

Crisis Communication, Social Media, and the Environment

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While a substantial part of the discourse around social media continues to focus on concerns over cyberbullying or other undesirable practices, the important role which such media play in information dissemination, especially in the context of natural disasters and other acute events, is also being realised. A series of natural and human-made crisis events since 2011, including several major natural disasters in Australia, have highlighted this role.

As a country and a continent, Australia has always been exposed to natural disasters: it experiences climate extremes from scorching heat through widespread flooding rains to cyclonic storms on an annual basis. This propensity for natural disasters places significant stresses on Australian emergency services, as well as on Australian media in their role as emergency media. Indeed, it may be argued that the significant size and population spread of the Australian mainland means that media play an especially important role in the emergency response process, compared to more geographically compact nations which may be served more efficiently by centralised emergency services: for many remote and rural communities, emergency alerts disseminated electronically through broadcast and online media may reach them well before emergency personnel and equipment are able to make their way to potential disaster zones. Similarly, given the wide dispersal of official personnel, local communities also play an especially important role as information sources on the environmental conditions on the ground. Effective two-way communication between locals and emergency responders is of particular importance in the context of anthropogenic climate change which is set to further intensify these weather patterns. In Australia long-term drought is likely to increase the chance of devastating bushfires in southern states, while greater cyclonic activity in the tropics may increase the frequency and severity of floods in the north. Additionally, the prospect of rising sea levels due to the shrinking of polar ice caps poses a threat to the substantial majority of Australians who live in coastal areas around the country.

Australian and international crisis events in 2011 and 2012 point to the emergence of a new ecology of emergency media, which now incorporates conventional mass media (and in particular, broadcast media such as radio and television) alongside many-to-many channels from SMS to social media. Indeed, what is becoming clear is that it is not any one of these media forms and platforms, but the interweaving of these different channels, which ensures effective crisis communication. 2011 began with substantial flooding across most of the Australian state of Queensland during January, followed by a devastating earthquake in Christchurch, New Zealand. In each case, research has pointed to the importance of recent social media platforms such as *Facebook* and *Twitter* in the dissemination of information and the coordination of community responses (see e.g. Bruns *et al.*, 2012; Bruns & Burgess, 2012).

In the immediate aftermath of a sudden disaster – such as an earthquake –, social media can serve as an important first-hand information source, enabling locals to provide immediate situational information reports which are also of significant use to first responders in planning their activities (Palen *et al.*, 2010; Vieweg *et al.*, 2010); over the longer term – as in a more gradually unfolding flooding event –, locals can also serve as a network of human ‘sensors’ who regular updates on the situation on the ground at a level of detail which is often beyond what may be achieved by the limited staff and resources of emergency and media organisations (Shklovski *et al.*, 2008; Hughes & Palen, 2009). Indeed, in the aftermath of the third major disaster of early 2011, the earthquake, tsunami, and nuclear meltdown which affected the northeastern Japanese coastline, activists set up a network of locals who used cheap Geiger counters to monitor the progress of nuclear contamination across the provinces surrounding of the stricken Fukushima reactors (*Hakatte.jp*, 2012).

Such crowdsourcing of information is of increasing interest to emergency services and media organisations alike. During the Queensland flood crisis, for example, the Australian Broadcasting Corporation (ABC) trialled an emergency mapping system based on the *Ushahidi Maps* platform (previously used in collating information in the aftermath of Kenyan election violence and the Haiti earthquake; see e.g. Goolsby, 2010) to collect and present official as well as user-generated information on the current situation in affected areas (Australian Broadcasting Corporation, 2011), while emergency services are similarly exploring best practices for the greater incorporation of crowdsourced information into their processes. Key challenges in this context are the verification of user-provided information (distinguishing solid first-hand information from widely circulating rumours), and the tracking of situational changes (acute crisis messages are generally circulated more widely

than end-of-emergency notifications; cf. Mendoza *et al.*, 2010; Starbird & Palen, 2010). More sophisticated tools for the tracking, triangulation, and evaluation of information circulating through social media may be able to assist in this process. These may take into account, for example, the social media track records of participating users, or distinguishing widely re-shared messages from individual, independent alerts about the same local situation. However, it is likely that significant manual supervision and evaluation will continue to be necessary.

Additionally, social media also play an important role in the further dissemination of emergency alerts and other messages, and in the community self-organisation of local responses. Research has shown that the social media response to crisis situations is far from random: rather, key information sources receive disproportionate attention by social media communities and thereby gain substantially greater levels of visibility for themselves and their messages. Such sources may include conventional emergency services (the account of the Queensland Police Service Media Unit, @QPSMedia, became the central information source on *Twitter* during the 2011 Queensland floods, for example; see Bruns *et al.*, 2012) or media organisations (the account of newspaper site *New Zealand Herald*, @nzherald, played a similar role in the 2011 Christchurch earthquake; see Bruns & Burgess, 2012), but other traditional or new emergency actors may also emerge to prominence. Such actors include NGOs and other civic organisations, but also other Internet actors (staff working for Google's philanthropic arm *Google.org* were prominent in the Christchurch earthquake as they shared their *Peopelfinder* site) and locals who are engaged in sharing first-hand information or organising emergency response activities.

In the days following the Queensland floods, for example, Brisbane residents who had not been directly affected by flooding took to social media to organise the Baked Relief campaign, which organised volunteers to prepare and deliver home-cooked meals to flood clean-up volunteers. Organised through a *Facebook* page and the #bakedrelief *Twitter* hashtag, the effort was a notable success, generating further media coverage and resulting in spin-off activities during further natural disasters in Australia and elsewhere (Baked Relief, 2011). Other groups and individuals contributed to 'working the crisis' by setting up unofficial Websites to mirror and collate official information, thereby relieving stress from often overloaded government Webservers; frequently, they also converted official information materials into formats which were more easily accessible and searchable for users with smartphones and other mobile devices. Such self-organised activities play an important role in enhancing community resilience, and can assist official emergency relief

efforts by transferring responsibility for a range of ancillary activities from official organisations to the wider community.

The strategies of emergency services organisations must also recognise the significant interweaving of social and other online media with conventional broadcast and print media. The current, complex nature of the wider media ecology means that it is no longer appropriate to treat each media form and platform as a separate entity, but that the rapid and frequent transition of messages and information from one medium to another must be anticipated (and encouraged, to ensure maximum dissemination especially for crucial emergency advisories). During the 2011 Queensland floods, for example, updates were posted via the @QPSMedia *Twitter* account, and the corresponding *Facebook* page, directly from the situation briefings involving Premier Anna Bligh and the heads of the emergency services; in addition to being shared by social media users themselves, these messages were then also picked up and disseminated through the live tickers included in the major networks' television broadcasts; encountered through these broadcasts, they were then also shared further by other social media users who posted about what they saw on screen. Finally, local social media users often also shared their information with neighbours and friends through their offline social networks. Such complex transmission paths for emergency information point to the fact that social media complement rather than replace more conventional media channels, at least in emergency situations.

In this context, it is important to note that the nature of the emergency situation will also impact on the media mix available for crisis communication activities. Floods, for example, for the most part tend to leave intact the local mobile and landline communications infrastructure; mobile phone towers usually have independent battery power supplies even if network power fails, for example. To some extent, this is also true during earthquakes: while mobile communication networks may be affected as various individual access points fail, a network-wide failure is less common. Bushfires, on the other hand, are known for their much more devastating effects on overground communications infrastructure: phone and electricity cables, as well as mobile phone towers, are usually unable to withstand direct exposure to intense fire and heat.

Crisis communication strategies must take such differences into account: social media, especially as accessed through mobile devices, may never play a significant role in bushfire contexts, for example, while the proliferation of Internet-capable smartphones in Australia positions them as an especially important component of the crisis communication process in the aftermath of floods, storms, and earthquakes. Consequently, recent emergency

preparedness campaigns in Queensland and other Australian states have begun to recommend the purchase of phone charging equipment which may be used in cars, to ensure access to emergency information even if landline power and communications connections fail; similarly, the restoration of mobile communications infrastructure is now a priority task in the aftermath of major natural disasters.

Overall, however, it has become clear that social media are now an integral part of the crisis communication infrastructure: for disseminating official advice to the public, for gathering information from affected locals, and for enhancing the resilience of communities by providing them with an additional means of self-organisation. Emergency services and emergency media organisations throughout the world are now exploring the ways to integrate social media into their communications strategies; ongoing changes in the social media landscape mean that this is a process which will continue for some time to come.

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