

Chapter 33

Social Media and Disasters: Applying a New Conceptual Framework to the Case of Storm Desmond

Briony J. Gray

University of Southampton, UK

Mark J Weal

University of Southampton, UK

David Martin

University of Southampton, UK

ABSTRACT

Conceptual frameworks which seek to integrate social media uses into disaster management strategies are employed in a range of events. With continued variations to online practices, developments in technology, and changes in online behaviours, it is imperative to provide conceptual frameworks which are relevant, current and insightful. This paper firstly conceptualizes a range of recent literature through inductive coding and proposes a new conceptual framework of current social media uses. Secondly, the framework is applied to a case study of a multi-hazard disaster: which are predicted to grow in severity and frequency due to climate change, alongside increased habitation of at-risk zones. Storm Desmond 2015 has been selected. Snowball sampling is used to identify networks of interest, and thematic analysis used to track changes in Twitter content over time. Web accessibility and information reliability issues are presented and discussed.

INTRODUCTION

In the past decade, social media has played an increasing role in disaster situations by primarily offering a means of two-way, reliable and accessible communication (Huang et al., 2010). Social media use during disasters may be conceptualized into two broad categories: disseminating information and receiving communications, or as a management tool (Lindsay, 2011). The effective use of both categories may lessen the effects of a disaster (Rodríguez et al., 2007). Examples of social media include Facebook,

DOI: 10.4018/978-1-5225-6195-8.ch033

Twitter, and blogs such as WordPress. Uses of social media channels during a disaster range from individuals passing on warning information, to governments distributing real-time updates during an event (Blaikie et al., 2014). The effective use of social media in such situations has led to an increased adoption to management strategies, and to improvements in its applications (Huang et al., 2010). It represents a radical change in communications where information can now be accessed from any location, at any time, and with little or no authentication. As such, developing better disaster communication systems and integrating them into management strategies has been a priority for many bodies who tackle disasters (Blaikie et al., 2014).

However, the impact of social media in disaster situations is still reliant on a number of underlying factors. Two such factors often fail to be included in existing conceptual frameworks, and subsequently remain largely overlooked when applying analysis to disaster events (Smith, 2012). It is proposed that the first factor is accessibility to the Web, and by implication to social media, which directly impacts the effectiveness of online disaster management strategies (Smith, 2012). Secondly, the reliability of online information shared on social media has strong links to the level of risk an individual is subject to (Cottle, 2014). This paper discusses the emergent themes of Web accessibility and Online information reliability, employing an inductive methodology to recent disaster social media literature to identify and summarize (i.) social media uses, and (ii.) recent disaster social media applications, behaviours and technologies. The preliminary results section presents the new conceptual framework which can be applied to data to categorise the general uses and users of social media throughout the disaster lifecycle phases before further disaster management steps can be employed. Further steps, and the significance of the framework to wider disaster management are discussed in the methodology. The proposed framework is then applied to the case study of the multi-hazard disaster storm Desmond, 2015, and changes in Twitter content are discussed.

LITERATURE REVIEW

This study uses the definition of McFarlane and Norris (2006) that a disaster is a traumatic event that is collectively experienced by a population. They may have a severe onset and are time-delimited. Disasters generally have natural, technological, or human causes, and are conceptualized in life-cycle phases, which are pre-event, event, and post-event.

Web Accessibility During Disasters

Accessibility is dictated by the factors which may shape how an individual uses the Web and the ease with which an individual may achieve a desired state. The Web is defined as a network of hypertext files which are accessed through a Web browser (Berners-Lee et al., 2006). Social media are defined as computer-mediated tools or applications which are made accessible through the Web. They are used to develop online communities or networks through the sharing of, creation, and exchange of information. The Web brought with it the ability to connect, and to share information with, another individual in real-time (Berners-Lee et al., 2006). This represented a paradigm shift in the way that disasters are both managed and perceived (Cottle, 2014). Accessibility to online information as well as offline is now an observed factor in reducing risk posed by a disaster (Blaikie et al., 2014). The Web is vital to the understanding of social media in disaster contexts; theories such as online identities, perception of

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/social-media-and-disasters/207598

Related Content

Interaction Protocols Adaptation Based Coordination for Crisis Management Processes

Wassim Chtourou and Lotfi Bouzguenda (2015). *International Journal of Information Systems for Crisis Response and Management* (pp. 67-87).

www.irma-international.org/article/interaction-protocols-adaptation-based-coordination-for-crisis-management-processes/156567

The Role of Serious Gaming in Assisting Humanitarian Operations

Yan Wang, Heide K. Lukosch and Philipp Schwarz (2019). *International Journal of Information Systems for Crisis Response and Management* (pp. 20-34).

www.irma-international.org/article/the-role-of-serious-gaming-in-assisting-humanitarian-operations/234325

Discursive Arguments Around Disasters in History: The Case of Chile

Vicente Sandoval (2018). *International Journal of Disaster Response and Emergency Management* (pp. 64-76).

www.irma-international.org/article/discursive-arguments-around-disasters-in-history/221345

Improving Practice of Flood Shelter Implementation in Alluvial River Floodplain With Hydro-Morphological Analysis

Shammi Haque, Debanjali Saha and M. Shahjahan Mondal (2019). *International Journal of Disaster Response and Emergency Management* (pp. 35-50).

www.irma-international.org/article/improving-practice-of-flood-shelter-implementation-in-alluvial-river-floodplain-with-hydro-morphological-analysis/240786

Detecting Individual-Level Deception in the Digital Age: The DETECT Model ©

Eugenie de Silva (2020). *Improving the Safety and Efficiency of Emergency Services: Emerging Tools and Technologies for First Responders* (pp. 271-292).

www.irma-international.org/chapter/detecting-individual-level-deception-in-the-digital-age/245167