their social network in a short time, it also allows them to establish new relations in the community. In the example of Parichart Village, other than people from the village, their YouTube videos were shared by people from outside the village, and their key Facebook group administrators included a non-Parichart villager. Although they were not from the same village, they all suffered from the same disaster. Through social media, various members can connect, which reduces feelings of separation. When people who experience a similar plight connect, mutuality and a sense of togetherness develop, which leads to temporary relief from anxiety.

In addition, triggered by altruism, many people that are influenced by the values dispersed through social media will adopt a similar mindset to help others. In accordance with the self-categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), inspired community members will associate themselves with those of similar intentions. Likewise, they will attract others of a similar mindset. Gradually, the interactions and relationship among the community are intensified. On the other hand, it is very likely that social ramifications will take place (White, 2012). In the example of Parichart Village Facebook Group, the discussion of the community was perturbed by some participants' irrelevant political views. This was suppressed by an intentional disregard for the discussion, coupled with the separation of important discussions in a closed group. By diverting the attention of those who share similar intentions, communities show how they make a conscious effort to select who to engage with. This process eventually leads to strengthening ties in communities, which subsequently expand the sphere of influence to more people. With the expansion of influence and connections to various members, communities' networks in social media grows. Since this structural network serves as a conduit where conscientizing (Freire, 1973) can occur and spread,



messages (especially hopeful ones) can ripple through and influence the people, stimulating them to challenge the deeply rooted assumptions of their being victims (Van den Eynde & Veno, 1999), and, thus, fuel the psychological empowerment process.

### 5.3. Social Media Enables the Community to Attain Collaborative Control

Finally, our analysis shows that social media empowers communities in crisis responses by enabling them to attain collaborative control. Disaster devastates communities and causes them to be unable to manage their own problems (Van den Eynde & Veno, 1999). Due to the unavailability of mediating structures (Berger & Neuhaus, 1977) and broken relational network in crises, their ability to organize community action is circumscribed. Hence, capabilities and resources remain intrinsic to the individual level, and have little impact on widespread events such as disasters. In addition, the absence of capabilities and capacity in handling crises could also render community members unable to control their own lives. Since communities cannot be involved in effecting changes in crises (Boehm & Staples, 2004), they are alienated from constructing social reality (Freire, 1970). This process of victimization causes communities to surrender to reality, a phenomenon that Gaventa (1980) terms “acquiescence”.

The empowerment perspective suggests that this incompetence can be reversed by cultivating and increasing communities’ capacity (Follett, 1941), which goes against the view that power will remain in the hands of the powerful unless they give it up (Lips, 1991). Our analysis demonstrates that social media cultivates communities’ self-efficacy and capabilities, which enables them to regain control when responding to crises. As such, communities develop a power that they did not previously possess. In particular, our data reveals that two types of empowerment process are salient in enabling communities’ control: resource empowerment and psychological empowerment. It is through the interaction of these two processes that communities are empowered.

#### 5.3.1. Resource Empowerment

From resource empowerment’s perspective, social media expands communities’ capability and capacity by facilitating the capitalization, development, and evolution of local resources in addressing issues of common interest. Being in control is strongly related to acquiring resources and independence in managing them. In the conventional crisis response model, control is widely regarded as being possessed by crisis response agencies, who have control over the resources and the ability to manage them. Using social media challenges this view. When community networks are established in social media, individuals’ resources, such as their knowledge, expertise, and skills, can be externalized, organized, and integrated to solve communal problems. This mobilization of local assets generates influence beyond that which is available at an individual level (Pigg, 2002), and harnesses and directs the capacity of grassroots campaigns (Bonabeau, 2009; Majchrzak & More, 2011).

Besides collective strength, the features that social media afford (e.g., videos, location tagging, timestamps) allow innovative resources such as the infographics video by Roo-Soo-Flood Group to emerge. Local assets are capitalized and developed to construct innovative resources and creative solutions (Ersing, 2003). In the Roo-Soo-Flood, local resources in the respective community were integrated and transformed to create a new solution for issuing information. Simultaneously, communities learn how to tackle an issue on their own. This strengthens their ownership of the problem, and results in their independence in finding their own solutions. These expand communities’ capacity to direct and sharpen their innate skills and knowledge (Adamson, 2010) to “address a problem or challenge that would not be possible by the individual parts” (Crowe, 2012 p. 202).

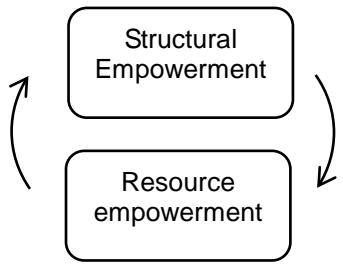
#### 5.3.2. Psychological Empowerment

From psychological empowerment’s perspective, social media induces communities self-esteem (Orford, 1992) by showcasing the collective self-help action and its effectiveness. As a result of resource empowerment, the status quo of communities; powerless mentality when responding to crises is challenged. Through social media, communities’ successful self-help action, resources, and capabilities can be broadcast to the all members via posting events, photos, and video, and, thus, evoke changes in behavior (Drury & Reicher, 2009). When a community-initiated effort such as the

Roo-Soo-Flood YouTube videos turns out to be beneficial, it gains people’s acceptance, which is manifested in the number of views, likes, and times it’s shared in social media. These manifestations of community acceptance are also visible on social media, serving as an acknowledgement of initiators’ or leaders’ efforts. This not only affirms leaders’ beliefs and efficacy, but also helps other community members realize that they can assume the role of a “subject” acting in and on the world, rather than being an “object” acted on by the environment (Freire, 1970, 1973).

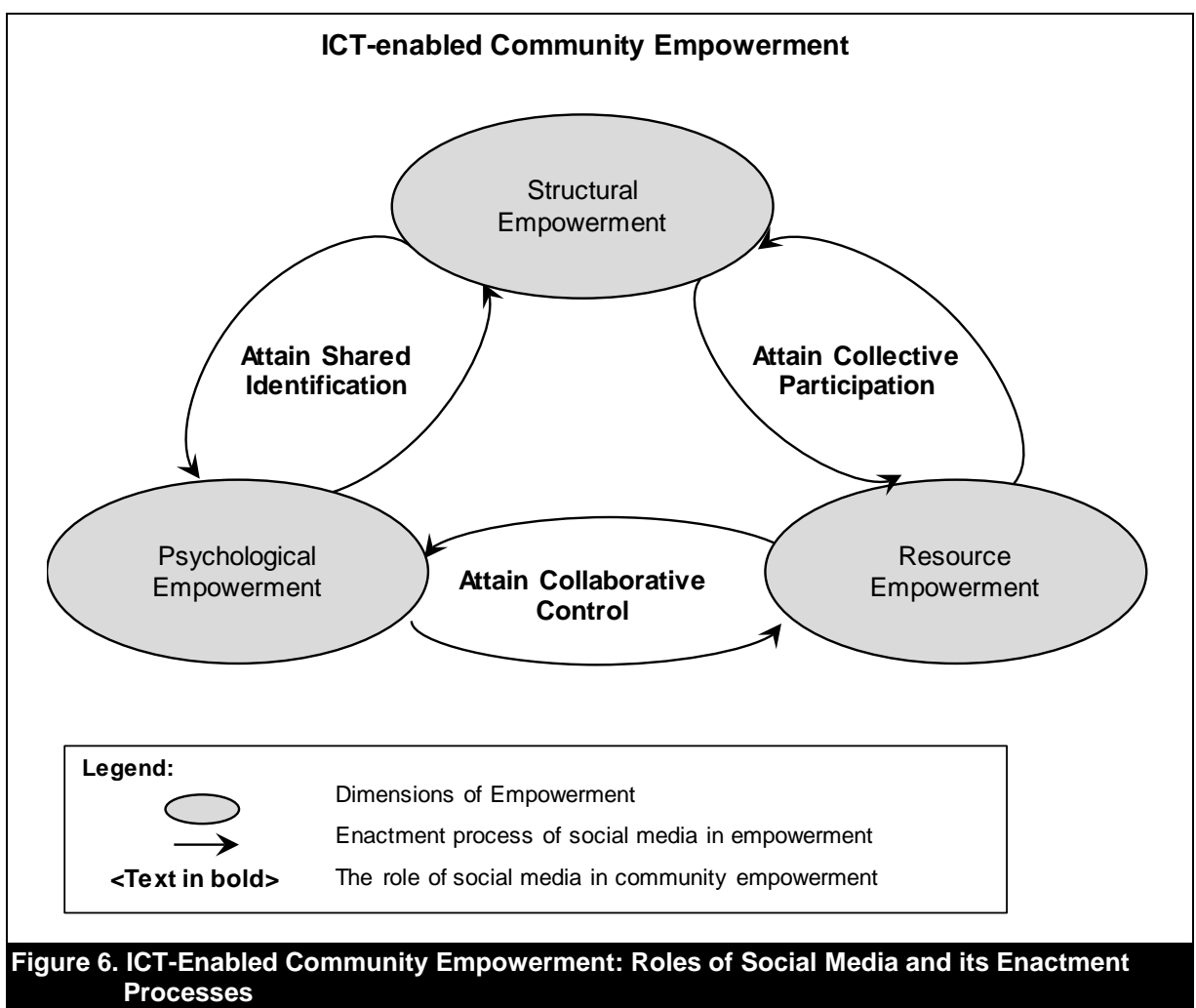
Moreover, performing self-help actions encourages community members to adopt similar behaviors. In accordance with the social validation argument (Crowe, 2012), people look to others to guide them when they are uncertain. When they are convinced by the examples shown in the social media that a community is competent in managing a crisis, they will likely follow suit. In this sense, one’s own experience or the vicarious experience of others serves as a reference for social modeling (Bandura, 1986) in communities. As such, a “can do” attitude germinates that overcomes the insecurity about one’s abilities. Thus, people are encouraged to “search inside” for the skills and resources by which they could contribute to alleviate a crisis (Conger & Kanungo, 1988). Gradually, the values and practices of a victim community fade away, and the competent community norm grows to be widely accepted through the acknowledgement and adoption of a community’s actions. When community action emerges as legitimate, members are further encouraged to contribute and organize resources among themselves.

In Table 3 and Figure 6, we summarize our findings about how social media empowers the community during crisis response.

<b>Table 3. Social Media’s Role in Empowering the Community during Crisis Response</b>	
<b>RQ: How does social media empower the community in crisis response?</b>	
<b>Roles of social media</b>	<b>Enactment of social media’s roles through the interaction of empowerment process (actualization of power)</b>
Social media enables communities to attain collective participation	 <p><b>Structural empowerment</b> Social media removes the hindrance of participation by affording an avenue for communities to involve themselves proactively in crises (Torbert, 1991).</p> <p>Communities, through their initial participation in social media, increase the connections, which engages more people to take part in the community activities. Their participation in different forms (such as posting of information, “liking”, and sharing) leads to an accumulation of resources.</p> <p><b>Resource empowerment</b> Social media reduces communities’ dependency on crisis response agencies by providing a holding place for resources that the communities contribute.</p> <p>Community members, through different forms of participation in social media, channel their resources such as localized information onto the platform and, thus, increase the value of the resource pool. Their contribution then attracts even more people to participate as the value of the platform becomes more significant.</p>

**Table 3. Social Media's Role in Empowering the Community during Crisis Response (cont.)**

RQ: How does social media empower the community in crisis response?	
Roles of social media	Enactment of social media's roles through the interaction of empowerment process (actualization of power)
<p>Social media enables communities to attain shared identification</p>	<div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;"> <p>Psychological empowerment</p> <p>Structural empowerment</p> </div> <div style="width: 80%;"> <p><b>Psychological empowerment</b> Social media enhances emotional resilience by diffusing the expression and sharing of the masses.</p> <p>Community members, through free expression in social media, influence other community members, which releases them from a constraining mindset that limits them from self-help. Their sharing attracts more like-minded people in terms of community activities.</p> <p><b>Structural empowerment</b> Social media overcomes the distance and alienation in a community by bridging the gap between displaced community members.</p> <p>Community members, through self-categorization in social media, associate themselves with those of similar situation and intentions; as such, they expand and intensity relations in the community. Their engagement expands the sphere of influence of the change agents, and reinforces their belief in self-help.</p> </div> </div>
<p>Social media enables communities to attain collaborative control</p>	<div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;"> <p>Resource empowerment</p> <p>Psychological empowerment</p> </div> <div style="width: 80%;"> <p><b>Resource empowerment</b> Social media expands communities; capability and capacity by facilitating the capitalization, development, and evolution of local resources in addressing issues of common interest.</p> <p>Community members, through the integration and transformation of collective resources in social media, resolve a community issue in crisis response and, thereby, regain control. Their creative solution invites endorsement of other community members.</p> <p><b>Psychological empowerment</b> Social media induces self-esteem in communities (Orford, 1992) by showcasing the collective self-help action and its effectiveness.</p> <p>Community members, through different forms of acknowledgement in social media (such as "liking" and supportive messages) validates collective solution, which provides a social model. Their endorsement encourages a greater creative organization of community resources.</p> </div> </div>



## 6. Theoretical and Practical Contributions

Our research offers two key theoretical contributions. First, we explore the emerging, yet underexplored social consequences of ICT by illustrating the roles that social media plays in empowering communities when responding to crises. Extant IS studies about crisis response are dominated by the community-as-victim view (Moynihan, 2008; Rosenthal & Kouzmin, 1997; Turoff et al., 2010). Several recent studies on social media in crises, though shifting away from viewing community members as helpless victims, have yet to capture social media's novel affordances in escalating the victim community to a competent community (Van den Eynde & Veno, 1999). Given communities' potential to tackle disaster on their own (Schmidt & Cohen, 2013; Turoff et al., 2010), we examine social media's community empowerment role in the context of crisis response. Our findings suggest that social media has three roles in enabling communities to attain collective participation, shared identification, and collaborative control. By elucidating how social media empowers the community, we contribute to an understanding of how ICT can help to solve social problems, such as that of disaster management.

Second, this study addresses the literature gap in empowerment by elucidating the actualization process of empowerment as enabled by social media as a mediating structure. We adapt empowerment as the theoretical lens in our study. Although we stress that power is not something to be possessed but, instead, something that can only be exercised (Kieffer, 1984; Wilke & Speer, 2011), this actualization process has been overshadowed by the dominant focus on viewing empowerment

as a provisional or developmental process of power (Christens, 2012). This may be due to the void of a mediating structure (Berger & Neuhaus, 1977) for community action, which can be filled in by social media. By simultaneously incorporating the three dimensions of empowerment (Kieffer, 1984), we examine the communal processes that occur in the interactions among these dimensions to capture the community actions that involve exercising power (Christens, 2012). Our findings suggest that social media enables communities to attain collective action through an interaction of structural empowerment and resource empowerment, that social media enables communities to attain shared identification through an interaction of psychological empowerment and structural empowerment, and that social media enables communities to attain collaborative control through an interaction of resource empowerment and psychological empowerment.

This study also generates practical insights. Our findings suggest the practical considerations of communities who engage with their members (including community leaders and NGOs). By explicating the communal processes, communities can envision what is likely to take place and better devise their response. For instance, since we understand from the study that communities will be more convinced of their potential competence via the experience of successful cases, community leaders on social media may take the initiative by posting photos and evidence that showcase their actions and outcomes. For crises response agencies, our findings offer a basis to devise appropriate facilitative actions to improve the effectiveness of community self-help action. As advocated by practitioners such as Mr. Roger Wilkins AO, the Co-Chair of Australia's National Emergency Management Committee, agencies need to learn to use social media to better engage communities. The empowerment perspective suggests empowerment cannot be imposed by outsiders, but "appropriate external support and intervention can speed up and encourage it" (Rowlands, 1996 p. 90). For instance, crisis response agencies can contribute to the empowerment process by recovering the telecommunication network immediately after the crisis (should it be down) or working with online community leaders by broadcasting their Facebook page as a valid source of information.

## 7. Limitations and Conclusion

Our findings should be viewed in the context of its limitations. We conducted this study in the context of one type of natural disaster (i.e., a flood). Natural disasters are differentiated in terms of eight aspects: exposure, destructive potential, scope of impact, duration of the disaster, controllability, predictability (in terms of time and/or location), speed of onset, and length of forewarning (Dynes, 1970). Compared to other disasters such as earthquakes or hurricanes, floods are characterized as having high predictability and slow speed of onset (Chengalur-Smith, Belardo, & Pazer, 1999). These inherent characteristics afford communities with some buffer time to react, as evident in the case of the 2011 Thailand flood where the community was able to organize collective action by leveraging social media. Our findings, situated in the analysis of this flood, therefore require indiscriminate use or application in the crisis response of other types of disasters. Nonetheless, we posit that our findings may serve as a basis for validation or further exploration in future studies.

Despite its limitations, we believe that our study should be of interest to practitioners and researchers in the areas of social media and crisis response. Through an in-depth qualitative study of the 2011 Thailand flooding crisis, we present the concept of ICT-enabled community empowerment. More importantly, we sheds light on three aspects. The first is the use of ICT in addressing societal challenges. Increasingly, emerging ICT such as social media are enabling the achievement of collective, societal purposes, rather than personal or commercial objectives. In addition to recent social movements that are fuelled by social media (Shirazi, 2013; Valenzuela, 2013), social media contributes to addressing social challenges and effecting social changes that are of public concern, such as natural disasters.

Second is the use of ICT in crisis management. Although the limitations of the command-and-control crisis management model have been long discussed, the lack of availability of a mediating structure posed a hindrance to effective citizen-driven actions until social media emerged. In other words, social media enables deviation from ritualistic behavior of the traditional crisis management (Drabek & McEntire, 2003), and moves the focus away from using ICT merely for efficiency in agencies.



Third is the use of ICT for community development. Social media enables individuals to aggregate and exercise their collective strength. By augmenting the voices of powerless individuals or populations, the position of a community escalates, and the capacities and capabilities of the originally dispersed members are synergized, which propels the community forward in its development.

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## Appendices

### Appendix A: List of Interviewees

**Table A-1. List of Interviewees**

Interviewees	Description	Community group
Focus groups		
Flood victims	Flood victims were people who suffered from the crisis in Thailand flooding 2011.	Victim
Student volunteers	Student volunteers were students who offered their help freely to others during the flood.	Volunteer
Interviews		
Vittayen Muttamara and his assistant	Vittayen Muttamara was the Director of Flood Relief Volunteer Centers (by Democrat Party or the opposition party and civil sector). He was also the ex-Director of Flood Relief Center (when Democrat Party was the ruling party before the floods 2011).	Community leader
Arjarn Wanchai and 3 key committee members	Arjarn Wanchai was the leader of 345 Parichart Village Group in Facebook. Parichart Village (more than 2000 households in the village) was at the center of the news during the flood since they got hit really hard. They used social media to communicate throughout the village.	Community leader
Dr. Somkit Lertpaithoon	Dr. Somkit was the Rector of Thammasat University. He was an influential social media user during the flood. Thammasat was the "Last Wall" before the flood went through Bangkok and Dr. Somkit was the pioneer in sharing the information through his Facebook page.	Community leader, university
Dr. Teerachon Manomaiphikul	Dr. Teerachon was the ex-Deputy Bangkok Governor. He headed the crisis department during the Bangkok flood.	Community leader
Roo-Soo-Flood Group's 3 key members	Roo-Soo-Flood (know how to cope with flood) group was a group of volunteer animators with technical skills who created the famous "Blue Whales" flood animation series.	Volunteer
Arjarn Sasin Chalearnlarp	Arjarn Sasin was an environmentalist and the Secretary General of Seub Nakjasathien Foundation, a nature conservation foundation. He was the most influential academic who appeared frequently on TV during the flood and made active use of social media including YouTube, Facebook, and Twitter to communicate with the public.	Non-profit foundation
Wim Rungwattanajinda	Wim Rungwattanajinda was the Secretary to Minister to Office of the Prime Minister. He was the government spokesman for the government's flood relief operations center during the crisis.	Government agency

**Table A-1. List of Interviewees (cont.)**

Interviewees	Description	Community group
Lieutenant-Colonel Wanchana "Bird" Sawatdee	Lieutenant-Colonel Wanchana "Bird" Sawatdee was the representative of Thai Army. He was the most active member during the flood from the Thai Army. He was also a famous movie star.	Government agency
Mr. Prasert	Mr. Prasert was the Vice President, Corporate Communication Department of PTT. PTT was an oil and gas company and one of the largest corporations in the country.	Private organization
Founder and Cofounder of Charun Fight Flood	Charun Fight Flood was one of the largest Facebook group founded by two girls in their 20s who lived in Charun area.	Volunteer

## Appendix B: Excerpt of Interview Topic Guides

### General questions for interviews and focus groups

1. Please tell us about your background.
2. What is your experience of the flood in 2011?
3. What are the difficulties faced in disaster?
4. How did the government react?
5. What do you use the social media for during the flood?
6. Why do you use social media during the flooding?
7. How is it different from traditional channels like television, radio, and newspaper?
8. What is the difference in the usage of social media before and after the disaster?
9. What are some of the negative implications of social media use, if any?

### General questions for interviews and focus groups (particularly on social media)

1. What are some of the social media used?
2. What types of information are exchanged on different social media?
3. Why do you choose to use a certain type social media?
4. Who do you hope to access when you are using different social media?

### General questions for interviews with emergent community leaders and groups

1. What are some of the considerations behind the use of social media?
2. How is social media used to gather, disseminate and share information?
3. What are the lessons learned in this usage?



## Appendix C: Videos Uploaded by Roo-Soo-Flood Group

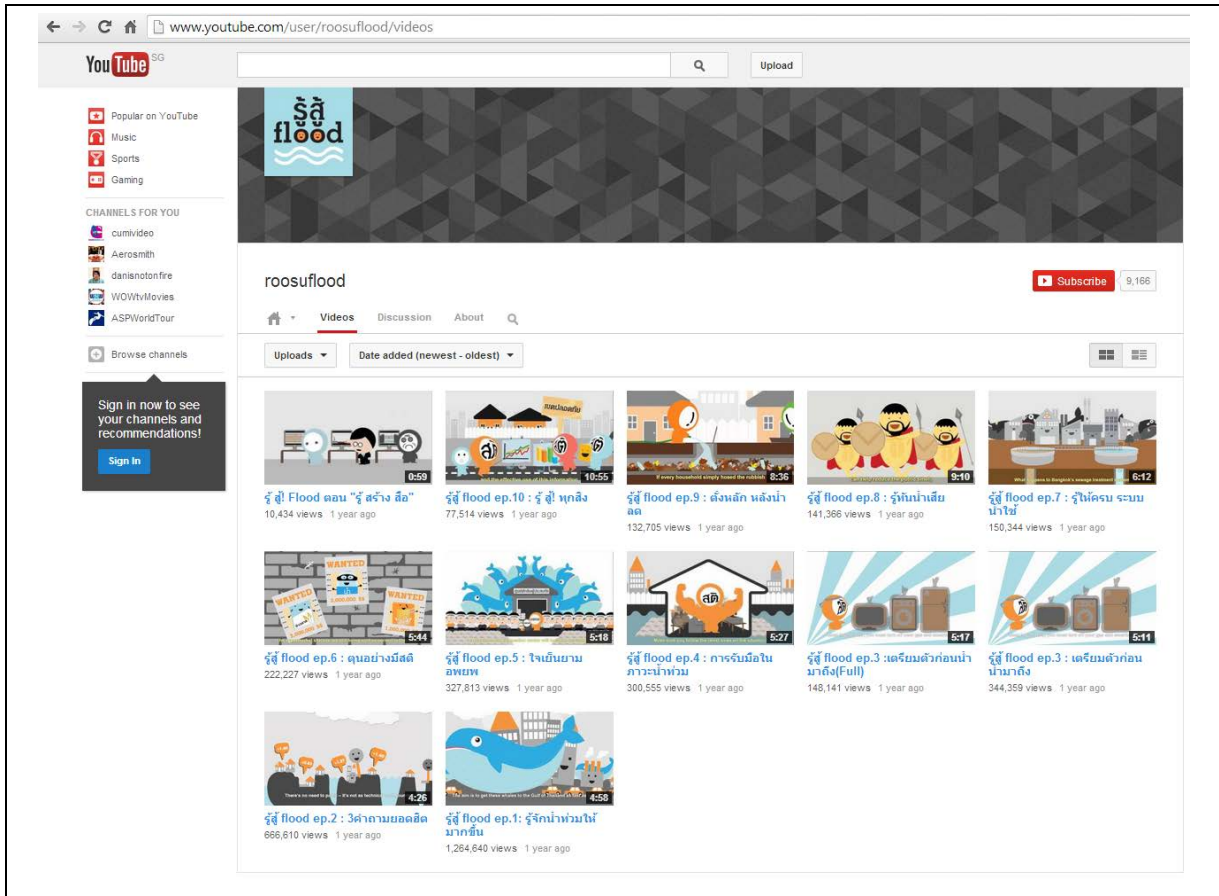


Figure C-1. Videos Uploaded by Roo-Soo-Flood Group and Number of Views (<http://www.youtube.com/user/roosuflood>)

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