Social Media Use in Crisis Events: A qualitative study

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NOTE BY THE UNIVERSITY

This project report is submitted as an examination paper. No responsibility can be held by London University for the accuracy or completeness of the material therein.
ACKNOWLEDGMENTS

First and foremost I would like to thank my supervisor Dr. Lorna wall for her continuous support, guidance and encouragement throughout the project. This was an intense few months, but I have gained valuable knowledge from the study and our conversations. I would also like to thank Dr. Paul Marshall for his insightful advice during the project as well. In addition, I would like to thank all my participants for sharing their experiences with me; without them this project would not be possible.

I feel extremely grateful to have met so many amazing people through the course this year. In particular, I would like to thank Misha Patel and Kea Zhang for their sincere friendship and support throughout the year. I would also like to thank Julian Camacho for always reminding me to “take it easy” during this project.

I would also like to extend a big thank you to my family who continuously offered support, love and encouragement throughout this year from miles away.
ABSTRACT

The aim of this research was to investigate social media use during a range of urban crisis events. A main motivation behind this research was based on significant social media use during recent floods affecting a South London neighbourhood. This provided an opportunity to recruit some participants while the experience was still fresh in their minds. In addition, a growing body of work has investigated social media use in crisis events; however, most work has relied on content analysis and surveys. These studies mainly revealed functions and behaviours of social media use during single crisis events. This study sought to extend previous work through in-depth semi-structured interviews and thematic analysis to uncover the underlying phenomena motivating use in a range of crisis situations. Furthermore, it aimed to draw design recommendations from key findings to enhance crisis-specific social media use.

Through 15 semi-structured interviews with participants involved in ten international crisis events, this study revealed that crisis situations presented significant information and psychosocial (social and emotional) needs which users were able to fulfil through social media. These findings aligned with uses and gratification theory which suggests individuals use media to fulfil specific needs and desires (Katz, 1959; Katz, Blumler, & Gurevitch, 1974). In addition, an overarching theme was uncovered to explain motivations influencing social media use during crisis events: agency. This study found that social media offered users significant control, power, freedom and choice to fulfil crisis-specific information and psychosocial needs.

Findings and limitations uncovered during the study were translated into design recommendations. These included recommendations to enhance agency and improve overall crisis-specific social media use. This research contributes to HCI literature by providing an in-depth qualitative study on social media use during a range of crisis events, and it is the first to provide social media design recommendations unique to crisis-specific needs.

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CHAPTER 1. INTRODUCTION

Social media is defined as *forms of electronic communication through which users create online communities to share information, ideas, personal messages and other content* (“Social Media,” 2014). It includes social networking sites (SNS) like Facebook and LinkedIn, microblogging sites (e.g. Twitter), media sharing sites (e.g. YouTube and Flickr), blogs and forums (e.g. Wikipedia) and social news sites (e.g. Digg and Reddit) (Neubaum, Rösner, Pütten, & Krämer, 2014). Social media continues to evolve and has become a pervasive part of people’s lives around the world.

Since its inception social media has revolutionised the way individuals share and gather information, as well connect to others. Social media sites offer immediacy and access to user-generated content which is often more timely and specific than traditional information sources (Palen, Vieweg, Liu, & Hughes, 2009). It also allows for wide-scale social interactions as people can connect with familiar contacts and reach out to broader networks despite physical boundaries (Sutton, Palen, & Shklovski, 2008). In recent years, work across several disciplines (e.g., media studies, psychology and computer science) has investigated the role social media plays in crisis events as these situations present significant information and interpersonal needs necessary to understand and cope with a crisis.

A majority of existing research has investigated how information is propagated through social media in crisis events. These studies have predominantly relied on content analysis of tweets and a few other information and communication technologies (ICT). Research revealed that individuals exchange user-generated content during crisis events for more specific and localised information that traditional media offers (Shklovski, Palen, & Sutton, 2008; Sutton et al., 2008). They also showed that the immediacy of social media content provided users a more accurate understanding of the unfolding events (Heverin & Zach, 2012; Vieweg, Hughes, Starbird, & Palen, 2010).
Other research has analysed the credibility of information shared on social media during crisis events through surveys and content analysis of tweets. Acar & Muraki (2011) investigated user perceptions of content credibility following social media use during an earthquake. Other research has analysed tweets to measure the volume (Gupta & Kumaraguru, 2012) and examine the dissemination patterns of false information on Twitter during crisis events (Mendoza, Poblete, & Castillo, 2010).

A few studies have recently investigated social and therapeutic behaviours on social media during crisis event. These studies have also relied on content analysis and surveys, as well as some interviews with users. Some studies have investigated the role social media plays in building community during crisis event (Shklovski et al., 2008). Other research used content analysis and short interviews investigate social media use of volunteers in crisis event (Shklovski, Palen, & Sutton, 2008; Starbird & Palen, 2011). Two studies also investigated the use of social media for therapeutic means during crisis events (Heverin & Zach, 2012; Neubaum et al., 2014). This research aimed to uncover the psychological and social benefits of social media use in crisis events.

While a growing body of research around social media use in crisis events exists, it has generally relied on content analysis, or large scale surveys, and has focused on a single crisis event. By conducting in-depth qualitative research with users from a range of crisis events, this study aims to uncover richer insights into the motivations behind social media use in crisis situations, and to uncover any limitations associated with use of such media during these events. This work was additionally motivated by the fact that a number of crisis events had recently taken place, in particular the UK floods, and this offered an opportunity to gather insights from people who had recently been affected, where the events were still fresh in their minds.

Furthermore, previous work has not offered implications for design to provide more effective use of social media during crisis events. This work seeks to fill these gaps, and answer the following question: What are the underlying phenomena influencing motivation and use of social media across a range of urban crisis events?
In addition, a main aim of the study is to deliver design recommendations that can enhance usage in crisis situations.

Fifteen semi-structured interviews were conducted with participants who used social media in a range of urban crisis events. These interviews were analysed using thematic analysis and an overall Grounded Theory approach to identify the underlying phenomena, as well as extract new directions and opportunities for the design of social media to support use in crisis events.

In Chapter 2, this report defines social media and presents related work on social media and its use in crisis events. It also discusses literature relevant to uses and gratification theory of media. The methodology is presented in Chapter 3, along with demographic information on participants, crisis events studied and ethical concerns. Chapter 4 presents key findings and discusses themes discovered from the analysis. The chapter also includes a discussion of these findings. The final chapter presents implications for design, limitations of the study and areas for future work as well as conclusions.
CHAPTER 2.   LITERATURE REVIEW

2.1.  Overview

The literature review in this chapter discusses and evaluates previous work related to social media use in crisis events. It also discusses relevant literature on uses and gratifications theory related to media use. Section 2.2 defines and discusses social media. In section 2.3 a review of related work is presented along with literature on disaster response and uses and gratifications of media theories. A chapter summary is included in section 2.4.

2.2.  Social Media

Social media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content (Kaplan & Haenlein, 2010) Popular forms of social media include social networking sites like Facebook, microblogging sites like Twitter and media sharing sites like YouTube.

According to a 2012 PewResearch’s report on global social media trends, about 50% of adults in countries such as Britain, the United States, Russia, the Czech Republic and Spain use Facebook and other networking sites (Kohut et al., 2012). Meanwhile, smartphone access has become ubiquitous and many people are using these devices to access social networks. In fact, according to the 2012 report, 60% of smartphone users in 12 countries used their phones to access social networks. The report also found that people use social networking sites for various content. The most popularly mentioned content types were entertainment (e.g. music and movies), social and community-related content (Kohut et al., 2012).

Facebook currently has over one billion monthly active users (http://www.facebook.com), making it the most popular social media site used globally. Facebook users connect to their personal social contacts through their Facebook profiles; however, they can access wider networks through features such as Facebook Pages and Groups. Facebook Pages enables organisations and other entities
to create an official public presence on Facebook (http://www.facebook.com). Users “like” these Pages and are able to contribute to conversations on the Page and view updates on their News Feeds. Facebook Groups are quite similar to Pages but allow small group communication. Groups typically form to discuss similar interests and to congregate around an issue, cause or activity (http://www.facebook.com). Similar to Pages, users can “like” Groups and contribute content, however Groups are intended to be less formal than Pages. Both Pages and Groups allow users to connect around a shared interest or experience and communicate with others outside their immediate friend networks.

While Facebook is primarily used to connect with friends and others for social and entertainment purposes, 28% of users also use the platform to follow breaking news stories (Kohut et al., 2012). Twitter, on the other hand, with over 270 million active global users (http://www.twitter.com) has become a more popular social media tool for breaking news. Twitter is a microblogging social media network which allows users to post 140 character messages, “tweets”, from their Twitter handles (Hughes & Palen, 2009). Twitter handles are public by default, but users can restrict access to select users (Starbird & Palen, 2011). Hashtags (#) are one of Twitter’s most defining features, although they are now available on Facebook as well. Hashtags consist of words or phrases attached to the # symbol and help categorise tweets around a specific topic (e.g. #londonriots). Users can search for specific hashtags to locate and filter information around a particular topic of interest.

The immediacy and brevity of Twitter content has enabled it to become a popular social media site for quick, real-time information dissemination (Bruns et al., 2011; Hughes & Palen, 2009; Wallop, 2011). Kwak, Lee, Park & Moon (2010) found that 85% of content on Twitter is related to newsworthy topics.

YouTube is another popular social media site with one billion users accessing the site each month (http://www.youtube.com). It is one of the most popular video-sharing sites used worldwide. While YouTube is a stand-alone social media site, its
content is often shared and accessed through other social media sites like Twitter and Facebook.

In recent years, use Twitter and other social media sites have gained attention during crisis events such as the Haiti earthquake (Muralidharan, Rasmussen, Patterson, & Shin, 2011; Starbird, 2013), Japan earthquake (Acar & Muraki, 2011) and Arab Spring Protests (Acar & Muraki, 2011). They continue to be used across a range of crisis situations thus influencing a growing body of research investigating social media use in crisis events.

2.3. Social Media Use and Crisis Events

The following section provides an overview and analysis of previous research on social media use in crisis events. In addition it discusses relevant literature related to uses and gratification theory relating to media use.

Disseminating Information

Crisis events are sudden, unexpected and non-routine events that significantly impact the welfare and well-being of individuals and communities (Shklovski et al., 2008; Sorrentino & Vidmar, 1974). They create unique information needs where those affected use whatever means are available for quick, real-time information under rapidly developing conditions (Shklovski et al., 2008). Social media has become a crucial source of information during times of crisis because it often provides more timely and accurate information than traditional media sources (Palen et al., 2009). Additionally, it connects users to both local and wider networks. This allows them to leverage peer information and fill information gaps left by other information sources.

Social media sites have become a popular tool to generate and access crisis-related information amongst the public. Hughes and Palen (2009) conducted a statistical analysis of tweets across four crisis events to understand differences between crisis-related Twitter activity and general Twitter activity. They found that information
broadcast and brokerage were higher during newsworthy events like crises than during general Twitter use.

Similarly, in Queensland, Australia social media became the primary tool for residents to create and share information during local floods (Bruns et al., 2011). These researchers analysed tweets and other social media content during the crisis. The local police’s Twitter handle successfully used Twitter to disseminate relevant flood-related information; however, the public played a key role in disseminating their information as well as offering first-hand accounts of the crisis. Residents used Facebook, Twitter, Flickr and YouTube to document on-the-ground footage of their local areas to share it with their community.

Palen et al. (2009) examined social media use following a shooting at Virginia Tech University (VT). The researchers monitored social media newsfeeds and witnessed a wide-scale problem solving activity on Facebook Groups and Wikipedia to identify victims from the crisis event. Through this collective online effort, family and friends of loved ones at VT were able to correctly name all 32 victims plus the shooter before VT and authorities released their identities to the public. This study highlighted the urgency of public demands for information. In addition, it demonstrated the public’s ability to act as an online collective intelligence network through social media.

Vieweg, Hughes, Starbird, & Palen (2010) analysed Twitter activity during a wildfire and flood and discovered users shared tweets around situational awareness during a crisis event. Situational awareness is an individual and collective understanding of the ‘big picture’ during crisis events (Sarter & Woods, 1991; Vieweg et al., 2010). Tweets around situational awareness included fire locations, wind directions and speed, flood levels, evacuation updates and information for volunteers. Similarly, Heverin & Zach (2012) analysed tweets during three campus shootings and found users exchanged information to help build an overall picture of the events. While these previous studies highlighted public information sharing practices during
crisis events, they did provide insights into why users chose social media to exchange situational information.

Subsequent research from Palen and colleagues have used content analysis and interviews to uncover some motivations influencing social media use in crisis events. Their study on social media use during the 2007 California Wildfires (Shklovski et al., 2008) revealed that official sources and mainstream media failed to provide timely and localized information during crisis events. In light of this information dearth residents relied on “backchannel communications” – communication among local peer networks – primarily facilitated through ICT such as online forums, community websites and Twitter. Interviews with eight local couples revealed these technologies allowed them to share and access quick, localised information such as evacuation updates and road closures. This information was largely unavailable from traditional information sources.

**Credibility of Information**

Previous studies showed individuals used social media in crisis events to share user-generated information. Since social media acts as an open, unmonitored information sharing platform it is difficult to detect what is factual information and what is false. This is especially true during crisis events when rumours are prevalent. The veracity of information is another area explored by previous research.

Acar & Muraki (2011) examined Twitter use during Japan’s 2011 Great Tohoku earthquake. Responses to an open-ended questionnaire revealed a common limitation to Twitter use during the earthquake was tweet reliability. Users were unsure whether or not information shared was fact or rumour. Some users were hesitant to use Twitter because of this issue. Other studies have also addressed credibility through content analyses of tweets. Gupta & Kumaraguru (2012) analysed tweets from 14 international events and found that 30% of tweets provided situational awareness, but only 17% of those tweets contained credible information. Mendoza, Poblete, & Castillo (2010) examined tweets after the 2010 Chile earthquake and found that factual tweets spread faster than rumours; false tweets were questioned and denied.
more than credible tweets. While these studies provided insights into the credible content shared content during crisis events, they did not attempt to probe deeper into user perceptions of credibility and how that influences their behaviours on social media.

**Connecting with Others**

Previous research has identified social media as an important platform for information and communication in crisis events. Additionally, a few studies have recently looked beyond these functions to offer psychological perspectives on crisis-related functions of social media. These studies have shown that social media can facilitate increased social and emotional behaviour during crisis events. These behaviours have been found to be essential in building resiliency needed to cope with crisis events (Neubaum et al., 2014; Shklovski et al., 2008).

Shklovski et al., (2008) found that social media in crisis events can help individuals find community during a crisis. During the California wildfires, ICT use increased social cohesion in the affected community by allowing residents to connect with others concerned about the local area. Additionally, community members converged online to express commonly held fears and concerns and to offer emotional support (Shklovski et al., 2008). These activities united the community and contributed to a sense of collective resiliency.

Community was also investigated by Starbird & Palen (2011). These researchers conducted content analysis and interviews with people who used Twitter to participate in digital volunteer efforts during the 2011 Haiti Earthquake. Through interviews, they discovered digital volunteers turned to Twitter because it allowed them to help others remotely from their homes (e.g. translating content) and it connected them to a wider community of digital volunteers.

Neubaum et al., (2014), conducted a study to assess individual motives influencing social media usage during a human stampede at Germany’s Love Parade in 2010. Through content analysis, ten interviews and an online survey they revealed social media played a significant role in the emotional processing of the crisis event.
Individuals used social media as a space to share their emotions and offer support to others. Participants said they were motivated by a desire to feel better about the situation, feel less alone and to develop strength needed to cope with the crisis events. By connecting with others through social media, they were able to fulfil these needs and better process both positive and negative emotions associated with the crisis.

Similarly, Heverin & Zach (2012) discovered individuals used social media to share emotions through a content analysis of tweets during three campus shootings. Amongst other emotions they witnessed individuals expressed fears, relief, anger and hopes. Often these emotions were not shared to elicit a response but used as a “talking cure” – voicing thoughts and feelings to deal with inner struggles and conflicts (Freud, 1957). However, this study did not elicit explicit motivations for using Twitter to broadcast inner thoughts and feelings with others.

**Uses and Gratification of Social Media in Crisis Events**

According to uses and gratification theory, individuals access media to fulfil certain needs and desires (Katz, 1959; Katz, Blumler & Gurevitch, 1974). Recently, social media has provided new interest in uses and gratification theory approaches because it offers several features uncharacteristic of other media: it provides interactivity with other individuals, it decentralises information, and it allows individuals to communicate at his or her own convenience (Ruggiero, 2000).

Seeger, Venette, Ulmer & Sellnow (2002) suggest that high levels of uncertainty and confusion motivate individuals to seek immediate and accurate information throughout the course of a crisis event. Thelwall & Stuart (2007) outlined three types of information needs present in high-impact events: *general information needs* (information about the course of a crisis event), *personal information needs* (information regarding the well-being of others) and *information usage* (a need to communicate with others during crisis events). Individuals seek out information during a crisis dependent on which information need dominates at a specific time; however, all needs may also exist concurrently in an individual (Thelwall & Stuart, 2007).
Previous research also suggests users may be motivated to use social media in crisis events to fulfil social and therapeutic needs (Heverin & Zach, 2012; Neubaum et al., 2014; Shklovski et al., 2008). Crisis events elicit exceptional emotions as many individuals deal with unexpected tragedy, disaster and other adversities. Individuals may attempt to regulate these emotions through a concept known as social sharing of emotions (Rimé, 2009; Rimé, Mesquita, Philippot & Boca, 1991). According to this concept, individuals experience a need to share their internal states with others following emotionally charged events. Rimé (2009) suggests that social sharing of emotions increases during negative experiences like crisis events because individuals tend to share negative emotions over positive ones. Applying uses and gratification theory principles, since cognitive needs (understanding the events of a crisis) and socio-affective (expressing and regulating emotions) are significant during a crisis, social media may be used to satisfy these needs in a crisis.

2.4. Summary

While a growing body of research around social media use in crisis events exists, this has generally focused on content analysis, or large scale surveys, and has focused on a single crisis event. Previous work has also uncovered emerging functions of social media during crisis events. This study aimed to gather deeper insights and answer the question: What are the underlying phenomena influencing motivation and use of social media across a range of urban crisis events? To answer this question in-depth interviews were conducted with users who used social media across a range of international crisis events. The literature has not discussed design implications for enhancing social media use in crisis events. As a result, this study also aimed to provide insights into the design of social media to enhance crisis-specific use.
CHAPTER 3. METHODOLOGY

3.1. Overview

This chapter details the methods used to gather and analyse data for this study. Section 3.2 describes the semi-structured interviews used to collect data. This section also provides participant demographics and ethical considerations. In Section 3.3 the Grounded Theory approach and thematic analysis conducted are covered. Finally, section 3.4 provides a summary.

3.2. Semi-Structured Interviews

The purpose of this study was largely exploratory. The research question asks what motivations influence social media use in a range of crisis events. Semi-structured interviews were a well-suited data gathering technique because they allowed for exploratory conversations around underlying behaviours, motivations, needs and frustrations (Cooper, Reimann, Robert & Cronin, 2007). Since crisis events cannot be predicted, observational or self-reporting methods like ethnographies or diary studies were unable to be used. However, recent crisis events such as the UK floods meant that it was possible to interview people who had recently been affected, where the events were still fresh in their minds.

An initial interview script was created for the first set of interviews conducted. Following a Grounded Theory approach detailed in section 3.3, sets of three to four interviews were conducted and analysed before continuing with subsequent interviews. As a result, new questions were created based on previous findings. A sample set of iterative scripts are included in Appendix A. Interviews generally lasted between 30 minutes and an hour. Questions were divided into categories such as user demographics, general social media use, crisis event information and social media use during the crisis. These questions were used to guide the interview and prompts were used to ensure relevant insights were discovered and discussed (Rogers, Sharp & Preece, 2011).
Some interviews were conducted in public locations or at participants’ homes, while others were conducted via Skype due to international locations of several participants. All interviews were audio recorded with an iPhone or with MP3 Skype Recording software, and transcribed with Express Scribe and Microsoft Word.

Participants

An initial screener questionnaire was created to recruit eligible participants, namely anyone over the age of 18 who had used social media in an urban crisis event within the last five years. Additionally, participants must have been directly affected or significantly tangentially affected (e.g. had family or a loved one in the affected area) by the crisis event.

The questionnaire was created with Google Forms and included information on the study, eligibility information and open and closed questions to check eligibility (see Appendix B). The questionnaire was used to find participants who used social media regularly during crisis events. A link to the questionnaire was included in a poster displayed in several locations on the UCL campus and in a South London neighbourhood recently affected by floods. The link was also shared on social media like Twitter and Facebook.

Fifteen participants were interviewed for the study. The number of participants was selected due to time and budget constraints; however, saturation was also reached. Saturation in this context meant significant unique insights ceased to emerge with final interviews. Participants from several crisis events were recruited since this study aimed to understand use across a range of events. Of the 15 participants, seven were male and eight were female and their age range was 21 – 58 years old. Table 3.1 presents participant demographics including how the crisis affected them. The preceding table, Table 3.2, contains short descriptions of the crisis events mentioned in this study.
**Table 3.1: Participant demographics and effect of crisis on participant**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age</th>
<th>Crisis Event</th>
<th>Effect of crisis on participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Female</td>
<td>58</td>
<td>London Riots, Norway Bombing</td>
<td>Daughter caught in riots, Travelling to Norway during bombing</td>
</tr>
<tr>
<td>P2</td>
<td>Male</td>
<td>42</td>
<td>UK Floods</td>
<td>Children's school shut down; infrastructure closures; no significant damage to property</td>
</tr>
<tr>
<td>P3</td>
<td>Male</td>
<td>33</td>
<td>London Riots</td>
<td>Riots near neighbourhood; infrastructure closures</td>
</tr>
<tr>
<td>P4</td>
<td>Male</td>
<td>45</td>
<td>UK Floods</td>
<td>Infrastructure closures; no significant damage to property</td>
</tr>
<tr>
<td>P5</td>
<td>Male</td>
<td>28</td>
<td>Greek protests</td>
<td>Personal life affected by economic crisis; organised protests; participated in demonstrations</td>
</tr>
<tr>
<td>P6</td>
<td>Female</td>
<td>49</td>
<td>UK Floods</td>
<td>High risk of evacuation; infrastructure closures</td>
</tr>
<tr>
<td>P7</td>
<td>Female</td>
<td>23</td>
<td>Boston Marathon Bombing</td>
<td>Friends running in marathon; family in Boston area</td>
</tr>
<tr>
<td>P8</td>
<td>Male</td>
<td>27</td>
<td>UK Floods, UK Snowstorms, London Riots</td>
<td>In flooded area but mildly affected; transportation closures Unable to leave house Near area but not directly affected</td>
</tr>
<tr>
<td>P9</td>
<td>Male</td>
<td>26</td>
<td>Building explosion in New York</td>
<td>From New York; friends and girlfriend near explosion</td>
</tr>
<tr>
<td>P10</td>
<td>Male</td>
<td>38</td>
<td>Greek protests</td>
<td>Lost job during economic crisis; participated in demonstrations</td>
</tr>
<tr>
<td>P11</td>
<td>Female</td>
<td>23</td>
<td>European floods (Dresden), Arab Spring Protests</td>
<td>Evacuated and helped with relief efforts In Egypt during protests; attended demonstrations</td>
</tr>
<tr>
<td>P12</td>
<td>Female</td>
<td>22</td>
<td>Turkey Protest (Gezi Park)</td>
<td>Personal life affected by authoritarian government; participated in protests</td>
</tr>
<tr>
<td>P13</td>
<td>Female</td>
<td>51</td>
<td>UK Floods</td>
<td>Water levels high around house but no significant damage to property</td>
</tr>
<tr>
<td>P14</td>
<td>Female</td>
<td>22</td>
<td>UK Floods, UK Riots</td>
<td>Friend's house flooded; family in affected area Lived in area with riots</td>
</tr>
<tr>
<td>P15</td>
<td>Female</td>
<td>43</td>
<td>UK Floods</td>
<td>No significant property damage; coordinated relief efforts</td>
</tr>
</tbody>
</table>
Table 3.2: List of crisis events presented in this study

<table>
<thead>
<tr>
<th>Event</th>
<th>Duration</th>
<th>Location</th>
<th>Type of crisis</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arab Spring Protests</td>
<td>December 2010 - Present</td>
<td>Arab world</td>
<td>Civil unrest</td>
<td>Wave of revolutionary demonstrations, riots and civil war in the Arab world. Many were met with violent responses from governments and authorities. (<a href="http://www.wikipedia.org/">http://www.wikipedia.org/</a>)</td>
</tr>
<tr>
<td>Boston Marathon Bombings</td>
<td>15 April 2013 (manhunt 18-19 April)</td>
<td>Boston, U.S.A.</td>
<td>Act of terrorism</td>
<td>Terrorist attack during Boston Marathon. Two bombs were detonated killing 3 people and injuring over 260 others. A two day manhunt for the bombers ended in the death of a police officer and one bomber. The second bomber was arrested after a stand-off with police. (<a href="http://www.wikipedia.org/">http://www.wikipedia.org/</a>)</td>
</tr>
<tr>
<td>Greek Protests</td>
<td>May 2010 – April 2012</td>
<td>Athens (and other major cities), Greece</td>
<td>Civil unrest</td>
<td>Series of demonstrations and strikes as a result of austerity measures. Protests included violent clashes with police. Three people were killed during protests on 5 May, 2011. (<a href="http://www.wikipedia.org/">http://www.wikipedia.org/</a>)</td>
</tr>
<tr>
<td>Norway Attacks</td>
<td>22 July 2011</td>
<td>Oslo, Norway</td>
<td>Terrorist Attacks</td>
<td>Two terrorist attacks against the government, civilians and a Worker's Youth League summer camp in Oslo. The first attack was a car bomb explosion; the second a bomb explosion at a summer camp. The attacks resulted in 77 deaths. (<a href="http://www.wikipedia.org/">http://www.wikipedia.org/</a>)</td>
</tr>
<tr>
<td>Protests in Turkey (Gezi Park)</td>
<td>May – Aug. 2013</td>
<td>Istanbul, Turkey</td>
<td>Civil unrest</td>
<td>A wave of protests against a redevelopment project for Istanbul’s Taksim Gezi Park. The protests became violent resulting in an estimated 11 deaths and over 8,000 injuries. Many deaths and injuries were caused by police brutality. (<a href="http://www.wikipedia.org/">http://www.wikipedia.org/</a>)</td>
</tr>
</tbody>
</table>
Ethical Considerations

Since most of the qualitative data relies on semi-structured interviews with participants, it was important to develop a sense of trust and security with participants. Ethical clearance was gained from the University College of London. All participants received an information sheet explaining the purpose and details of the research. Participants’ consent was obtained to record and use all data through a consent form. Additionally, all data has been kept confidential and anonymized. The information sheet and consent form are included in Appendix C.

3.3. Grounded Theory and Thematic Analysis

In this study, thematic analysis was used primarily as a coding process within an overall Grounded Theory approach; however, the researcher followed guidelines set by (Braun & Clarke, 2006) to ensure the process was conducted deliberately and rigorously.

Grounded Theory

The main purpose of this study was to uncover motivations influencing social media use across a range of urban crisis events. Since few studies have attempted to provide a deeper understanding of the broad yet nuanced use of social media in crisis events, a Grounded Theory approach was applied to uncover the underlying phenomena driving use.

The goal of Grounded Theory is to generate a theory of a phenomena that is grounded in data (Braun & Clarke, 2006). This bottom-up approach allows for a more realistic approach to theory formation (Corbin & Strauss, 1990). Typically this means no prior hypothesis is formed before research is conducted to ensure an essentially data-driven approach. While an initial literature review was conducted to inform the first set of questions, the researcher did not form a strong hypothesis prior to data gathering.
The main Grounded Theory procedures used in this study included: iterative data gathering and analysis, theoretical sampling and constant comparison. The Grounded Theory approach described by (Corbin & Strauss, 1990) suggests an iterative approach to data gathering and analysis. For example, a typical approach includes interviewing a user, transcribing the interview, coding, and noting emerging concepts and themes before continuing with the next interview. This iterative process prevents gaps in theories (Corbin & Strauss, 1990) as it allows for theoretical sampling – deciding who to interview and what to ask based on emerging concepts and theories (Corbin & Strauss, 1990; Furniss, Blandford, Curzon, & Mary, 2011). Due to scheduling constraints, interviews in this study were conducted and coded in sets of three to four before the next iteration of gathering and analysis. Also due to time constraints, some but not all participants were selected based on emerging concepts. For example, P15 was specifically recruited due to her involvement with a community-led relief effort on Facebook.

Finally, constant comparison was conducted between data and emerging themes. This meant concepts and themes were compared against the data as they emerged. This helped refine concepts and their relationships to each other in order to develop a strong theory (Corbin & Strauss, 1990).

**Thematic Analysis**

The coding process of the Grounded Theory approach was conducted using the six phases of thematic analysis outlined by Braun & Clarke (2006). The thematic analysis process was not linear but recursive, moving between phases as needed. In the first phase, the researcher transcribed each interview using Microsoft Word and Express Scribe audio transcription software. Transcripts were read and re-read throughout analysis to help familiarise the researcher with the data (Braun and Clarke, 2006). A sample transcript is included in Appendix D.
The second phase included initial open coding between sets of interviews following the Grounded Theory approach. Open coding was supported by the use of Atlas.ti software (see figure 3.1). Coding was an iterative process as codes were compared and modified between sets of interviews. After all interviews were coded, themes were identified through a process of axial coding. Post-it notes were used to create an initial affinity diagram (see figure 3.2) to visually organize codes into a hierarchy of concepts and themes (Rogers, Sharp & Preece, 2011).

![Initial open coding using Atlas.ti software](image1)

**Figure 3.1: Initial open coding using Atlas.ti software**

![Initial affinity diagram](image2)

**Figure 3.2: Initial affinity diagram**

The fourth phase included reviewing themes through constant comparison mentioned earlier in the Grounded Theory approach. Themes were then defined and named in the fifth phase. The final phase of thematic analysis includes the report on
two major themes identified in Chapter 4 and the underlying phenomenon discussed in Chapter 5.

3.4. **Summary**

This chapter presented the methodology used during this study. In-depth semi-structured interviews were conducted to uncover underlying phenomena motivating social media use in crisis events and to answer the main research question. Since this was largely an exploratory study, a Grounded Theory approach using thematic analysis was chosen to analyse the interviews. The results of this analysis and two identified themes are presented in Chapter 4, as well as an underlying phenomenon found to motivate social media use in crisis events.
CHAPTER 4. FINDINGS

4.1 Overview

This chapter presents key findings and themes discovered from analysing 15 semi-structured interviews. Section 4.2 presents participants’ general social media behaviour, as well social media behaviour during crisis events. Sections 4.3 and 4.4 present the two main themes identified around social media use in crisis events, as well as their subthemes. A discussion of these findings is presented in section 4.5.

4.2 Social Media Use

The main social media sites used by participants during crisis events were Facebook, Twitter and YouTube. Most participants typically check social media sites daily and use social media for news and information purposes. As a result, participants naturally used social media sites during crisis events instead of searching for other crisis specific websites and technologies. In fact, all participants were unaware of crisis-related websites like Ushahidi.com and Google’s Public Alerts (http://www.google.org/crisisresponse/publicalerts/).

General Social Media Sites Used

Outside of crisis events, Facebook, Twitter and YouTube were the most typical sites used by participants. Almost all participants use YouTube to watch videos embedded in Facebook posts and tweets. Four participants use it regularly to watch news reports and music videos.

Fourteen participants use Facebook to keep in touch with friends and family. Some also use it for entertainment, for marketing purposes and to gather and share news. However, one participant does not use Facebook because he does not want to share his private life online.

Eleven participants often use Twitter to gather and disseminate news. A few participants also use it for social and academic purposes. One participant uses Twitter for community building activities. However, four participants do not use Twitter regularly because they find it too difficult to understand and use.
Figures 4.1 – 4.3 show participants’ levels of expertise (self-defined by participants) with each social media site. Participants were generally experienced with each social media site, with a few intermediate users and no novice users.

**Social Media Sites Used in Crisis Events**

Participants also used Facebook, Twitter and YouTube during crisis events. Participants perceived Facebook as intimate and community-oriented; it connected participants to their friends, family and community networks during the crisis. Participants said Facebook was the most ubiquitous platform used within their communities. It also allowed for longer content and more interactivity via features like comments and private messaging.

In contrast, Twitter provided access to a wider network outside peer and community networks. Participants perceived it as more open and anonymous which
allowed for a broader view of the crisis. It also allowed for quick, succinct updates and visibility to high profile personalities. While four participants accessed YouTube regularly during the crisis, most used it to watch and post crisis-related videos and news reports on Facebook and Twitter.

**Features Used in Crisis Events**

Participants used several features on social media sites to help gather information, share content and connect with other users. The most common features used on Facebook were Pages and Groups. While crisis Groups and Pages were generally set up during the crisis event, one community appropriated an existing Group, which had been created as a campaign to save a local primary school from a threatened takeover. During the crisis, it became a hub for flood-related information sharing and conversations. After the crisis, it continued to be used to post other community-related information. Another Facebook Page created during the UK floods also evolved into a community Page after the crisis to help coordinate local volunteer efforts:

“We have now turned into a community Page and are helping with floods, snow, if old people need anything, […] we’re just here to help the community now because there was such a big call to keep it going.” P15, UK floods

This reuse of existing pages again shows that people turn to existing and familiar sources when they need information in times of crisis; they understand how to use it and they know that a community has already formed around it.

All participants who used Twitter during the crisis relied on hashtags (#) to find information. These were searched for and also followed from others in the area. Some participants also used hashtags on Facebook to find information. They enabled participants to filter crisis-related information from other less relevant content. However, not all participants were familiar with more advanced hashtag features like saving hashtag searches and clicking on a hashtag to provide a stream of related content from other users.
4.3 Social Media as Information Space

One of the two main themes which emerged from this study was that participants used social media as an information space. Participants described crisis events as a time of confusion and uncertainty. They needed specific information to make key decisions (e.g. if they needed to evacuate, what roads to take and the well-being of others), as well as to make sense of the situation. Since traditional information sources were often unable to provide required information, participants relied on social media to fulfil these needs.

Hyper Local Information

Crisis events are “profoundly local in terms of impact, needs and consequence” (Shklovski et al., 2008). While traditional information sources provide a broad view of the crisis, participants reported a need for specific, localised information beyond general reports. Social media helped participants leverage local knowledge about the crisis events through crisis-specific hashtags and connecting to local peer networks.

Participants cited access to local information as one of the main needs influencing social media use in each crisis event. Local information provided more relevant knowledge about the direct impact the crisis had on participants and their communities. During the Dresden floods, P11 described how she used Twitter to fill information gaps left by traditional information sources:

“I would [...] search for the hashtags and search for location specific information. Because you know [...] the conventional media they have like ‘oh, this is how it looks like in the city, in general, but it wouldn’t be specific enough for me to know this street is closed and so this is how it affects me.’ I was looking for really local information and those other sources didn’t have that.” P11, Dresden floods

Hashtags helped many participants find crisis and location specific information on social media. During the London Riots, P3 used social media to monitor riot developments in his neighbourhood. Crisis-related hashtags on Twitter helped him locate information specific to his area:
“I started searching for #LondonRiots. When it became the hashtag to describe those events, even when there were other hashtags, #LondonRiots were attached. So you could search for that, then scroll through and see what was relevant to [my neighbourhood].” P3, London riots

A few participants also followed community-based social media accounts. For example, some community organisations set up Twitter handles or Facebook Pages to exchange information from local individuals and authorities. Participants relied on these sources because they provided a centralised place for local information. P8 mentioned a community Twitter handle used to curate local information during the UK floods:

“[Community Twitter handle] was really proactive in telling which schools were shut, which roads were open and they sort of became the curation point. You can really just follow them. They were saying, ‘tweet us and we’ll push out the verified information’.” P8, UK floods

Whilst previous research has identified similar needs for local information (Bruns, Burgess, Crawford, & Shaw, 2011; Heverin & Zach, 2012; Shklovski et al., 2008; Vieweg et al., 2010) these findings reveal that social media was used because it was a familiar information tool before the crisis event. Therefore, participants could leverage their knowledge of existing features like hashtags and Pages. This allowed them to actively seek out specific and relevant crisis information and depend less on traditional media which mainly presented general crisis information. As a result, social media offered participants a high degree of control over the type of content they could access to fulfil crisis-specific information needs.

Local Peer Networks

All participants reached out to local peer networks – their own personal network of friends, family and acquaintances – on social media. Local peers provided quick access to hyper local information, especially when participants were monitoring the crisis remotely. For example, P9 immediately turned to Facebook to access his New York network of social contacts when he heard about a building explosion in the area:
“I was in London at the time and I actually caught wind of it on social media. A friend who lives on the Upper West Side tweeted about a Facebook post he saw. So then I immediately went to Facebook because it’s my network, it’s New York based. [My peers] kept me up-to-date with what was happening right there.” P9, Harlem building explosion

In addition to hyper local information, peers offered immediate information about the crisis. This was something many traditional information sources were unavailable to provide; they often could not keep up with unfolding events. This aligns with previous research which suggests individuals turn to their peers during crisis events because traditional media and official sources cannot meet specific information needs (Palen, Vieweg, Liu, & Hughes, 2009; Shklovski, Palen, & Sutton, 2008). During the UK floods, P4 checked social media throughout the day to follow live updates from peers:

“The council wasn’t terribly great. They told you what was happening but not in real-time. Whereas locals who were affected, you could quickly find out what was going on. It was a much more useful way.” P4, UK floods

Peer networks also helped assess the well-being of friends and families in crisis zones. Participants in affected areas used social media as a tool to quickly broadcast their safety to others. Participants away from the crisis event used social media to check if a loved one was active on social media or asked peer networks for updates. For example, during the Boston Marathon bombing, P7 was notified of a friend’s safety through Twitter:

“...and then one of my friends on Twitter sent out a tweet about one of my high school friends that was running that day and he said, ‘I just got word that Jimmy is safe’, so then I knew he was fine.” P7, Boston Marathon bombing

All participants said they naturally trusted information from peer networks over information from other sources. This was due to established trust with these individuals. Participants also believed peers had less to gain from sharing false
information. Unlike media sources, they were not motivated to sell a story; they were interested in helping others in a similar situation. P6 highlighted this when she explained why she relied on peer information over other sources during the UK floods:

**So if you saw a photo from your friend and a photo from [the local newspaper], which would you trust?**

“From a friend, definitely. Because a newspaper, they want a story but my friends and I want facts. So I wasn’t interested in the sensationalism. I just wanted to know if I could get on my road tonight. We all just wanted real information.” P6, UK floods

**Citizen Journalism**

Social media also provided participants access to wider local networks beyond their peers. This included following and sharing live updates and other reports from the public in crisis affected areas. This type of public reporting of events on the internet is known as citizen journalism. All participants relied on these accounts during crisis situations. Like their peer counterparts, these accounts offered more timely and objective information than traditional information sources. During the London riots, P3 followed several of these sources on social media. He explained why they were useful:

“So it was stuff like ‘just seen guys in masks’ or ‘car on fire in this street’, ‘bla bla, window just smashed in this shop’ [...] In comparison with an hour later, the 6 o’clock news would come up and say ‘someone’s broke into a pub in [local area]!’ and some footage of it I had already seen on social media” P3, London riots

All crisis events discussed with participants for this study took place in major urban environments. However, P9 suggested traditional information sources often ignore news from areas with low visibility. He relied mostly on citizen accounts during the building explosion in Harlem, New York because mainstream media failed to report on the area:
“[CNN had nothing] because CNN international won’t comment on a small, poor neighbourhood in New York with a building explosion.” P9, Harlem building explosion

During political movements, social media often provided citizen reports from demonstrations. All participants cited an important benefit of these reports included anticipating whether an area was safe for protesting. P12 also followed citizen accounts during the protest movements in Turkey. The public recorded protest activities and some were used to hold authorities accountable for acts of violence toward demonstrators:

“There [were] videos going around [about police brutality], there was one video, where it showed a guy actually getting killed by police; you could see how the police shot the guy. [...] I think that’s good to have; it’s something to hold them responsible.” P11, Turkey protests

Hyper local information and reports from peers and the public provided more timely and accurate information that participants trusted more than official information sources. They helped fill information gaps left by traditional media and provided real-time updates of the crisis and the well-being of loved ones. In addition to these benefits, participants also cited using information on social media to help make sense of the situation through situational information gathered and shared online.

Situational Awareness and Sense-making

Situational awareness is an individual and collective state of understanding the wider landscape of a critical situation (Vieweg et al., 2010). Situational awareness often helps individuals make sense of a given situation. Participants were often confused during the crisis. Many sought information related to situational awareness on social media to better understand the crisis. Social media’s ability to offer real-time information, provide diverse accounts and its interactive features offered participants a more complete picture of the crisis and allowed them to make sense of it with other individuals.
Participants used social media through all stages of crisis events to gather situational information. For example, P8 was having dinner with members of his local community when the London riots broke out. They saw TV reports of looting on the street and noticed something serious had erupted. Almost everyone at the dinner used social media to make sense of the situation. Social media gave them immediate access to peers, the public and local journalists for live updates. They also reached out to others on social media to collectively make sense of the emerging events:

“So first of all we were looking at Twitter and a local journalist. And he was at the front line [...]. So he was tweeting, live tweeting the entire thing. Then there were other people who were close to the scene who were uh, tweeting and such. [...] So we started tweeting out to different people. We were following [Twitter] to get a sense of what was happening and a handle on what was happening. And we were tweeting out to others and talking about it with them and amongst ourselves.” P8, London riots

Social media was also used throughout crisis events to make sense of its developments. For example, P13 captured daily videos of the UK floods and posted them to Facebook. She documented water levels and talked to neighbours about the situation. When asked why she thought these videos were so well-received by the community she responded:

“It showed them what was happening, how high the water was, and what people thought of the situation as well. I mean I think everyone was just looking for information to understand what was happening and how it affected them. These videos gave them that.” P13, UK floods

P1 acted as an information hub for situational information during a bombing in Norway. She was on a train traveling to Norway when she discovered news about the bombing on Twitter. She informed other travellers who were unaware of the crisis. People naturally gathered around her laptop and they collectively made sense of the situation by monitoring tweets and discussing the situation together.
Social media’s interactive features like comments, replies and Facebook messenger also helped facilitate collective sense-making. Unlike traditional media, participants said they could ask follow-up questions or ask each other about specific information. This allowed them to gather richer situation information and it led to discussions that helped create a fuller picture of the crisis. P2 exemplified this behaviour in his interview:

“Well there's the interaction part of it [...] you can ask a question, rather than just being the recipient of information [...] relying on what the newspaper says [...] And if somebody, or me, didn't understand something [...] then I would ask other people what it really meant or if they knew anything else about it. It was good to find out from people who knew more from you and we would just sort it [out] together.” P2, UK floods

Other studies have revealed that people share content related situational awareness and sense-making on social media during crisis events (Heverin & Zach, 2012; Vieweg et al., 2010). These findings suggest why participants used social media to make sense of the crisis events. Through social media participants could access information from many sources to gain an overall picture of the crisis. Social media also allowed participants to connect with each other and interact. This facilitated collective sense-making among peers and strangers affected by the crisis.

Navigation Information

Local infrastructure was often affected during many crisis events, especially natural disasters. A major use of social media, therefore, was to help with practical travel plans. It helped them receive timely updates on what roads were open, which routes to take and what public transportation was available. Although official transportation sources provided some information, it was sometimes inaccurate and unable to keep up with the changing environments.

During the UK snowstorms, public transportation experienced delays and service disruptions. As a result, citizens turned to social media for live transportation updates from locals. P8 described citizens as information ‘snipers’ peering out their windows, observing the situation and then exchanging information with others in real-time. P15
described a similar situation during the UK floods when neighbouring areas shared infrastructure updates with each other on a crisis-related Facebook Page.

“So for example [...] people were saying [on Twitter], 'is the bus still running?' So you had people themselves in the local area saying 'I've just seen the 434 [...]'. Then someone in the next town would say, 'I've just seen a bus go' and then people would say, 'well, has it reached the next town?' and then you'd have someone in the next town say, 'I'm looking out my window and I'm on the route and I can see it stopped there,' and then someone here would say, 'well is hasn't come here yet.'”

P8, UK snowstorms

“Well most of the area was no go [...] All the roads were closed really. And the surrounding areas were affected too, so we worked with [those areas] to keep information flowing [on Facebook]. So it would be like, 'so and so bridge is open now' then 'oh no wait, it's closed again' and we would keep [updating each other].”

P15, UK floods

Peer-led navigation assistance on social media was also used when participants monitored crisis events remotely, but had friends and family in the epicentre of the crisis. Those in the midst of the crisis were often unaware of the developing event or did not have access to live updates. For example, during the London riots, P1’s daughter was near the riots and planned to bike home with her boyfriend. P1 caught news of the riots on social media and used Twitter to direct her daughter and her daughter’s boyfriend home to safety:

“They didn’t know what was happening, but I found information on Twitter and where to go, what are the hot spots, and so I would text them and [...] I led them all the way home. I followed photos and things people posted on Twitter so I knew bombs [thrown by people] were there so they could avoid it.”

P1, London Riots

Participants also used social media for remote navigation to inform loved ones who did not have access to social media. P14’s family was in an area affected by the UK floods. Her parents are not social media users, but required updates on road
closures in the area to plan transportation routes. Traditional information sources were unreliable as they did not produce timely or locally specific information. As a result, P14 would regularly monitor activity on Facebook and Twitter then provide updates to her parents through text messaging and phone calls.

Most studies have not discussed how those with access to social media help those who do not have access to social media in a crisis. One previous study, however, did reveal that during wildfires, some locals acted as “information brokers” and disseminated information from social media to more accessible community blogs (Shklovski et al., 2008). Those findings and this study suggest that as significant crisis information becomes more available on social media, those with access serve an important role as information hubs for those who do not have access.

**Credibility of Information**

Due to the quick and decentralised way information is shared on social media, credibility was a significant concern during crisis events. All participants anticipated rumours and other inaccurate information to spread during the crisis. Participants attributed this to panic and confusion experienced during a crisis. P13 and others also explained that it was difficult to distinguish rumours from fact during a crisis because of its inherently extraordinary nature:

“So you don’t know what’s credible and what isn’t. You just have to use it to prepare, because nobody knows. I mean this is such a strange situation and things are constantly changing.” P13, UK floods

During political crisis events, participants referred to an increase in propaganda and other manipulations to information. Participants felt that governments and mainstream media intentionally fed citizens misinformation for personal gains and to pacify citizens. P11 was in Egypt during the Arab Spring protests and described this phenomenon:
“There was a lot of conspiracy around [the protests]. So I was sceptical. There was propaganda too; some governments had mercenaries on the street and a social media team that would provide false information.” P11, Arab Spring protests

Participants generally used common sense and better judgement to discern credible information, but also adopted other verification methods. Many participants relied on other users to confirm or deny rumours. They also directly questioned content from other users and sources. Unlike other information sources, social media allowed them to actively participate in the validation of crisis information.

Many participants also verified information by its source. They tended to trust peer information over other official sources. In addition, they looked at the type of user posting information to assess legitimacy. They also checked how many people posted the same information. P14 described how she used both source and volume to verify information:

"Seeing what other people [said] about it. Was it just one guy or did a lot of people say it? And this probably sounds harsh, but the kind of person saying it. [...] if it was like a 13 year-old girl with One Direction in her handle, then I would believe it less. That sounds harsh, but it’s true.” P14, UK floods

Several participants also relied on multimedia content like photos and videos to help validate rumours. This content was typically posted by peer networks versus authorities or the media. P6 described how she used multimedia during the UK floods to verify information:

“My friend was right next door to the waterworks [...].She posted photographs so we could see it wasn’t just a Chinese whisper that got out of hand. It really was this bad.” P6, UK floods

However, even though participants relied on citizen information many also viewed authorities and mainstream media as credible information sources. P11 generally trusted information from individuals but also admitted she verifies information through official sources. Many participants understood the nature of these
sources limited them from producing timely, specific and accurate information. As a result, these sources were not completely dismissed during crisis events.

In fact, trust in these sources was fragile. They would rely on user-generated information if authorities and traditional media failed to provide accurate information early in the crisis. P15 highlighted this relationship during the UK floods:

“People were not believing what the official agencies were telling them anymore. There were a few mistruths, they weren’t blatant lies but they tried to tell people things to keep them calm that weren’t entirely true. So we would filter it and say ‘no, you can’t tell them that but you can tell them this’. ” P15, UK floods

4.3.1. Summary - Social Media as Information Space

Findings from this section reveal participants experienced a variety of information needs during the crisis events. They had general information needs to help understand the course of the crisis events; personal information needs to verify the well-being of others; and information usage needs to connect with others (Thelwall & Stuart, 2007). Unlike traditional information sources, social media offered participants a choice of sources to select from in order to satisfy these needs. These sources often provided more timely, local and accurate information than traditional sources could provide. In addition, these findings suggest that social media gave participants the power to interact with others in order to better understand information and collectively make sense of the situation.

4.4 Social Media as Psychosocial Space

The second theme identified in this study was social media acting as a psychosocial space for participants. Participants highlighted emotive and therapeutic needs throughout the crisis events. Psychosocial relates to an individual’s psychological well-being in relation to their social environment and interactions (Neubaum et al., 2014). In crisis situations, psychosocial support facilitates resilience in individuals and communities (Gauthamadas, 2005). Interactions with others on
social media helped individuals and communities cope with and rebound from the crisis.

**Resilient Communities**

Crisis events affect whole communities. While dealing with a crisis situation can be a solitary pursuit, participants described a convergence of individuals that resulted in an increased sense of community. This community spirit led to feelings of solidarity and the strength to rebound from the crisis. Participants described community spirit as an offline and online phenomenon:

“I mean I think people tend to come together both online and offline [during a crisis], because we were all in it together. And we all had to deal with the same problems. And then, yeah, people, I thought were more likely to help other people...It brought people together.” P2, UK floods

In offline contexts, people ran into each other on the streets and in shops and asked how they were handling the crisis, as well as to offer each other support. Often these social interactions were between strangers as crisis events offered permission to connect with others through a shared experience. This behaviour translated online, as some participants used social media to connect with people outside their immediate peer networks. In addition to a shared experience, the absence of typical social barriers in a virtual environment like social media helped facilitate new social connections. One participant during the UK floods described her experience with this on Facebook:

“You talk to people you wouldn’t talk to in the street, because [...] you’re putting out this energy to talk to them directly. It’s easy to sit behind a computer screen and say, ‘oh yeah, it was awful today’ and Joe Blog up the road would say, ‘yeah, I’m really with you today’. So you get that internet, those internet friendships. They’re just as real as any other friendship.” P13, UK floods

P2 also used Twitter during the UK flood to connect to strangers. As a more public-facing social media site it allowed him to find others affected by the crisis through hashtags specific to his area. P8 used Twitter during the UK snowstorms for
similar reasons. He leveraged the shared experience and sense of community that emerged to reach out to strangers (see figure 4.1.).

![Tweet from P8 to a stranger, UK snowstorms](image)

Figure 4.1: Tweet from P8 to a stranger, UK snowstorms

The shared experience and community spirit during the crisis also increased interactions with neighbours and local acquaintances. Over half the participants reached out to local contacts on social media to share supportive words, offer help and discuss the crisis event. Participants sent and received direct messages or conversed on crisis-related Facebook Pages and Groups. In general, participants felt less alone through these interactions; it was reassuring to know locals were concerned about them and were dealing with a similar situation. While many interactions between friends, acquaintances and strangers subsided after the crisis, P2 explained the effect they had on individuals and the community:

“We don't contact each other as much now as we did at the time, but at the same time, I feel more linked with people I wasn't beforehand and we have something in common and experienced this thing together. People remember that and there is some goodwill left over from that.” P2, UK floods

These social interactions both offline and online led to a spirit of solidarity amongst communities during crisis situations. As participants connected to peer and wider networks, they felt less alone and communities united to face the crisis together. As a result, these social interacts helped build resilience within individuals and their
local area. Solidarity and resilience was also built through the acts of goodwill which emerged on social media during the crisis.

**Individual Acts of Goodwill**

Community spirit during the crisis was facilitated through individual acts of goodwill. Social media allowed participants to offer help and advice to those affected through social media. Its ability to reach peer and wider networks facilitated these gestures in a way offline interactions could not. It allowed participants to reach a wide audience and it also gave others the choice to respond if they were willing and able.

Social media posts and tweets typically included requests for aid or offered time and services to those in need. Individuals also sent out Tweets and posted status updates on Facebook to identify areas in need of food and other supplies. P8 described this phenomenon during the UK snowstorms and floods:

> “You had people saying ‘we’re going to try to clean out the drive of an elderly person’ or ‘we’re going to do a cleanup at this area’. And you had individuals within the community who had the means, either the strength or the vehicle, who [said], ‘how can I help all of you?’ or ‘do you need me to check on someone?’ or ‘what can I get you?’” P8, UK snowstorms and floods

P11 described similar activities during the Dresden floods. People offered equipment and other supplies online to help others in the area. Participants and others in affected areas also broadcasted runs to local shops to ask if they could pick up supplies for others. A sample tweet offering assistance during the UK snowstorms is shown in figure 4.2.

![Figure 4.2: Tweet offering help during Uk snowstorms](image-url)
During protest movements, participants used social media to offer help to injured activists and to coordinate supplies needed for demonstrations. P12 described this behaviour during the protest movements in Turkey:

“Twitter, [...] they would say, ‘on this street someone is hurt we need help’... Or if [protestors] were out of food or water [...] people would post like, ‘if you’re coming, come with [this] stuff [to give] to other people.’” P12, Turkey protests

Advice was also shared on social media to help others during the crisis. Offering advice about sandbags was mentioned by all participants during the UK floods. Councils did not provide sufficient information about receiving sandbags. As a result, participants relied on social media conversations to learn where they could obtain them. P6 said if it was not for information shared on Facebook her community would not have known how to obtain sandbags. P6 also used social media to understand what happened to her sandbags when they did not arrive. Her social media network was quick to notify her that someone had stolen them upon arrival. In addition to spontaneous requests and offers for help and advice, participants also cited larger relief efforts coordinated by communities on social media.

Community-led Acts of Goodwill

Some participants engaged in community-led relief efforts on social media. These efforts were typically coordinated by individuals or groups of individuals. Often, these ad-hoc leaders were already socially connected to the community. For example, one participant was approached by another member of the community in a supermarket to assist with volunteer efforts led by the local church. She soon realised the volunteer efforts required a better mechanism to recruit to volunteers. As a result, she launched a Facebook Page to coordinate help from the area and across the country. The Page helped the community build a database of 250 skilled citizens available to assist where help was needed most.

The participant explained the demand for relief and volunteers was too large for local authorities to keep with, but the need and willingness to help was present
throughout the local community and surrounding areas. As a result, social media became a tool to centralise relief as it provided immediacy and access to a wide audience. This was something offline efforts were unable to offer:

“[Social media offered] speed and use. [...] I could put a message out to our 200 people, ‘we really need a jet wash’, [...] and they would share it with their contacts [...] and further afield. Just to put a message on Facebook and have 200 people share it, we could have never reached that without it.” P15, UK floods

Similarly, during the Dresden floods, participant 11 used Facebook Pages to help locals in her community. She was evacuated from her home, but upon return spent her free time aiding locals. Her community used the Page to provide food, water, mattresses and other supplies to those in need.

Social media was allowed individuals to assist remotely from their homes. This allowed those unable to reach city centres due to infrastructure closures an opportunity to participate in relief efforts. These individuals waited for relief requests such as torches and mattresses to appear on Facebook Pages then reached out to their social networks to help fulfil requests.

Two participants also mentioned a flash clean-up event organised exclusively through Facebook during the London Riots. Individuals used a Facebook Page to gather volunteers in an effort to clean streets affected by the riots. Participants were impressed and the immediate mobilisation of around 300 people through a single Facebook Page.

However, coordination was not always easy on Facebook. P11 found coordinating efforts a bit ‘messy’ because Facebook lacked collaborative document features. Volunteers used a shared Google document but some were unable to access it because of permission settings. Coordination on P15’s Facebook Page ran smoother, but she accredits this to logistical skills she developed an events promoter. She was, however, unsure if posts from the Page reached all of its followers.
The lack of mapping features available on Facebook and Twitter was also a limitation to coordinating relief. P11 said when citizens could not find mapping features on Facebook, they used a public Google map (see figure 4.3) to identify areas where food or blankets were available. P15 used physical maps to mark relief areas and posted them to Facebook; however, sometimes help was no longer needed by the time the information was posted online.

Figure 4.3: public Google map created for Dresden floods

There was also one significant limitation to social media cited by several participants: it excluded the elderly population. As a result, it presented an asymmetrical representation of the community. To compensate for this exclusion, some participants shared efforts from Facebook and Twitter to ensure the elderly were taken care of and accounted (see figure 4.4).

Figure 4.4: Tweet during UK snowstorm

These efforts were helpful, but some elderly citizens were surprised by and sometimes wary of volunteers because they were unaware of these relief efforts coordinated online:
“Some [of the elderly] were really surprised and some were pleased and some were scared because of the fear of looting, and then these strangers came up to them. So we made sure we would pacify them or bring the Army with us, just so they could say, ‘these people are here to help you’.” P15, UK floods

Emotional Support and Regulation

Half of the participants used social media to communicate emotional states with peers and strangers to help cope with their situation. Both negative and positive emotions were shared throughout crisis situations. Negative emotions included panic, anxiety, worry and anger. During political crisis events, three participants cited examples of citizens expressing anger toward the government on social media. During a series of protests in Turkey, P11 said victims of police brutality during demonstrations used social media to voice their anger and disappointment. Friends and others exchanged stories or offered comfort:

“Facebook is like stories, like long stories people tell about their experience or anger against the government... Like if a police attacked them or they were hurt they would [...] write long things and then my friends [...] and I would share it and we would discuss it and share how we felt too.” P12, Turkish protests

During the Boston Marathon bombing, P7 reported several expressions of outrage and disbelief expressed on Twitter and Facebook. Emotional content was posted by those directly affected by the crisis and those around the nation, including high-profile personalities like government officials and celebrities. Social media provided a platform to release these emotions in real-time within their peer networks and to a more public audience. This content was liked, shared and commented on by others who expressed empathy and sympathy. Figure 4.5 includes a sample of emotional tweets from the Boston Marathon bombing
However, participants said both they and others used social media to read and share positive emotions during crisis events as well. These included message of hope, encouragement and sometimes humour to lighten the mood. During the Boston Marathon Bombing, P7 referenced a Facebook post by a well-known comedian which offered hope and encouragement. This post is shown in figure 4.6.
During the UK floods, firemen became part of the community’s social fabric as they provided ongoing flood assistance. P6 recounted an example of how she and other locals used social media to show gratitude toward firefighters from surrounding areas who worked hard to keep her community safe:

“We wanted to appreciate everyone working 24/7 so we did posters. Posted them on Facebook and encouraged other people to do the same. When I put them up a friend who lived further out the borough, said she was really touched because her husband is a fireman who was working in the area and [he was] so pleased that we had taken the trouble and recognised what they did, and it boosted them when they were tired and cold and wet an hungry and they thought, ‘we did this for a reason.’”

P6, UK floods
Several participants also reported content making light of the situation on social media to offer relief from serious and emotionally heavy content. For example, during the UK floods, an anonymous citizen created a Twitter handle personifying a flooded underpass. The handle tweeted out satirical content which offered respite from the crisis situation. The handle was well-received by the community, acquiring over 300 followers and several @ mentions and retweets. Three participants involved in the floods referenced the handle to exemplify positive content shared during the crisis:

“When everything was quite gloomy and everyone was worried, [it offered] a little bit of a light heartedness and in a non-offensive way which was a nice touch [...] It lifted our spirits.” P4, UK floods

A local fire station also added humour to the situation and posted a humorous tweet shown in figure 4.8.

Figure 4.7: Tweets from satirical Twitter handle

Figure 4.8: Humorous tweet from local fire station
Participants also found comfort through humour during more tragic events like the Boston Marathon Bombing. One participant followed a group of local bloggers on Twitter during the crisis. They tweeted frequent news updates about the attack, but also added satire to their reports. P7 explained the emotional effects of their content:

“It was important because the whole vibe after the event was like pretty depressing and it felt like we were under attack [...] But just their commentary [...] they twisted it to help people cope with the event so it wasn’t so serious. Which, I kind of liked that because it was more calming.” P7, Boston Marathon Bombing

Posting lighter content to social media allowed users to reach a wider audience and boost morale in a more amplified way than through other communication methods. It also allowed interaction, as people favourited, retweeted, commented on and shared these messages. This interaction further disseminated content and showed the public’s receptiveness to lighter content in the midst of disaster and tragedy. Sharing and reading heavier emotional reactions to the crisis was also cathartic for participants. It helped them process their feelings and share empathic and sympathetic concern toward those affected by the events.

**Emotional regulation**

Social media also helped participants regulate individual and collective emotional reactions to the crisis. Common emotions cited in crisis events were panic, fear, worry, frustration and confusion. People were panicked and often quick to share any information they acquired. This heightened anxiety in individuals and caused others
to worry. Individuals worked together to sort out what information was fact and what was rumour. Others also used social media to help reassure those affected by the crisis

“‘The school fields are flooded [...] it’s going to be coming down the hill in a minute,’ but when you actually asked her a question, ‘have you seen the hills are flooded?’ ‘Oh no, it’s what somebody else said,’ ‘Ok, so let’s clarify this ourselves’...then somebody else would say, ‘I haven’t actually seen the hills flooded’ [...] ‘I’ll have a look and if it’s not really flooded, then everybody stand down’. P6, UK floods

“[There was] just a lot of panic. And we kept reassuring people like ‘don’t worry, you will get things’ and tried to keep them calm. [...] There were also some stories like ‘oh, I used to live in that area and it flooded and it’s going to be ok.’” P15, UK floods

Participants also used social media to help regulate their individual emotional reactions. P9’s girlfriend worked near the building explosion in Harlem, New York. He was in a state of panic and fear because he did not know whether or not the explosion had reached her office. Through photos and videos posted on social media, he was able to obtain more precise information so he could regulate his reaction to the news. Through multimedia P14 was also able to assess the severity of the impact the UK floods had on a close friend which elicited a deeper emotional reaction

“Giving me a video gives me an exact idea as to the boundaries of the crisis, without me having to metaphorically sh*t my pants; thinking that it’s an entire block and not just a building.” P9, Harlem building explosion

“Until you see it you don’t really know what it’s like. Like my friend [...] said, ‘oh my house is under three feet of water’, and I [did not think] much about it. But [...] seeing photos of her wading through her garden [I thought], ‘oh no, yeah, that’s really bad’.” P14, UK floods
Participants expressed several common emotions felt during crisis events: panic, confusion, fear and anxiety. As a result, there was a need to share and regulate emotions in order to provide emotional relief. Social media gave participants the power to connect with others going through a similar situation and offered participants the choice to share their emotions and collectively process them. These findings extend research on emotional regulation provided by Neubaum et al. (2014).

In addition to emotions like panic, confusion and anxiety these findings suggested the positive impact light-hearted content had on emotional relief and well-being. Satirical, humorous and inspiring content lifted participants’ spirits and offered a bit of respite from the crisis. The use and benefit of light-hearted content has been largely absent from previous work.

4.4.1. Summary – Social Media as Psychosocial Space

Findings from this section revealed the psychosocial needs participants sought to fulfil through social media. Participants expressed a need to feel less alone and part of their community during the crisis events. As a result, they used social media to reach out to others and to seek and offer aid and emotional support. It provided participants the freedom to interact with their exiting social networks and with others locals affected by the crisis.

4.5. Discussion of Findings

This study aimed to uncover underlying phenomenon and motivations for social media use in a range of urban crisis events. Through 15 in-depth interviews, the study revealed that social media acted as a significant space for participants to fulfil information and psychosocial needs in times of crisis. In line with uses and gratifications theory, this study revealed that participants accessed social media to fulfil specific crisis-related needs (Katz, 1959; Katz, Blumler & Gurevitch, 1974).
Fulfilling Information Needs through Social Media

General, personal and information usage needs described by Thelwall and Stuart (2007) were common needs expressed by all participants. They required information to understand the crisis and to make sense of the situation. While other studies have shown how people use social media to meet these needs (e.g. Heverin & Zach, 2012; Hughes & Palen, 2009), this study revealed why participants relied on social media to access crisis information. The findings suggest social media offered participants the freedom to choose from various information sources. Participants selected sources based on specific information needs, and could share user-generated content with others. They were thus less dependent receivers of information and more active participants of information on social media.

Participants also expressed a need for local and real-time information as crisis events rapidly unfolded. Through social media they were able to access live updates and reports due to the media’s immediacy. Similar to findings from Shklovski et al. (2008), this study also found that social media offered participants more local information than other sources. These findings suggest participants could choose to complement traditional sources with more timely, accurate and specific information exchanged through social media.

However, credibility of information was a major concern for participants during the crisis. While other studies have analysed the propagation behaviours of false information (Mendoza et al., 2010), this study revealed verification methods adopted by participants. Although social media allowed rumours to spread quickly, it also allowed users to participate in verification activities; participants could actively verify information by directly questioning sources or asking others to confirm.

Lastly, many participants were motivated to use social media during crisis events because it was a familiar technology. Participants did not think to search for other technologies because of the reactive nature of the crisis situation. They relied on existing knowledge of the media to quickly access crisis-specific information as events unfolded. This knowledge thus allowed participants to more efficiently seek
and gather information throughout the crisis. Familiarity with social media as a significant motivation to social media use in crisis events is not discussed in other research.

**Fulfilling Psychosocial Needs through Social Media**

In addition to fulfilling information needs, this study suggests social media was an important space to fulfil psychosocial needs during crisis events. Participants expressed a need to reach out to others and their communities throughout the crisis. They used social media to build a sense of community through interacting with others and providing assistance to those in need. Participants also interacted with local friends and strangers on social media to provide each other emotional support and relief.

Previous work has also investigated how people have used Twitter and other ICT to find community and provide aid during crisis events (Shklovski et al., 2008a; Starbird & Palen, 2011; Vieweg et al., 2010). However, this study has revealed further motivations for using social media to fulfil needs to connect with and help others during a crisis. Through social media, participants had the choice to be active members of the community. They could ask for aid and respond to individual help requests when they were willing and able and despite physical boundaries. Participants were also able to organise large-scale community relief efforts through social media. They used the media because it gave them the power to easily connect to community members and the freedom to centralise their own relief efforts when official crisis authorities could not provide support.

In line with the concept of social sharing of emotions (Rimé, 2009; Rimé, Mesquita, Philippot & Boca, 1991), the negative experiences of these crisis events influenced participants’ needs to exchange their feelings on social media. There was a need to share and regulate a variety of emotions in order to provide emotional relief. Similar to previous work by Neubaum et al. (2014), this study also discovered both negative and positive emotions were shared throughout the crisis. Social media allowed participants to connect with friends and strangers experiencing a similar
situation and offered participants the choice to share their emotions and collectively process them. These interactions helped participants better cope with and recover from the crisis.

Neubaum et al. (2014) also discovered people used social media to share, regulate and process emotions following a single crisis event; however, the researchers suggested further studies across a range of crisis events were needed to corroborate their research. These findings attempt to generalise their research through similar findings. Heverin and Zach (2012) also noticed users shared their emotions through a content analysis of tweets exchanged during three campus shooting; however, insights into why emotions were shared on social media were not identified.

**Agency to Fulfil Needs through Social Media**

These findings suggest social media provides high levels of control, freedom, choice and power to fulfil information and psychosocial needs. Thus it can be concluded that the underlying phenomenon motivating participants’ use of social media during crisis events was the agency the technology afforded them to fulfil these needs. This conclusion aligns with uses and gratification literature (Ruggiero, 2000) which suggests social media provides higher levels of freedom than other media for users to actively gratify needs. However, as social media use becomes more prevalent during crisis events, it is important to consider those without access and those who choose not to access social media as they are unable to benefit from this agency to fulfil significant needs during crisis situations.
CHAPTER 5. IMPLICATIONS AND CONCLUSIONS

5.1. Overview

The previous chapter provided main findings from this study as well as a discussion of the findings. In section 5.2 this chapter provides design implications based on findings for enhancing social media in crisis events. Section 5.3 discusses limitations of the research and further work. Conclusions are presented in section 5.4.

5.2. Implications for Design

This research identified agency as a main motivation influencing social media use in crisis events. Most participants were satisfied with the amount of agency social media afforded them to meet information and particularly psychosocial needs; however, practical implications can be drawn to inform high-level recommendations to enhance crisis-specific social media use:

- **Include those without access to social media.** As social media gains popularity as a central resource during crisis events, it is important to ensure those who do not have access can still benefit from its ability to fulfil crisis-related information and psychosocial needs. Tools and features to help share information from social media sites to other communication technologies could afford individuals more agency to disseminate content to those who do not have access to social media in crisis events.

- **Provide tools to validate information.** All participants were concerned with the credibility of information on social media sites during crisis events. Tools embedded in social media sites may provide users more control over the evaluation of credible information. Previous work has suggested automated ways social media could determine factual information based on the source and volume of shared content (Gupta & Kumaraguru, 2012). Additionally, social media could integrate tools allowing users to vote or rate perceived credibility or confirm validity.
These features would allow for more participatory content validation since participants already naturally engage in fact-checking activities with peer and wider networks to validate content.

- **Include native crisis features on social media sites.** Social media sometimes lacked crisis-specific features which could offer users more agency during crisis situations. Some participants used third-party applications and tools; however, most did not think to look outside the social media platform. Crisis-specific features native to social media sites may allow for more control and freedom within the sites and offer less reliance on cross-platform tools (e.g. public Google Maps) to help fulfil needs during crisis events. Inspiration for native crisis features could be drawn from existing crisis applications and technologies like Ushahidi, an open source mapping tool relying on crowd sourced data (www.ushahidi.com).

**5.3. Limitations and Future Work**

This study aimed to recruit participants from a variety of crisis events. While participants were involved in several unique crisis events, a majority of participants were involved in the recent UK floods. Additionally this research relied solely on participants’ memories of social media use during crisis events. Due to the unpredictable nature of crisis situations it was a challenge to conduct research with a real-time crisis event. Future work could address these limitations and generalise findings by using a larger sample of participants from more varied international crisis events. In addition, future work could rely on multiple methods to investigate use during a real-time crisis event. For example, qualitative interviews could be used with content analysis and diary studies for more accurate insights.
5.4. Conclusions

This study aimed to investigate the underlying motivations influencing social media use in crisis events through the analysis of 15 in-depth interviews. Previous work has relied on content analysis, surveys and some interviews, but a Grounded Theory approach and thematic analysis of semi-structured interviews allowed for richer insights into the use of social media in crisis events. Findings revealed that social media acted as a significant virtual space to fulfil crisis-related information and psychosocial needs. Social media use helped participants better understand the crisis, connect with others and cope with the situation.

While some findings from the study align with existing literature, it extends previous work by revealing agency as a key motivation influencing social media use in crisis events. Social media offered users the choice, power, freedom and sense of control over what information to seek and gather, as well as who to connect to for emotional support and a sense of community. Design recommendations were also provided to enhance social media use in crisis situations. This research contributes to a growing body of research on social media use during a range of crisis events, and it is the first to provide social media design recommendations unique to crisis-specific needs.
REFERENCES


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APPENDIX A – SAMPLE INTERVIEW SCRIPT ITERATIONS

Initial Interview Script

Demographics

Additional demographics not included in the survey
1. What is your age?
2. How long have you lived in the area?
3. What is your occupation?
4. How long have you used social media?
5. What social media sites do you use most often?
6. How did the crisis affect you?

Social media use during the flood
7. Have you used social media during a crisis event before the floods?
   a. Please describe your previous use
8. What motivated you to use social media during the floods?
9. Why did you use other forms of media (e.g. magazines, newspapers, tv, etc.) during the floods? – only ask this if they mentioned in the survey that they used other forms of media
10. What did social media provide during the crisis that other media did not?
11. What was your preferred way to obtain and share information during the crisis?
12. Describe a typical day during the flood. How did you find and share information throughout the day?
13. If you created a social media page or group/shared information:
   a. Why did you create this page or group/share information?
   b. What type of content did you post?
   c. Who engaged with your channel?
   d. How did you engage with them?
   e. Did you previously know your followers online and/or offline?
   f. What was the most beneficial aspect of creating this page or group/sharing information?
   g. What was the biggest challenge in creating this page or group/sharing information?
   h. What happened to this page or group after the floods?
14. If you followed social media pages and groups:
   a. What were the main pages and groups you followed?
   b. Did you know the parties behind these pages and groups offline?
   c. How did you find these pages and groups?
   d. Why did you decide to follow them?
   e. How did you engage with these pages and groups?
   f. What benefits did you get from following these pages and groups?
g. How did you engage with these pages and groups after the flood?

Community
15. How do you usually find information about your local area?
16. How would you describe your local area and the sense of community here?
17. How did the sense of community feel during the floods?
   a. How did you interact with the community?
   b. How did the community interact with each other?
   c. Did your social media use influence any offline activities?
18. How would you describe the sense of community after the floods?
19. What is your relationship with the community – how do you typically engage with residents and participate in the community?
Final Interview Script

Demographics
1. What is your age?
2. What is your occupation?
3. How well do you know the area affected by the crisis event?

Typical social media use
4. What social media sites do you use most often?
5. How long have you used these social media sites?
6. What do you typically use social media for?
7. Would you call yourself a novice, intermediate or experienced user?

Crisis information
1. Please state the crisis event(s) where you used social media
2. Please describe the crisis event(s)
3. How did the crisis personally affect you?

Social media use during the crisis event(s)
1. Which social media sites did you use during the crisis?
2. Did you search for or access other crisis websites (Ushahidi.com, Google Public Alerts, etc)?
3. If not, why did you use social media instead of going to other sources?
4. Describe how you used social media during each crisis event – think of a typical day or days, how would you use social media throughout the day?
5. How did social media help you find information about the crisis?
6. What were the main benefits of using social media during the crisis events?
7. Did you use other media (e.g., newspaper, tv, radio) during the crisis?
8. What did social media offer that those sources did not?

Social media content
1. How did you find information on social media sites?
2. What is easy, ok or difficult to find information?
3. What content did you look at (e.g interviews, articles, photos, videos, etc)?
4. Why did you look at that content?
5. Who did you follow during the crisis - what types of people, organisations, pages, etc?
6. Why did you follow them?
7. How concerned were you about the accuracy or credibility of the content?
8. How did you decide if it was true or a rumour?

Social media community
1. How did you interact with others on social media during the crisis?
2. Were there specific social media features that allowed you to connect with others during the crisis?
3. Can you describe the types of conversations you engaged in or witnessed on social media during the crisis?
4. How would you describe the sense of community during the crisis both online and offline?
5. What words would you use to describe how you and others felt during the crisis?

Using social media sites
1. How did you find information on social media during the crisis?
2. What features did you use most often during the crisis event (e.g., hashtags, Facebook events, search bar)?
3. Why did you use these features?
4. What were some limitations you discovered while using social media?
APPENDIX B – EXCERPT FROM SCREENER QUESTIONNAIRE

Social Media Use During Crisis Events

*Required

During which type of local crisis events have you used social media to create, share or obtain information? Please select all that apply.

- Natural disaster events like floods, hurricanes, volcanic eruptions and tsunamis
- Social and political conflicts like riots, protests and wars
- Security threats like shootings and bombings
- Other: [ ]

Please provide a brief description of the crisis event(s).

[ ]

How did you use social media during the crisis event(s)? Please select all that apply.

- Share information (e.g. Retweet, share your own posts, share other posts, communicate on Whatsapp, provide links to information, etc.)
- Obtain information (e.g. follow content on social media during the crisis)
- To create a social media channel related to the crisis (e.g., Twitter, Facebook, YouTube, Flickr group or account)
- Other: [ ]

Please provide a brief description of how you used social media during the crisis.

[ ]
APPENDIX C – INFORMATION SHEET AND CONSENT FORM

Information Sheet for Participants in Research Studies

Title of Project: Understanding Social Media Use in Local Crisis Situations

This study has been approved by the UCL Research Ethics Committee as Project ID Number: UCL/1314/002/MSc WallPanagopoulos

Name, Address and Contact Details of Investigators:
Ellie Panagopoulos, ellie.panagopoulos.13@ucl.ac.uk, 07502220990
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Gower Street, London WC1E 6BT

We would like to invite you to participate in this research project. You should only participate if you want to: choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, please read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or you would like more information.

Details of Study

The aim of this study is to understand how and why people use social networking sites like Facebook, Twitter and YouTube in local times of crisis (e.g. the recent UK floods). The findings of this study will help us understand why people turn to these sites in local times of crisis, and how it affects their sense of community.

If you agree to participate, I will interview you, for about 1 hour, to discuss which social media sites you used, why you used them and how you used them. I'd also like to ask you if your use of social networking sites influenced any offline (non-technology) activities (e.g. meeting up with someone in person) and if you are still engaged in any of those social networking sites.

The interviews will be audio recorded and may be video recorded. Clips from these recordings may be used in presentations at academic conferences, or in teaching. However, confidentiality and anonymity will be maintained. I'll also take some notes during the interview, if you do not wish to have the interview audio recorded please let me know, and I will conduct the interview by taking notes only.

It is up to you to decide whether or not to take part. If you choose not to participate, you won't incur any penalties or lose any benefits to which you might have been entitled. However, if you do decide to take part, you will be given this information sheet to keep and asked to sign a consent form. Even after agreeing to take part, you can still withdraw at any time and without giving a reason.

All data will be collected and stored in accordance with the Data Protection Act 1998.

Please discuss the information above with others if you wish or ask us if there is anything that is not clear or if you would like more information.

If you do decide to take part, please let us know beforehand if you have been involved in any other study during the last year.
Informed Consent Form for Participants in Research Studies

(This form is to be completed independently by the participant after reading the Information Sheet and/or having listened to an explanation about the research.)

Title of Project: Understanding Social Media Use in Local Crisis Situations

This study has been approved by the UCL Research Ethics Committee as Project ID Number: UCLIC/1314/002/MGo Wall/Silagopoulos

Participant’s Statement

I …………………………………………………………………

agree that I have

• read the information sheet and/or the project has been explained to me orally;
• had the opportunity to ask questions and discuss the study; and
• received satisfactory answers to all my questions or have been advised of an individual to contact for answers to pertinent questions about the research and my rights as a participant.

I understand that my participation may video and audio recorded, and I am aware of, and consent to, any use you intend to make of the recordings after the end of the project.

I agree to be contacted in the future by UCL researchers who would like to invite me to participate in follow-up studies.

I understand that the information gathered will be published as a report and in academic papers and I may request a copy. Confidentiality and anonymity will be maintained, and it will not be possible to identify me from any publications.

I understand that I will receive an Amazon voucher for the value of £10 for my participation in this study. The voucher will be distributed after the interview.

I understand that I am free to withdraw from the study without penalty if I so wish, and I consent to the processing of my personal information for the purposes of this study only and that it will not be used for any other purpose. I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.

Signed: __________________________ Date: __________________________

Investigator’s Statement

I … Eli Panagopoulos …………………………………………………

confirm that I have carefully explained the purpose of the study to the participant and outlined any reasonably foreseeable risks or benefits (where applicable).

Signed: __________________________ Date: 12/07/2014
APPENDIX D – TRANSCRIPT EXCERPT

Q30: What other media did you use at the time?
P6: TV and the radio was all too out of date at the time. There was a local website and there was Floodwatch, that was a complete waste of time.

Q31: Really? Why was that?
P6: It had us on moderate alert for before the rain happened and it never changed to high alert. Um, and it just throughout the time said ‘you may be evacuated’. We’d like to know if we are going to be evacuated. In fact, it says exactly the same thing now. So that was useless, it was the one thing we thought would be good and it was useless

Q32: So what did social media offer then?
P6: On the ground information from real people that were actually there. My friend was right next door to the waterworks, where the big stuff happened. She posted photographs so we could see it wasn’t just a Chinese whisper that got out of hand. It really was this bad. Because I’m quite pragmatic so I try not to worry until it really happens. When you actually see that, I know how that works; they cut their finger and by the time it gets around they lost their arm. So to actually see how bad it really was, made me think ‘ok, this isn’t a nasty rumour, this really is happening. Let’s get prepared’

Q33: So what is it about photos…?
P6: They’re real. I could tell you ‘oh, it was horrible, it came up to everyone’s armpit’ but when you see the photograph it’s only up to their ankles.

Q34: What does a photo offer that other content does not?
P6: Credibility. I’m probably quite cynical.

Q35: How did you know what was real information and what was hearsay?
P6: The photos really. And then you sort of get to know who your different friends are and you know who is getting excited by the hype of it all and who is really telling fact. Someone could perhaps post something and somebody said ‘oh, my road is now flooded. ‘The school fields are flooded’ this particular person was talking about my road. ‘it’s going to be coming down the hill in a minute’ but when you actually asked her a question, ‘have you seen the hills are flooded’ ‘oh no, it’s what somebody else said’ ‘ok, so let’s clarify this ourselves’ …then somebody else would say, ‘I haven’t actually seen the hills flooded’ I’ll have a look and if it’s not really flooded, then everybody stand down. My friend was in a terrible state because she was so frightened. So we were able to calm it down by asking the right questions from the right people.