



# Psychosocial functions of social media usage in a disaster situation: A multi-methodological approach



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## ARTICLE INFO

### Article history:

Available online 21 February 2014

### Keywords:

Disaster communication  
Emotion regulation  
Social media  
Social networking sites

## ABSTRACT

Disasters are unexpected events that can affect a great number of individuals physically and psychologically. While previous research identified the Internet and especially social media as crucial platforms for information and communication in such situations, the psychological perspective on disaster-related functions of social media is still underrepresented. Building on motivation and emotion theories, this work uses a multi-methodological approach to holistically assess the individual's motives that underlay social media usage in the context of the human stampede at the Love Parade 2010. The results of a content analysis of postings in social networking site groups ( $N = 5970$ ), qualitative interviews ( $N = 10$ ), and an online survey ( $N = 171$ ) delineate social media not only as a means for verifying the well-being of loved ones but also as appropriate spaces for social sharing of emotions and pursuing empathic concerns. Moreover, social media have been found to provide psychological benefits for users: The more individuals actively engaged in social media communication, the more they felt emotionally relieved and as a part of a like-minded community. These findings extend prior knowledge with regard to processes of emotion regulation that accompany social media communication in non-routine situations.

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## 1. Introduction

On July 24th 2010, a human stampede occurred at the Love Parade in Duisburg, Germany. This man-made mass disaster at the largest electronic dance music festival worldwide caused the death of 21 people and the injury of at least 500. Besides the families of the deceased and injured victims, young adults in particular were affected by this incident, be it directly as visitors or indirectly through concern about the welfare of family members and friends.

The individual's response to unexpected mass disasters can vary widely and be influenced by social context, personal experiences, expectations and the subjective meaning of the incident (Butler, Panzer, & Goldfrank, 2003). In such situations, people might deal with states of uncertainty, fear or panic and develop different needs which can be met through media exposure (Perez-Lugo, 2004): Cell phones can help to gain certainty about the well-being of loved ones; television and radio might provide official information about the incident. However, the Internet in particular has been shown to positively influence the individual's coping with a disaster (Al-Ani, Mark, & Semaan, 2010; Boyle et al., 2004; Procopio

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& Procopio, 2007; Shklovski, Burke, Kiesler, & Kraut, 2010). The uniqueness of the Internet lies in the possibility for users to autonomously seek specific information that they might not get elsewhere and to communicate with others at any time and place (Bucher, 2002). Especially web applications subsumed under the terms "Web 2.0" or "social media" offer features that may revolutionize the way in which individuals communicate during and after disasters: Within social media, users are able, for example, to upload and watch videos that document any disaster on YouTube or to discuss the incidents with peers on social networking sites – even with their web-compatible mobile phones. Scholars have analyzed the functions of blogs (Macias, Hilyard, & Freimuth, 2009), microblogging services such as Twitter (Qu, Huang, Zhang, & Zhang, 2011; Vieweg, Hughes, Starbird, & Palen, 2010) or social networking sites (Semaan & Mark, 2012; Vieweg, Palen, Liu, Hughes, & Sutton, 2008) in times of crisis. Despite the large body of research in this field, there is a lack of empirical approaches investigating the underlying psychological factors influencing whether and how individuals expose themselves to social media in disaster situations. We aim to fill this gap by drawing on the theoretical approach that when facing negative emotional experiences, individuals perceive the particular need for sharing their emotions with others individuals (Rimé, 2009) and they might try to fulfill this perceived need by exposing themselves to media

(Katz, 1959; Ruggiero, 2000). Furthermore, the exploration of social media usage still requires a differentiated perspective: Since previous research predominantly conducted content analyses of online messages, these approaches assessed active usage patterns such as participating at discussions related to disasters, writing comments and providing information. However, social media users can also act passively by merely reading contributions of other users or watching videos without taking part in observable communication. By considering these different usage patterns, the present research aspires to offer a broader understanding of psychosocial processes that accompany disaster-related social media usage. Particularly, we focus on individuals' motives for exposing to social media and on the questions of what users (emotionally) experience while and after usage. Therefore, the present case study combines objective analyses of communication behavior and subjective self-reports of individuals related to social media usage in the context of the stampede at the Love Parade 2010: First, we conducted a content analysis of social networking site groups dealing with the Love Parade 2010 to assess the concerns and issues users talk about in social media after having experienced or having found out about the disaster. Second, qualitative interviews were performed in order to approximate the subjective gratifications of active as well as passive social media usage on an explorative level. Finally, we performed an online survey with a larger sample in order to systematically identify the uses and gratifications of different social media applications such as social networking and video sharing sites and their impact on individuals.

## 2. The role of social media in times of disaster

Social media are applications such as social networking sites (SNS) like Facebook or Twitter, diary-like weblogs, the video-sharing website YouTube, or the knowledge-sharing website Wikipedia. All of these platforms are characterized by a technical ease of use that facilitates production, exchange and consumption of user-generated content among social media users. Since social media usage has in any case become a crucial part of people's daily lives (e.g., Duggan & Brenner, 2013; Hampton, Goulet, Rainie, & Purcell, 2011), a considerable body of research has explored whether the use of social media can take specific roles in particular situations, for instance in settings of disaster. Research by Palen and her group (e.g., Palen, 2008; Shklovski, Palen, & Sutton, 2008) analyzes the use of information and communication technology in times of crisis from a computer science perspective and with a special focus on social media: In relation to the Southern California Wildfires in 2007, their research group found that citizens used social media for information gathering, verification and distribution as they did not receive sufficient data from traditional news sources about the specific areas that caught fire (Sutton, Palen, & Shklovski, 2008). In this case, the authors speak of "backchannel communication", a form of collective communication among peers to exchange additional information that is otherwise difficult to obtain. However, most users reported to have used social media to seek information and only a third of the respondents actually actively contributed information about the wildfires. When analyzing the content of Facebook groups related to the Virginia Tech shootings in 2007, Vieweg et al. (2008) found that citizens assiduously collaborated on determining the identity of the fatalities by sharing the information to which they had access. Hence, social media enabled users to generate and share information that official authorities did not have or were not willing to release.

With the explicit aim of assessing the different functions of social media in times of crisis, Macias et al. (2009) conducted a content analysis of weblog entries in the aftermath of the 2005

Hurricane Katrina: The most frequent function identified was *communication* (such as looking for missing people or documenting experiences), followed by *political functions* (such as commenting on political statements), *information* (such as providing information about damage and how to get help), and *helping* (such as offering and organizing assistance). With a special focus on expressions within weblog entries, a further function was identified: The *emotive or therapeutic* use of social media (as discussing one's own emotions). Further works identified similar functions of social media in disaster settings (e.g., Hart, Brewster, & Shaw, 2012; Qu et al., 2011). However, such findings are often based purely on content analyses, which solely focus on the observable communication behavior of active users. Other users, though, might participate passively by reading or looking at content without contributing to discussions. Thus, a psychological perspective on social media functions requires a more differentiated view on the different underlying motives which may drive the individual's exposure to social media. Like others, we theoretically draw on the uses and gratification approach (Macias et al., 2009), but extended the analyses to passive social media users and the emotional functions social media might have during and in the aftermath of mass disasters.

## 3. Disaster-related uses and gratifications of social media

According to the uses and gratifications approach, individuals use media to fulfill their current needs and desires (Katz, 1959; Katz, Blumler, & Gurevitch, 1974). This approach postulates that psychological, sociological, and environmental conditions shape people's motives determining their choices and uses of media. In this regard, motives are conceptualized as subjectively perceived needs which individuals are able to articulate when they are asked to explain their reasons for using media (Papacharissi, 2008; Rubin, 2009). Therefore, individuals are supposed to deliberately use media in a way that satisfies their current needs and leads to gratification. With the rise of online communication, the uses and gratifications approach has gained new interest: The emerging interactivity (in the sense of enhanced opportunities for activity on the web), demassification (the individual selectivity within Internet offers), and asynchronicity (in terms of communicating at the individual's convenience) on the Internet provides a higher degree of freedom for individuals to actively fulfill their perceived needs (cf. Ruggiero, 2000). Following these assumptions, we argue that individuals facing a disaster might perceive particular needs which they will try to actively pursue by exploiting the particularities of online media. The present research therefore takes the uses and gratifications approach as a framework to link the individual's motives and their social media usage patterns in disaster settings. In the following sections, we first discuss people's motive of gathering information, which has been addressed widely in the literature. Then, we aspire to broaden this motivational view by elaborating on people's motive to deal with emotions which might comprise the perceived need to share one's emotions but also to observe other's emotions in the context of a disaster.

### 3.1. Information gathering

Seeger, Vennette, Ulmer, and Sellnow (2002) pointed out that disaster situations enhance informational needs. These needs, originating from high levels of uncertainty, manifest themselves in an urgent necessity for immediate and accurate information (Sellnow, Seeger, & Ulmer, 2002). Thelwall and Stuart (2007) outlined three different forms of this need: Individuals experience a *general information need* when they want to get more general information about the course of the disaster. A *personal information need* arises

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