

Promoting Situation Awareness: Usability of a Social Media Tool for Journalists and Crisis Managers

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ABSTRACT

Crisis communicators and journalists need stable structures to handle social media content in emergencies, but struggle with information overload. The usability of a tool intended to support information gathering was investigated by conducting two usability tests (low- and high-fidelity prototypes) with journalists. The aims were to investigate how well the design reflected users' general mental models of emergency work, and how it responded to the specific requirements set by work in high-stress surroundings. Tests were conducted in a laboratory. Participants understood the main prototype concepts, but struggled with time-consuming tasks, for instance, those related to saving content or evaluating information quality. To provide good situation awareness - and to fit in with user expectations - a system should gather information from several social media outlets and allow for varying possible user modes. However, system designers need to carefully balance between including necessary features and avoiding tasks that require complex manual actions.

KEYWORDS

Crisis, Crisis Management, Emergencies, Information Gathering, Journalism, Situation Awareness, Social Media, Usability

INTRODUCTION

A rampage truck attack, a devastating earthquake, or a sudden flooding - during an emergency¹, information about the ongoing event is spread rapidly through a complex network of interacting communication channels (Latonero & Shklovski, 2011; Simon, Goldberg, & Adini, 2015). Via social media such as Facebook, Twitter or Instagram, content is posted and may be merged with new facts or rumors. Parts of this information are integrated into traditional mass media products or forwarded by direct interpersonal communication or reposted in social media in new forms. Soon, it becomes difficult for crisis communicators to handle the vast amount of content and estimate the trustworthiness of seemingly central information (Eriksson, 2012). This may have serious effects on the perception of a situation and undermine a deeper understanding of the problem; or even cause additional emergency damage (Coombs, 2015).

Technical systems can provide support for crisis communicators who need to handle vast information flows in emergencies (Ruggiero & Vos, 2014). However, gathering social media with such systems is a complex process, requiring an understanding of data discovery, collection, preparation and analysis (Imran, Castillo, Diaz, & Vieweg, 2015; Stieglitz, Mirbabaie, Ross, & Neuberger, 2018). In this study, the work behind developing the prototypes of a new tool to support the gathering of social media information is presented (Sections 4-7). The tool is intended for users who work professionally with gathering crisis-related information, such as authorities, first response rescuers, NGOs, and news organizations.

The tool itself was designed with a user-centered approach, the aim being to optimize it according to how users can, want, or need to use it (ISO 9241, 2010; Wallach & Scholz, 2012). The main focus of this article is to investigate the usability of two prototypes of this tool (Sections 5-6). The results from the usability tests conducted in a laboratory setting with one intended user group, news journalists, are presented. The sample was limited to journalists as the prototype developer wished to work with one clearly defined group during the first parts of the development process.

This study investigates how well the prototype tools fit in with journalists' existing mental models, and how the design should be improved to both support work tasks and an overall awareness of an unfolding emergency (Sections 2-3, 7). This study contributes to the field of IT support for emergency management by providing knowledge on how to design social media information gathering systems that reflect the specific requirements set by emergencies and emergency-related communication practices.

Understanding Social Media Information Gathering in Emergencies

Social media ecosystems are based on four elements, one of them being the possibility for content datafication (Van Dijk & Poell, 2013). This means that social media platforms produce data that may be collected and used by different actors for various purposes. In a crisis communication context, datafication enables external actors to use technology in order to gather user-generated content about an unfolding emergency, and to distill it into more useful forms that may support efficient actions or responses (Pirolli & Russell, 2011). While the specific purpose of gathering information will vary between organizations, the practical processes related to the information gathering are similar (Coombs, 2015; Ruggiero & Vos, 2014).

Scholars have documented several examples of the usefulness of such data gathering for emergency communicators. During Hurricane Sandy, rescuers used Facebook to continuously monitor, listen in, and respond to the public's concerns about how damaged specifically-affected areas were, and when evacuated residents were allowed to return home (Hughes et al., 2014). Ludwig et al. (2015) showed several examples of how emergency managers should monitor social media to identify and possibly benefit from emerging self-organizing groups, digital volunteers, who in an improvised manner start coordinating support efforts via social media platforms. Brandtzæg, Luders, Spangenberg, Rath-Wiggins, and Folstad (2016) highlighted how news organizations can benefit from social media information in their production of emergency news content.

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