

THE EMERGENCE OF SOCIAL MEDIA AS BOUNDARY OBJECTS IN CRISIS RESPONSE: A COLLECTIVE ACTION PERSPECTIVE

Research-in-Progress

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Abstract

During a series of recent natural catastrophes, social media has played an increasingly prominent and varied role in crisis response, ranging from facilitating the recruitment of volunteers during an earthquake to supporting spiritual recovery after a hurricane. In this paper, we propose that social media, beyond the conventional role of information support, can also function as boundary objects, which are crucial in spanning the boundaries among involved parties that inherently restrict crisis response. Using the 2011 Thailand floods as a case study, we present a conceptual model of the role of social media in enabling a coordinated response to disasters. More specifically, the model presents three distinct processes of emergence and the corresponding boundary objects enabled by the use of social media, which are important in bridging the cognitive, relational and social boundaries among the various entities involved in crisis response.

Keywords: Social media, boundary object, emergence, collective action, case study

Introduction

In recent years, there has been a notable shift of attention among researchers from crisis prevention to crisis response (Leidner et al. 2009; Pan et al. 2012; Yang and Hsieh 2013). While conventional media has failed to support the critical demands that arise during crises (Hjorth and Kim 2011), social media (e.g., Facebook, Twitter, YouTube, etc.) has successfully demonstrated its effectiveness in moderating critical events and mitigating the impact of crises. For example, during the October 2007 Southern California, US wildfires, Twitter was used to spread time-critical information about road closures, evacuations and shelter information (Hughes and Palen 2009). Additionally, in the January 2010 Haitian earthquake, Twitter became the primary communication platform for community interaction (Fraustino et al. 2012). During the 2011 Joplin, MO tornados, social media was widely adopted by the communities, not only to access updated news but also to offer mutual support and to coordinate the recovery process (Fraustino et al. 2012).

From serving as a first-hand information source to facilitating volunteer recruitment, social media has demonstrated its unique potential to function as an effective crisis response platform; it is capable of spanning several boundaries among communities during crises. We argue that social media can be viewed as a boundary object, that is, an artifact that is capable of spanning prominent boundaries (Levina and Vaast 2005), particularly in the context of crisis response. This argument is supported by a statement captured from a prior study: “social media is one emerging technology with the potential to allow for the flexibility, adaptability, and boundary spanning functionality demanded by response organizations for their information systems”(Yates and Paquette 2011, p. 8).

It is important to emphasize that even though social media can feasibly be identified as a potential boundary object, it cannot be deemed useful (i.e., capable of spanning any boundaries) until it is positioned and recognized in practice (Levina and Vaast 2005). Social media is primarily used in routine communications with family and friends, for expressions of thoughts and for gaming or entertainment (Fraustino et al. 2012). Although social media has the potential to span critical boundaries, its capability to function as a boundary object has neither been recognized nor practiced. This is an observed gap, and a full exploration of the benefits of social media requires knowing how the boundary object role can be put into practice. Previous studies have argued that it is essential to exclusively identify motivations and to uncover the mechanisms through which IT artifacts influence crisis response (Fraustino et al. 2012; Leidner et al. 2009).

Therefore, in the present study, we adopt the concept of emergence to describe the process whereby social media is transformed from a designated IT artifact to a functional boundary object. As an initial justification, emergence describes a phenomenon in which meaningful global behavior arises from the interaction of individual entities (De Wolf and Holvoet 2005). When individuals are subject to critical conditions, several common pursuits (e.g., information demand and feasible crisis response) can indirectly trigger the recognition and application of social media. Social media is thus enabled to function as a boundary object, that is, an emergence has occurred. Additionally, considering the pursuit of common objectives and collective interactions, collective action theory is adopted to further conceptualize the social media emergence. Consequently, this study aims to answer the following research question:

How do social media emerge over time as boundary objects in the context of crisis response?

Literature Review

Crisis Response

During the past decade, crisis related studies have drawn the attention of researchers (e.g. Dayton 2004; Perez-Lugo 2004; Sutton et al. 2008). The term “crisis”, as used in this study, should first be defined. Among the divergent list of definitions available (e.g. Coombs 2010), crisis or disaster (used interchangeably in this paper) is utilized here to indicate an unpredictable, uncertain and often urgent event that imposes severe threats to life, well-being or the destruction of other significantly held values (Dayton 2004; Leidner et al. 2009).

Crisis response involves “conveying ongoing crisis events to stakeholders, decision making within the crisis management team, and organizational decisions regarding whether and what amount of information to share” (Hale et al. 2005, p.113). This stakeholder-centric phase of crisis communications has drawn notable attention from researchers in recent years (Leidner et al. 2009; Pan et al. 2012; Yang and Hsieh 2013). A number of previous studies have presented a comprehensive historical overview of literature discussing this trend (e.g. An and Cheng 2010; Coombs 2010). However, only a handful of the studies acknowledged the significance of social media and thus only diverse, if not vague, attention has been given. For instance, the potential of social media in facilitating interaction during disaster management was investigated using a role-based segregation perspective (Ahmed 2011). Additionally, the impact of rumor-triggered anxiety on communication behaviors was brought into the forefront in a study that examined the relationship between information credibility, social media (Twitter) and an extreme event (Haiti earthquake) (Oh et al. 2010). Hjorth and Kim (2011) have delineated the role of mobile social media in establishing and maintaining intimacy in crisis management, drawing from the case of the March 2011 Japanese earthquake disaster. Scholars have also discussed some knowledge management strategies that aim to assist organizations in using social media for crisis response (Jennex 2010). It has been observed that a more specific focus and strong theoretical reflections on social media and crisis response remain underway. The implications presented have yet to be defined as most of the works were written in either narrative or suggestive tone and address the wider scope of crisis management or simply natural disasters. Consequently, we suggest that there is a need for more graduated conceptualizations on the complex relationships between social media and crisis response. An in-depth understanding of the underlying structure and dynamics, aided by strong theoretical interpretations, is of considerable import to stakeholders and decision makers. This paper aims to parse the underlying elements of social media utilization in crisis response into three nuanced theoretical fundamentals: boundary object, emergence and collective action, which are elaborated upon in the following sections.

Boundary Object

Boundary objects are defined as a broad range of artifacts that “are plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites”(Star and Griesemer 1989, p.393). There are numerous examples of boundary objects in existing literature, ranging from prototypes, design sketches, and accounting reports to enterprise resource planning systems (Briers and Chua 2001; Levina and Vaast 2005; Pawlowski and Robey 2004). Artifacts that act as boundary objects possess the properties of modularity, abstraction, accommodation and standardization (Pawlowski and Robey 2004; Star and Griesemer 1989; Wenger 1999). Furthermore, it has been cited that effective boundary objects are those artifacts that are tangible, concrete (Bechky 2003; Carlile 2002; Henderson 1991), accessible and up-to-date.

However, not every artifact possessing these characteristics can function as a practical boundary object (Spee and Jarzabkowski 2009). As discussed in prior research, designated boundary objects can be transformed into boundary objects-in-use only if they are meaningfully and usefully incorporated by actors in practice (Levina and Vaast 2005). Designated boundary objects are “artifacts that are designated as valuable for boundary spanning, due to their design and properties” (Levina and Vaast 2005, p.342). For instance, mobile communications or social media could be conceived as designated boundary objects in daily life because of their properties of facilitating information flow and gathering individuals. However, such designated boundary objects may or may not become boundary objects-in-use. Boundary objects-in-use are artifacts that are both meaningful and useful in various practices while serving as a common identity across groups (Bharosa et al. 2012; Star and Griesemer 1989). For example, during a disaster, mobile communications may not assume the responsibility of spanning informational or connection boundaries because signal loss interrupts real-time communications. Social media assists in efficient and effective communications, enabling it to function as a boundary object-in-use. According to Levina and Vaast (2005), when a designated boundary object has been usefully and meaningfully incorporated into practice and a symbolic structure that allows it to be commonly identified is established, a boundary object-in-use is said to be emerged. However, in this study, the process of emergence is not explicitly specified or discussed. There is no detail or justification provided to clarify how the enablement of a boundary object-in-use can be considered an emergence. Our study aims to solidify the constructs and requirements for an emergence process that recognizes the boundary object-in-use.

Emergence

Reflecting on boundary object typology, we suggest that a representation is required to solidify the recognition and incorporation of social media, i.e., how it transforms from a technological artifact to a boundary object in-use. Previous studies have suggested the importance of discovering the transitions that enable different types of IT capabilities (Tanriverdi et al. 2010). Therefore, we adopt the notion of emergence to conceptualize and describe this derivation. Emergence is a long-established concept that is widely used in complexity theory, computational systems, evolutionary processes and philosophy. The heterogeneous applications of emergence may account for ambiguity in identification, but ideally, they all possess common characteristics that can be used to solidify the recognition (Goldstein 1999). Therefore, to justify our argument, we employ a comprehensive definition of emergence: “A system exhibits emergence when there are coherent emergent at the macro-level that dynamically arise from the interactions between the parts at the micro-level. Such emergent are novel w.r.t. the individual parts of the system.” (De Wolf and Holvoet 2005, p. 3) and then structure our discussions based on the important characteristics presented.

First, the emergent stated in the above-cited definition is referring to the outcome or result of the emergence process. The emergent can take a variety of forms, including properties, behaviors, structure, patterns and more (De Wolf and Holvoet 2005). Additionally, “an emergent phenomenon requires at least two levels and needs to be observable at least at the macro level” (Serugendo et al. 2006, p. 4). Macro-level behaviors can only emerge when entities at the micro-level interact. The emergent that is developed by micro-level entities will be novel and possess unique characteristics that are not readily understood from the behaviors of the individual parts (De Wolf and Holvoet 2005). In the present study, we suggest that it is the emergence process that enables a designated IT artifact, i.e., the social media, to function as a unique emergent, i.e., the boundary object. The boundary object can only emerge when individuals at a micro-level interact with one another. The collective use of social media by a group of individuals is required to realize the emergence of social media. More importantly, the unique roles or applications of the resulting boundary object are not observable or representable by any individual at the micro-level, i.e., none of the individual social media usages can represent the collective boundary spanning behavior of the emerged boundary object.

It is important to clarify that the nature of emergence is neither reducible, deducible nor predictable (Goldstein 1999; Pepper 1926). One can never predict and explicitly define an emergence or constrain it with principles or laws. Emergence can only be used as the foundation to annotate the unique process in which micro-level behavior rises to and generates the global, representative behavior at the macro-level. In most cases, the resulting behavior, not the process of change itself, shall be the focus (Goldstein 1999). As emergence itself is a non-explainable process, we aim to conceptualize its behavior by establishing the required components at the micro-level (Serugendo et al. 2006) using the collective action perspective detailed in the following section.

Collective Action

Collective action refers to “actions taken by two or more people in pursuit of the same collective good” (Marwell and Oliver 1993, p.4). Collective action perspectives have been applied to a wide range of phenomena, including the formation of inter-organizational relationships (Flanagin et al. 2001), social movement and voting and bidding behaviors (Bimber et al. 2005). Collective action requires individuals or participating communities to have tightly identified internal roles and to be formally organized in a leadership structure to achieve their common interests. These strict requirements are found to restrict the realization of collective action (Bimber et al. 2005). The advancement of technology results in technology-based collective action, which is also referred to as contemporary collective action. The intensive application of technology challenges the restrictions of traditional collective action theory because current communications are more advanced and may easily occur through the Internet with little to no formal organization (Flanagin et al. 2006). Furthermore, the introduction of contemporary technology greatly reduces involvement effort and incentive because it is relatively easy for individuals to make a contribution, and it is straightforward to contribute private resources to public goods (Bimber et al. 2005).

Although existing literature recognizes that contemporary collective actions “appear to strain the explanatory capacity of traditional collective action theory” (Bimber et al. 2005, p. 371), little is known

about their dynamics and emerging structures. Our study follows the relevant trend of previous studies that focus on a network perspective, either by examining the role of networking technology in collective action or considering the networks of relations that form among individual participants (Chadwick 2007; Glasbergen 2010; Lance Bennett et al. 2008; Sohn and Leckenby 2007). Specifically, we adopt three main constructs: the common goal, interaction and engagement, as currently defined in literature from this perspective. A common goal represents a collective objective that cannot be obtained by an individual acting alone and thus serves as the trigger that directs more than one person toward its achievement (Olson Jr 1965; Wade 1987). Interaction refers to the communication among the set of contributors (i.e., participants) that will develop and sustain the relations and affiliations among participants (Cheliotis and Wang 2011). Engagement refers to the publicly visible actions of participants who are contributing toward the public good and whose actions are of value to other participants (Cheliotis and Wang 2011). We explicitly specify that it is the *common goal* embraced by individuals and the *interaction* that occurs among them that enable the *engagement*, which subsequently realizes the purpose of collective action.

As a summary, our study aims to 1) investigate the specific roles and functions played by social media as boundary objects in crisis response, 2) unveil the enablement of boundary objects by adopting the concept of emergence and 3) conceptualize the process of emergence by adopting collective action as a theoretical lens.

Research Methodology

Explorative and interpretive case research methodology has been adopted in this study for two reasons. First, it is a particularly appropriate approach to be used in answering the “how” research question (Walsham 1995). In addition, because the adoption of social media in the context of crisis response is a complex, multi-faceted phenomenon, a qualitative case research methodology that is exploratory in nature enables a more pertinent understanding and interpretation (An and Cheng 2010) as it “encouraged the openness to new findings not prejudiced by a priori hypotheses” (Hale et al. 2005, p. 116).

Given the research agenda, the case of the 2011 Thailand floods was selected based on two primary criteria. First, it was an impactful and destructive disaster that demonstrates an observant shift in the crisis response arena. Throughout the crisis, the adoption of social media increased tremendously, embracing the community, while conventional media were basically left behind. In addition, because the severe flooding lasted for six months, it provided the opportunity to observe the dynamics that emerged during the event. An extended crisis response phase is generally not captured in other types of disasters and thus provides a barometer for in-depth analysis of crisis-triggered social media employment.

Research access was negotiated and granted in February 2013. We conducted three semi-structured interviews with two community leaders, one university rector and one ex-deputy Bangkok governor. We also directed an in-depth focus group discussion with eleven students who included flood victims, non-victims and volunteers at evacuation centers. The interviews and focus group discussions were all open-ended, exploratory in nature and occasionally guided by some rudimentary questions, without any strict guidelines imposed. Throughout the conversations, the mirroring technique introduced by Myers and Newman (2007) was used to invite the interviewees to share their “stories” or experiences during the flood in their own language. To ensure that the data were in accordance with our topic of interest, the participants were invited to not only recall the actions they took, decisions they made and critical events they experienced during the disaster, but they were also encouraged to pinpoint aspects relevant to social media adoption. Each interview lasted an average of 90 minutes and was digitally recorded and later transcribed for data analysis. Most of the interviewees were more comfortable expressing themselves in Thai, so we engaged some native speakers in Thailand to help with the translation. In addition to this primary data collection, multiple sources of data were used to complement the information obtained. Flood-related data from online news reports, Facebook postings, YouTube videos, and Twitter tweets (posts) were gathered as supporting evidence for triangulation. With the help of our research collaborators in Thailand, we took advantage of the significant amount of social media data available and screened and selected influential social media communities, including posts from a few of the most popular Facebook groups and from a number of active pages and individuals on Twitter. Because most of the social media data were written in Thai, translation was first performed, and all translated data were then archived and used to corroborate the empirical data collected.

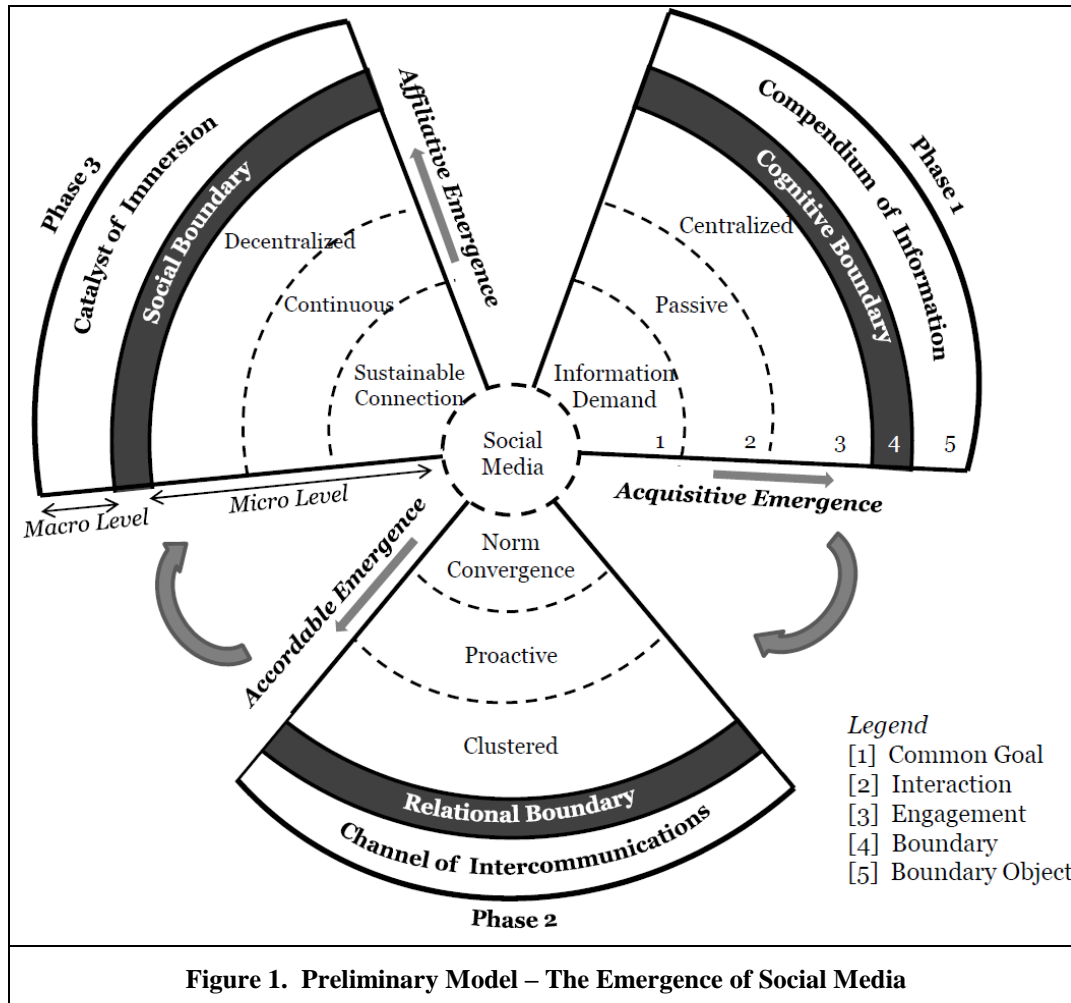
To capitalize on the flexibility of the case research methodology, data analysis was performed concurrently with data collection (Eisenhardt 1989). Based on the review of crisis response and social media related literature, a set of preliminary theoretical themes potentially relevant to the adoption or roles of social media in crisis response was first identified. These themes form the basis of our theoretical lens and serve as the “sensitizing device” (Klein and Myers 1999, p. 75) to guide subsequent data collection and analysis. Selective coding techniques (Strauss and Corbin 1998) were then used to map our data to the set of themes. The preliminary theoretical lens was modified incrementally whenever new evidence not relevant to the existing scheme emerged (Pan and Tan 2011; Walsham 1995). The data analysis was itself an iterative review cycle of empirical data, relevant literature and the theoretical lens, while continuously building an explanation of the phenomenon. In addition, a combination of temporal bracketing, visual mapping and narrative strategy (Langley 1999) was used to organize the empirical data and generate the skeletal structure for theory building. Based on the emerging data, we identified three distinct phases of social media emergence; each phase was developed under different collective action and possessed unique boundary spanning capabilities. Further mappings and theory building were conducted using various diagrammatic sketches or condensed tables. The process continued until we developed a preliminary model (refer to Figure 1) to consolidate the emerging idea and to comprehensively explain the case research findings.

Case Description

In 2011, Thailand experienced the worst flooding crisis in five decades and engaged the entire nation in combating the relentless water. Heavy monsoon rains started in July 2011, leading to flash floods that eventually swamped 65 of Thailand’s 77 provinces (Winijkulchai 2012). Flooding persisted until mid-January 2012. Over 900,000 families and seven major industrial estates were affected, and the death toll exceeded 800. For a country accustomed to annual floods, the overall preparation, response and management of this massive flood was still inadequate. Numerous voices arose from the chaos demanding up-to-date, consistent and localized information, as well as a two-way communication system (Winijkulchai 2012). Disappointed by the slow, ambiguous news from the traditional media and the often under-managed official websites, the people in Thailand turned their attention to social media. First, social media was employed by the people in Thailand to acquire informational support. One of the most popular sources of information, the Roo Su! Flood (“know and fight the flood”) educational video series, accumulated more than one million hits on YouTube (Krutern 2012). More than 50 Facebook groups emerged as people became increasingly discouraged by the slow and ineffective actions of the government (Kaewkitipong et al. 2013). As the floods persisted in Thailand, the communication barriers increasingly restricted coordination and connection among the people (Smolka 2006). Existing communication channels could not provide the availability and reachability required during the crisis; communities resorted to the emerging alternative, i.e., the social media. The rapid increase in the adoption of social media was observed as a “snowball effect” in which the online social community continued to grow along with each successful example of social media applications (Kaewkitipong et al. 2013). For instance, one of the largest community pages on Facebook, the “Nam Kuen Hai Reeb Bok” (“When water rise, we post”), accumulated more than 200,000 “likes” in October 2011 (Krutern 2012). Additionally, beyond the communication support, social media provided mental support by exemplifying that “we are all in this together.” During this period of uncertainty, individuals based their actions on the norm by turning to existing social networks that were recommended or ascribed to be useful (Liu et al. 2013; Spiro et al. 2012). This is the stage in which social media started to be widely recognized by people in Thailand; massive participation was driven by the usefulness of the social media content and the desire to maintain “the sense of community” (Fraustino et al. 2012). Additionally, in an attempt to preserve the influence of social media, communities started to act collectively and provide mutual support for one another. For example, SiamArsa, one of the crucial and well-established volunteer networks, with 144,000 Facebook members, effectively coordinated a large number of volunteers through social media (Pornwasin 2011). At this point, the awareness and demand for long-term support led to continuous, active social media adoption. This regular use of social media demonstrates an imperative adaptation that further strengthens the distribution of situational updates, coordination of aid or recovery efforts and, eventually, the connections that bring the communities together (Eton 2012).

Preliminary Findings

We present our findings in a model (illustrated in Figure 1) to develop the observations and frame the discussions. Three distinct phases have been classified, with each phase defined by an emergence from a micro-level collective action to a macro-level boundary object.



We adopt three constructs from the collective action theory to support the micro-level of emergence: the common goal, interaction and engagement. Specifically, individuals who have a common goal interact in a particular way and eventually engage in a specific network structure at this level. The entire process is a collective action, which enables social media to span important boundaries within the context of disaster. At this point, a functional boundary object arises at the macro-level and, therefore, an emergence occurs.

Phase 1 – An Acquisitive Emergence

“... at the flood, when I post the photo of the Building A, some students who live in the Building B, they “Facebook” me that time: “Can you take the *photo of Building B* that I live, I would like to see the Building B...” -- University Rector

“... we found social media as one of the way to reach people *easily and fast*, for example, we could forecast in advance where the water will go, it would hit this province, in about, let’s say six hours, ten o’clock in the morning, so we would do anyway to warn people, *at that area first*. We use social media to broadcast... at 2011, we save a lot of people, at those provinces” – Community Leader

When a flood strikes, information is required to recognize the impending hazard, conduct critical preparations and even to establish mental readiness. However, as previously discussed, traditional mainstream media failed to meet the pressing *demand for information*. Capitalizing on its diversity and growing availability, people turned to social media to access rich, real-time and situational information that would otherwise not be easily obtained (Lindsay 2011; Velve and Zlateva 2012). At this stage, people *passively* consume the information available on social media, with little to no additional action (Fraustino et al. 2012). This concentrated form of information flow results in a *centralized* engagement network, with the information providers serving as the central focus that connects the information consumers. The demand-driven collective action has enabled social media to span the *cognitive boundary* that exists among communities. By cognitive boundary, we are referring to the differences between each individual in terms of awareness, understanding and knowledge of the situation. Social media is now recognized as a boundary object in-use, specifically, a *compendium of information*; it became practically employed as a “crowdsource” of information that is sufficiently comprehensive to fulfill the information demand (Sutton et al. 2008). The new media now undermines the cognitive constraints imposed among individuals or simply, “what people can learn about each other” (Lupia and Sin 2003). We describe the overall process in this phase as an *acquisitive emergence*, in which informational demand-triggered collective action at the micro-level builds up a cohesive, novel boundary object, namely, the compendium of information at the macro-level.

Phase 2 – An Accordable Emergence

“... once they get the information, they start sharing. So the *sharing* become helping the Facebook page, become active, because of the sharing. I would say that starts from 500 views a day, become 10,000 views a day, 100,000 views a day, at that time, it goes up very quick”-- Community Leader

“...We actually kind of saw the surge of the “Likes”. Because now the people *know* that we are the organization that help people and also spread the news, so people keep “liking” us... because people really interested in helping, and want to know the news”-- Community Leader

As the floods continued, the rapid propagation of social media attracted increasing attention. Because no one could afford to be left out during the crisis, people started to recognize the importance of *converging in the norm*. People began to participate *proactively* (Freeman 2011). This is particularly observed when people who may not have even known about social media (e.g., Twitter) before started to engage (Perry 2011). The increasing richness of the social network and the *clustered* connections attracted greater participation (Palen and Vieweg 2008). Social media is now recognized as a *channel of intercommunications* that is capable of spanning the *relational boundary* that exists among communities. Relational boundary refers to the communication limitations faced by individuals during a disaster (e.g., geographical separation or restricted means of connection). As a boundary object that is building reach, social media is now a commonly accepted and acknowledged communication platform. We emphasize that it is mutually reinforcing in nature because the collective participation and interaction contribute to the growing recognition (Coopman 2011; Diani 2003). We suggest that an *accordable emergence* has occurred in this phase; social media has emerged from an accordance-driven collective action to an effective and prominent boundary object, i.e., a channel of intercommunications that people are now in accord with.

Phase 3 – An Affiliative Emergence

“...but for now is very easy. *Everyone* can be the local reporter. When they see what happen, they take a picture, and sent it to us and say that, this village needs help” -- Community Leader

"Social media is not only a platform for using technology but also sharing useful information with targets at the right time. People who get information from Facebook and Twitter can pass it to others close to them and play *constructive* roles for civic networks” -- Narong Khamwijit, head of Chulalongkorn University's Journalism Department (Raksaseri 2011)

Over time, people begin to realize the importance of having a *sustainable connection* as a path to long-term awareness to maintain collaboration with the public, to attain mutual emotional support, and more. To establish this coherence, individuals start to commit to *continuous* interactions (Fraustino et al. 2012).

The unique behavior that arises at this stage is the transformation from social media followers to influential social media creators (Fraustino et al. 2012). Participants begin to contribute and realize the synergic, *decentralized* engagement. These contributive collective actions continuously support the communal network and subsequently enable social media to span *social boundaries* and emerge as a *catalyst of immersion*. Social boundary is adopted here to describe the various barriers that restrict individuals from associating in communal living. These barriers may include the distinct roles played by each individual and other objectified forms of social differences (e.g., status, authority), which often result in unequal opportunities, access and collaboration (Lamont and Molnar 2002). By functioning as a catalyst for immersion, social media is now an adopted, shared and widespread practice, deeply affiliated in the communities. This reinforcing collective action serves as the main catalyst for sustained participation and, subsequently, an enduring connection (Coopman 2011). We define this process as an *affiliative emergence* in which sustainable and contributive collective actions trigger the accustomization of social media and, consequently, enable it to function as a catalyst for immersion that results in an allied community.

Future Research

The present study is based on data collected from our first-stage fieldwork and supplemented by several secondary data sources. The preliminary model introduces three types of *boundary objects* that *emerged* from the *collective* use of social media in crisis response. This study continues to further develop the contemporary insights of adopted theories. In particular, we aim to more thoroughly investigate how the collective use of social media develops its influence in crisis response (Lev-On 2012) and how the various roles of social media have emerged and changed over time (Kaewkitipong et al. 2013). In the second stage of the study, we have planned and gained access to 30 more interviews in Thailand to corroborate the data collection and analysis process. We will further validate the preliminary model and conceptualize the collected observations to expand our findings.

Conclusion and Expected Contributions

This study investigates the emergence of social media as boundary objects from a collective action perspective in the context of crisis response. First, we introduced three types of boundary objects that emerged from the collective use of social media: the *compendium of information*, the *channel of intercommunications* and the *catalyst of immersion*. Each boundary object is realized by the practical application of social media and demonstrates the ability to span prominent boundaries in crises. Based on the defined research question, we then proposed three different types of emergence that enable social media to be recognized and practiced as different types of boundary objects: the *acquisitive emergence*, *accordable emergence* and *affiliative emergence*. The constructs adopted from collective actions, namely, the common goal, interaction and engagement, are used to further conceptualize the emergence process. By considering the concepts of emergence and collective action, along with the adoption of social media, this study attempts to provide some important contemporary insights into both theories, which have been suggested in previous studies (Bimber 2003; Bimber et al. 2005; Lupia and Sin 2003). Specifically, we suggest that the conventional restrictions of collective actions can be overcome by contemporary technology, i.e., the need for small and formal organization is undermined, large-group collective action is encouraged to promote the noticeability of new media and, lastly, interactions and contributions are now continuously reinforced by the norms (Lupia and Sin 2003). Additionally, by incorporating collective action, we aim to extend the conceptualization of the emergence theory that had been generally considered a black box (Goldstein 1999). We believe that our findings can be included in an agenda for crisis response strategies. Governments and authorities can construct better plans and be responsive to the real, critical needs by considering the phases of the distinct demands of communities. If risk assessment and collaboration strategies can be accurately mapped with the phenomenon, social media can be adopted as an effective crisis response platform to support different needs that arise during different stages of disasters (Kaewkitipong et al. 2013).

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