Review

Socializing in emergencies—A review of the use of social media in emergency situations

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ARTICLE INFO

ABSTRACT

Social media tools are integrated in most parts of our daily lives, as citizens, netizens, researchers or emergency responders. Lessons learnt from disasters and emergencies that occurred globally in the last few years have shown that social media tools may serve as an integral and significant component of crisis response. Communication is one of the fundamental tools of emergency management. It becomes crucial when there are dozens of agencies and organizations responding to a disaster. Regardless of the type of emergency, whether a terrorist attack, a hurricane or an earthquake, communication lines may be overloaded and cellular networks overwhelmed as too many people attempt to use them to access information. Social scientists have presented that post-disaster active public participation was largely altruistic, including activities such as search and rescue, first aid treatment, victim evacuation, and on-line help. Social media provides opportunities for engaging citizens in the emergency management by both disseminating information to the public and accessing information from them. During emergency events, individuals are exposed to large quantities of information without being aware of their validity or risk of misinformation, but users are usually swift to correct them, thus making the social media "self-regulating".

Contents

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1. Introduction

Social media (SM) tools, especially Facebook and Twitter, are taking an ever growing part in disaster response (Cohen, 2013; Sarcevic et al., 2012). SM during disasters and emergencies was initially utilized by the general public to communicate, and is now being adopted by emergency responders, governments and non-governmental organizations as an integral tool for disaster management (DM).

This paper reviews how SM tools are used in disasters by the public, emergency organizations and academic institutions. This paper reviews the literature concerning utilization of social media in emergencies between 2007 and 2014. Some of the reviewed articles reference earlier materials and these are noted in the review concerning specific topics.

1.1. Disaster characteristics

In the last few decades, numerous regions worldwide have been stricken by severe natural disasters, such as earthquakes, floods and hurricanes, causing extensive damages to human lives and infrastructures.

Disasters have been defined as a state in which the social fabric is disrupted and becomes dysfunctional to a greater or lesser extent causing "maximum community disruption and dislocation" (Britton, 1988; Fritz, 1961).

Natural disasters have spatial characteristics such as extent and boundaries. This configuration is disrupted during the onset of a sudden disaster which adversely affects the natural and human resources, as well as the social relationships in the region (Jigyasu, 2005; Palen & Liu, 2007). At present there seems to be a consensus among researchers that a disaster cannot be explained by a number of recognizable factors, and efforts are being made to understand why and when people perceive a certain period or common experience as a disaster (Boin, 2005).

In response to disasters, numerous agencies and organizations often work together and direct their efforts towards a common goal (Reddy et al., 2009; Kopena et al., 2008). Frequently, the public-private interface is strengthened to support crisis management, and governments may simplify processes to access resources and goods without due process (Quarantelli, 2006).

1.2. Social order

According to Alexander (2005) an average day in the world "would see two to three disasters in their emergency phases, 15–20 in their recovery periods, and about a dozen conflict-based emergencies in progress". These include events such as wars, earthquakes, and extreme weather conditions. Coupled with the loss of communications, it becomes a period of uncertainty that may cause collective stress resulting from deprivation of a large portion of the society from expected routine conditions. These conditions,

deprived from many, are socially defined as normal human needs (Barton, 2005). However, the general public often takes an active role in disasters and their involvement is becoming more and more visible, through the use of Information and Communication Technologies (ICT) (Palen & Liu, 2007).

1.3. Disaster management

An organized response to disaster management (DM) is crucial to mitigating loss of lives and damage to infrastructure. Dynes (1970) described both theoretical and practical aspects of an organized response, including staffing, strategy, tasks, and relationships between various responding organizations and the social environment itself.

Information sharing and coordination are a critical factor in DM, especially among responding organizations (Yates & Paquette, 2011; Bharosa, Lee, & Janssen, 2010). In his research, Bharosa et al. (2010) found that responders prefer to receive information and are reluctant to share it with others. Also, even when formal information flows through the command structure, ad hoc and personal-basis channels are created to support multi-level information sharing (Bharosa et al., 2010). The US National Incident Management System (NIMS) is based on a hierarchical command structure to "divide responsibility of labor and support inter-jurisdictional coordination" (Palen & Liu, 2007). According to this model, there is a single official, the Incident Commander (IC), to whom all responding organizations report, and he has the authority and overall responsibility to maintain a unified command during the entire event.

An integral part of DM is situational awareness (SA), described by Vieweg, Hughes, Starbird, and Palen (2010) as features contributing to the understanding of the emergency situation, especially in respect to the operational needs of command and control. SA reports can originate from local residents, reporters, first responders or from authorized information sources (Qu, Huang, & Zhang, 2010).

1.4. Communication challenges

Communication is one of the fundamental tools of emergency management. It becomes crucial when there are dozens of agencies and organizations responding to a disaster. DM requires that these organizations' rapid response, along with their own set of roles and responsibilities, be coordinated within and between sectors (Reddy et al., 2009).

Each organization operates its own radio frequencies, making it difficult to create a unified and synchronized response. The primary challenge is technological, ranging from rapid deployment of a communications system for first responders, to interoperability between various organizations. Communication systems must be able to withstand a disaster and enable devices to function effectively even when communication networks have collapsed (Manoj