

**School of Management and Marketing
Curtin Business School**

**An investigation of Spontaneous Volunteers' Social Media
Engagement in Emergency Disaster Management**

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**This thesis is presented for the Degree of
Doctor of Philosophy
of
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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007)-updated March 2014. The proposed research study received human research ethics approval from Curtin University Human Research Ethics Committee, Approval Number (HRE2018-0768-01).

Signature: Sumayyah Ahmad

Date: 1 December 2024

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Abstract

Disasters and their associated social and economic impacts, juxtaposed with reduced capacity to respond to them, has forced governments around the world to expand studies on community response to disasters. There is a call to synthesise challenges and look for strategies and innovations in dealing with disasters. Past studies suggest that the general public, directly affected by the disasters, has always participated in self-organised recovery and response efforts and often works parallel to the official emergency responders. Unfortunately, due to their spontaneous and unaffiliated nature, literature on spontaneous community volunteers is scarce and fragmented across various fields; from social sciences to crisis recovery and response.

The past two decades have witnessed a rise in the use of various social media platforms to help with recovery and response activities. Addition of new technologies and applications represents the changing volunteering landscape that is largely unexplored. To bridge this knowledge gap and facilitate evidence-informed practice, this phenomenological study investigates how social media facilitates spontaneous community volunteers before, during and after disasters. It used Social Studio, a social media listening tool, to identify conversations and reach potential spontaneous volunteers from the 2016 Waroona-Yarloop- Harvey Bushfires, the 2017 Grenfell Tower fire, and the 2018 Melbourne Floods. Eighteen in-depth Go Along interviews were conducted, both in Australia and the UK. The Heideggerian phenomenological lens was used to understand what 'being' a spontaneous volunteer who used social media during disaster felt like. These lived experiences were juxtaposed

with social media data shared by the spontaneous volunteers in this study to add richness and expand current knowledge.

The research findings indicate that spontaneous volunteers are not one homogenous group, rather the study identified four types of spontaneous volunteers. All spontaneous volunteers have a strong desire to help and social media facilitated their agency to perform collective action in a timely and sustainable way. The thesis provides a more nuanced definition of spontaneous volunteers, it uncovers how spontaneous volunteers experience the involvement/exclusion paradox and use social media to engage with other volunteers. Social media enabled the community to use their networks for collaborative efforts that supported the official responders and promoted community leadership, inclusivity, and diversity. Findings have theoretical, methodological, and practical significance.

For researchers, the study demonstrates applicability of phenomenology to understand collective action and response and serves as an opportunity to explore phenomenological approach. For practitioners in the field, it closes the gap between research and practice by reframing how to look at spontaneous volunteers. By recording various instances of collaborative efforts, the study highlights the importance of social media in emergency disaster management, its role in facilitating co-production of activities and enabling evidence-informed practice and strategies for sustainable disaster management.

Glossary of terms

Agency	Agency is a sense of autonomy in one's actions (Moore, 2016).
Authentic self	Certain innate traits or desires that are truly indicative of who we are as individuals (Guignon, 2004).
Autonomy	Autonomy consists of one's ability to choose whether to think in a certain way insofar as thinking is acting; in their freedom from obligation within certain spheres of life; and in their moral individuality. (Downie & Telfer, 1971)
Co-creation	A process through which two or more entities constructively exchange experiences, knowledge, resources, competencies, energies, and ideas that advance the quality of plans or policies to solve a shared problem, challenge, or task (Torfing, Sørensen, & Røiseland, 2019).
Co-production of Knowledge	A process of jointly creating new understanding and solutions through collaboration and shared experience, to build collective resilience (Muñoz-Erickson, 2014; Muñoz-Erickson et al., 2017).
Crisis	A disruption that physically affects a system as a whole and threatens its basic assumptions, its subjective sense of self, its existential core (Pauchant & Mitroff, 1992). Threatens a community's or an organisation's core values (Ulmer, 2012)
Dasein	An individual's state of awareness, it is what makes their existence authentic (Heidegger & Macquarrie, 1962).
Disaster	A sudden unforeseen events with natural, technological or social causes that lead to destruction, loss and damage (Alexander, 2005b; UNSDR, 2009)
Disaster phases	Pre-disaster phases are referred to as 'mitigation' and 'preparedness', while the post-disaster phases are known as 'response' and 'recovery' (McLoughlin, 1985; Reuter & Kaufhold, 2018)
Duality of structure (Giddens, 1979)	Social phenomena are not the product of either structure or agency, but of both. Social structure is not independent of agency, nor is agency independent of structure. Rather, human agents draw on social structures (such as rules and resources) in their actions, and at the same time

	these actions serve to produce and reproduce social structures (Jones and Karsten, 2008).
Emergency	Any natural or man-made situation that may result in substantial harm to the population or damage to property (Shen & Shaw, 2004)
Episodic volunteers	Individuals who engage in one-time, ad-hoc or short-term volunteer opportunities (Cnaan & Handy, 2005). This type of volunteering relates to more flexible, short-term, once-off volunteering opportunities, and therefore termed 'episodic' volunteering.
Formal Disaster Management	A coordinated approach to managing disaster events, which involves comprehensive planning, preparedness, response, and recovery efforts typically led by government agencies, emergency services, and specialised teams (AIDR, 2017)
Informal volunteers	Community members that participate as individuals or as part of a group, on a short or longer-term basis, regularly or irregularly, and in situ or ex situ. Their participation in recovery and response efforts may be spontaneous and unplanned, or deliberate and carefully planned (Whittaker et al., 2015).
Informal volunteering/ non-traditional volunteering	Time willingly given for the common good and without financial gain, taking place outside the context of a formal organisation or group. This includes assisting people in the community, excluding one's own family members. For example, looking after children, property, or pets; providing home or personal assistance; or giving someone professional advice (Volunteering Australia, 2023)
Man-made disaster	Catastrophic event caused by human actions or inactions, rather than natural phenomena (Coleman, 2006)
Micro volunteering	Small, quick, low-commitment actions that are often facilitated by the internet or mobile devices (Churchill OBE, 2020; Cravens & Ellis, 2000).
Natural disaster	Any occurrence caused by the effects of natural, rather than human-driven, phenomena that produces great loss of human life or destruction of the natural environment, private property, or public infrastructure (Alexander, 2017).
Official responders	Trained professionals who provide immediate assistance and support during emergency situations (AIDR, 2017)
Significant statements	Sentences or quotes that provide a unique understanding of the experience under investigation, also known as meaning units or horizons (Finlay, 2014).
Social media	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)
Social media influencers	Individuals who have established credibility and a significant following on social media platforms, and who can influence the opinions, behaviours, and purchasing decisions of their audience due to their authority, knowledge, position, or relationship with their followers social (Hazarika et al., 2021).
Spontaneous volunteers	Individuals that are not registered with a formal emergency services organisation or a volunteer organisation. They seek out, or are invited to help with, various volunteering opportunities, often in connection with a community response to disasters (Volunteering Australia, 2023).
Spontaneous volunteering	Spontaneous volunteering, also referred to as emergent behaviour or convergent behaviour, involves unplanned voluntary behaviour by unaffiliated members outside formal management arrangements (Harris et al., 2017; Simsa et al., 2019; Twigg & Mosel, 2017)
Structuration Theory	Giddens (1984) structuration theory is a sociological framework that explains how individuals and societies interact with each other and their environment.
Traditional / formal volunteers	Typically associated with formal volunteer programs and are integrated into the organisational structure, often receiving training and clear roles (Nor, Othman & Bahari, 2019)
Virtual volunteers	Also known as online or digital volunteering, involves individuals offering their time and skills to support organisations, causes, or communities through online platforms and digital means (Smith et al., 2016)

Chapter 1: Introduction

1.1 Introduction

This thesis contributes to the academic field of disaster and emergency management by examining the phenomenon of spontaneous volunteering and how social media facilitates participation in recovery and response efforts during disasters. Disasters are escalating in frequency and intensity worldwide, with profound and unpredictable effects on society. In just the past decade, according to the World Disaster Report (2022), nearly 3,000 natural catastrophes have affected 1.8 billion people, resulting in injury, homelessness, and loss of livelihoods (International Federation of Red Cross and Red Crescent Societies [IFRC], 2023). The devastation they bring (something this researcher personally witnessed) is accompanied by soaring economic and social repercussions. Recovery and response efforts to these calamities require the orchestrated cooperation of multiple actors, from government and NGOs to community volunteers, working in unison to mitigate the effects on affected populations and their assets.

In Australia, the emergency response system is a coordinated effort that involves federal, state, and local government agencies, as well as non-government organisations, to manage and respond to emergencies such as natural disasters. Volunteers play a crucial role within this system, contributing to search and rescue operations, firefighting, medical assistance, and community support services, thereby enhancing the system's capacity and resilience. Traditional volunteers are integrated into

the emergency management system and are an essential part of the disaster response effort (Johnston et al., 2018).

In the United States, volunteers provide critical services, including search and rescue, medical assistance, and psychosocial support (Harrald & Renda-Tanali, 2020). In the United Kingdom, volunteers provide various services, including first aid, helping evacuate people, and supporting emergency services (Tulloch & Loughlin, 2019). In Germany, spontaneous volunteers contribute to disaster response through various activities, including providing medical aid, distributing supplies, and evacuating people (Oosterbeek & Schweitzer, 2020).

This researcher's interests lie in community-led initiatives that bolster resilience and enable recovery through strength-based, collaborative systems. Many recent disasters suggest that such approaches are increasingly relevant as traditional volunteering, characterised by structured and long-term roles, experiences a decline (Jones et al., 2015; Zhu, 2022). Organisations today are grappling to maintain their volunteer workforce (Tsai, Newstead, & Lewis, 2022), a struggle that's reshaping emergency volunteering and management practices (Australian Institute for Disaster Resilience [AIDR], 2017; McLennan et al., 2016; Volunteering Australia, 2023). NSW State Emergency Services estimate a 20% loss of volunteers annually (Forner et al., 2017). The escalating frequency of disasters coupled with a dwindling pool of traditional volunteers necessitate a resourceful approach that integrates all available resources, people, and technological innovations, to strengthen emergency management frameworks.

Research in the field of volunteerism has highlighted critical issues such as suboptimal task allocation, inadequate guidance, underutilisation of skills, and scant opportunities for growth, all of which diminish the appeal of volunteering (Anson et al., 2017; Malinen & Mankkinen, 2018; Volunteering Australia, 2023). These challenges not only demotivate potential volunteers but also undermine the efficiency of response efforts. Additionally, the Australian Government has recognised that misaligned policies and practices, inadequate training and development, complex regulations, and stringent risk management demands can adversely affect the sustainability of long-term volunteer engagement (Institute, 2013; Queensland Fire and Emergency Services [QFES], 2016). Addressing these systemic issues is vital for maintaining a robust volunteer workforce capable of effectively responding to emergencies.

The landscape of volunteering is changing (McLennan et al., 2016). The costs of numerous emergency service workers to respond to natural disasters are prohibitive (Jones & Berry, 2017). There is a rise in informal volunteering where individuals who are not typically affiliated with a volunteer involving organisation raise their hands to help (Dean, 2022). This includes episodic or short-term volunteering where volunteer work lasts from a few hours to a few days, and reflexive forms of volunteering, where the decision to volunteer is based on personal considerations such as available time (Hustinx & Lammertyn, 2003; Rochester et al., 2016). Hendriks et al. (2023) noted that informal volunteers look for flexible opportunities to contribute their time, without commitment and training attached to an organisation (Hendriks et al., 2023).

The challenges due to the changing face of volunteering became especially apparent during the COVID-19 pandemic as formal volunteer contributions were limited (Biddle & Gray, 2022; Mao et al., 2021). However, disaster response has never been the sole purview of formal workforces. A vital third group, comprised of unaffiliated and spontaneous volunteers, often steps in without guidance from established emergency organisations (Barraket et al., 2013a; Cottrell, 2012; Daddoust et al., 2021; Twigg & Mosel, 2017). For example, in China in 1976, 300,000 spontaneous volunteers converged after the earthquake in Tangshan (Heng, 2012). Spontaneous volunteers represent a growing trend in informal volunteering, which complements the official emergency workforce in times of dire need (Nahkur et al., 2022).

Recently, there has been a shift towards building community resilience in disaster management (Aldrich & Meyer, 2015), recognising spontaneous volunteer efforts in disaster response and recovery. The United Nations Office for Disaster Risk Reduction (UNDRR), explicitly recognises spontaneous volunteering in its Sendai Framework for Disaster Risk Reduction 2015-2030. Policy shifts are reflecting the significance of spontaneous volunteering in disaster response globally (Biddle & Gray, 2022; Mao et al., 2021). Scholars suggest that listening to the lived experiences of spontaneous volunteers would assist with a better understanding of this phenomenon (Alexander, 2017; Laframboise & Loko, 2012).

Due to proximity and local knowledge of victims, spontaneous volunteers are often the first responders (Morse, 2018). They respond to the immediate needs of their community. Despite their connection with the community, they are often perceived as 'outsider emergency volunteers' (McLennan et al., 2021). The

quasi-independent spontaneous volunteer groups and the authoritative hierarchical paid staff can sometimes clash over communication and authority (Jones & Berry, 2017). They are seen as unpredictable (Twigg & Mosel, 2017), which sometimes leads to tensions with official entities that necessitate management strategies (Harris et al., 2017).

Technological advancements, social media platforms, and instantaneous communications encourage spontaneous volunteers to offer assistance. In the wake of Hurricane Sandy in the US in 2012, more than 60,000 people spontaneously volunteered to help in the recovery efforts. Facebook and Twitter were used to self-organise and offer assistance (Group, 2013; Hughes et al., 2014). Spontaneous volunteering can significantly enhance disaster response because local residents can act more rapidly than emergency services or organised aid groups which require resources and staff mobilisation (Fernandez, Barbera, & Dorp, 2006). Spontaneous volunteers are part of a community and may be aware of local resources, unique skills, and community knowledge, which may enhance the efficacy of disaster response efforts (Twigg & Mosel, 2017). The United Nations Volunteer programme (UNV) has documented an upswing to informal over formal volunteering (UNV, 2022), a movement propelled by information technology advancements and a collective push toward community-driven resilience.

New Zealand's 2011 earthquake in Christchurch saw the "Student Volunteer Army" utilising Facebook to coordinate more than 9,000 volunteers for their clean-up operation (Starbird & Palen, 2011). Such platforms coordinate spontaneous volunteering, and disseminate timely information (Hughes et al., 2016; Starbird et al., 2014). By fostering self-reliance and encouraging local

initiatives, spontaneous volunteers assist with recovery and rehabilitation efforts (Stallings & Quarantelli, 1985), as they promote active community participation in recovery. Spontaneous volunteering has also been found to contribute to social cohesion, solidarity, a sense of belonging, strengthening community resilience in the face of adversity (Helsloot & Ruitenberg, 2004). This can help communities recover faster and more holistically from disasters (Dufty, 2012; Wulandari, Sagala, & Sullivan, 2018).

Despite the crucial role of social media in facilitating information flow for disaster management, researchers point out that emergency responders have been slow to integrate these platforms into their strategies (Reuter et al., 2020). Moreover, how spontaneous volunteers leverage these digital tools in emergencies is not well understood (Dulloo et al., 2020; Jukarainen, 2020; Nielsen, 2019). There is limited research on the experiences of spontaneous volunteers with these platforms, indicating a significant gap in current scholarship that warrants further investigation.

1.2 Aims and research questions

The purpose of this study was to explore the role of social media in facilitating spontaneous volunteers to participate in recovery and response efforts. The intention was to understand the meaning spontaneous volunteers gave to their lived experiences before, during, and after a disaster. Guided by philosophical foundations of phenomenology set forth by Heidegger (Heidegger & Macquarrie, 1962), the study is situated within an interpretivist paradigm, which facilitated gaining insights into the phenomenon of spontaneous volunteering. Research questions guiding this study were as follows:

Research Question One: How do spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases?

Research Question Two: How does social media impact spontaneous volunteers' agency?

Research Question Three: What are the ways in which social media enable spontaneous volunteers to co-create knowledge to leverage offers of help, resources, and skills?

Research Question Four: What recommendations do spontaneous volunteers have to enhance the experience of spontaneous volunteers who use social media to respond to emergencies and to encourage their future volunteering?

The research questions respond to the call for research from many fields, including Human Computer interaction (Reuter et al., 2018), Non-profit and Volunteer studies (Harris et al., 2017), Environment and Urban Disaster Response (Twigg & Mosel, 2017), and Disaster Risk Reduction (McLennan, 2020).

1.3 Theoretical lens

This phenomenological research will examine spontaneous volunteers' use of social media platforms through the lens of Giddens' (1984) Structuration Theory, which seeks to explain how social structures are created, shaped, and reproduced through human agency (See 2.9.1). This theory was combined with the Co-production of knowledge model (Callon, 1999b), to investigate how social media facilitates spontaneous volunteers' collaboration among

themselves. The Co-production of knowledge model (see 2.9.2) addresses complex social and environmental problems (Akpo et al., 2015; Muñoz-Erickson, 2014; Muñoz-Erickson et al., 2017; Rycroft-Malone et al., 2016), where stakeholders have varying perspectives and priorities. It removes barriers of hierarchy and bureaucracy, leading to synergy (Ostrom, 1996), and encourages reciprocal exchange (Duggan, 2021) with diversity and mutual efforts (Sardar, 2010). Therefore, it is ideal for understanding the process of co-production among different spontaneous volunteers.

1.4 Significance of the study

The thesis has theoretical, methodological, and practical significance.

1.4.1 Theoretical

The thesis makes four clear contributions to spontaneous volunteer research. First, spontaneous volunteering is an under-researched topic. This thesis expands on how spontaneous volunteers are conceptualised, refining their definition to create a holistic understanding of their skill sets and roles, complementing existing research (Daddoust et al., 2021; Harris et al., 2017; Nissen et al., 2021; Twigg & Mosel, 2017; Whittaker et al., 2015). This information is relevant for fields such as disaster and emergency management, public health, environmental management, and sustainable community-led disaster management.

Second, it creates an understanding of spontaneous volunteering as grass roots volunteering. It uncovers the different ways these volunteers contribute to the recovery and response efforts. In addition, the thesis sheds light on the

impact of conflicting information and lack of communication on spontaneous volunteers' decision-making processes and volunteering engagements. This is important for future communication strategies in emergency management, especially to speed up recovery and response efforts, since slow information flow hinders the allocation of resources necessary for disaster relief (Day et al., 2009; Dootson et al., 2022; Luna & Pennock, 2018).

Third, it expands on the involvement/exclusion paradox (Harris et al., 2017) from spontaneous volunteer perspective. The paradox relates to the conflicting situation often faced by official emergency managers when they recognise the value of spontaneous volunteers but face pressure to exclude them due to safety and other issues. The thesis uncovers how the paradox impacts spontaneous volunteer, adding their perspectives to provide a more comprehensive understanding of the paradox. It also records how social media platforms enabled spontaneous volunteers to navigate through the paradox. The findings are relevant for community-based disaster management policies and will assist in generating innovative and impactful outcomes.

Fourth, by investigating spontaneous volunteers' experiences with social media platforms, the thesis identifies social media platforms as tools and resources for self-organised, grass-roots spontaneous volunteering. The thesis also explores the types of structures that facilitate and support grass-roots, self-organised spontaneous volunteering. It records the knowledge co-production process of social media that supports spontaneous volunteering. Recording spontaneous volunteers' voices and perspectives adds a bottom-up approach that complements existing studies that take a top-down approach,

thus bridging the gaps (Griswold, 2013; Jukarainen, 2020; Nielsen, 2019; Paret, 2020; Sperling & Schryen, 2022).

Theoretically, the thesis is relevant for multiple fields such as disaster and emergency management, emergency volunteer management, environmental management, disaster risk reduction, community based disaster management and community development. The methodological significance is discussed in the following section while practical significance is covered in another section (1.4.3).

1.4.2 Methodological

The methodology presents a more holistic approach to understand spontaneous volunteer experiences. Prior research on spontaneous volunteers has tended to be quantitative, focusing on the number of spontaneous volunteers that emerge, the kinds of challenges that organisations face, and the efficient management of spontaneous volunteers (Harris et al., 2017; Kvarnlöf, 2018; Nielsen, 2019; Paret et al., 2021; Rivera & Wood, 2016; Sperling & Schryen, 2022; Twigg & Mosel, 2017). This thesis employs a qualitative approach, offering depth and detail through direct quotes, and comprehensive narratives. It therefore complements and enriches existing understanding by providing context, insights into processes, and reasons behind patterns observed in quantitative data.

The methodology employed used social media to recruit spontaneous volunteers. It also adds a human dimension to the data, presenting experiences behind the numbers, and making the data more relatable to a broader audience including the wider academic community and practitioners

in the field. The phenomenological research design is a novel approach in this context and extends extant theory in an interview environment with research participants (spontaneous volunteers) having the opportunity to share their world as they tell their stories. Heidegger's (1962) phenomenology provides an opportunity to develop an expanded understanding of the meaning of spontaneous volunteer experiences when they used social media to participate in recovery and response efforts, its impact on them, and their lived world. The methodology also used social media posts to support interview data.

Therefore, the methodology presents an opportunity to shape further understanding of knowledge production and interpretation of lived experiences. The insights gained contribute to research in volunteerism, disaster management, community-based co-production, and the impact of social media use during disasters. In particular, it highlights how social media is re-defining recovery and response efforts.

1.4.3 Practical

This study incorporates a broader coverage of different types of spontaneous volunteers from different regions and disasters, making the findings relevant for multiple stakeholders in emergency management to plan their engagement and improve efficient skill utilisation.

For the disaster responders and the local authorities, the thesis offers recommendations with ramifications for pre-, during, and post-disaster activities and engagement with volunteers on all levels. It also offers official responders assistance in many ways: i) to better understand spontaneous

volunteers' roles and the skills they bring; ii) to act tactfully when engaging with spontaneous volunteers in emergency situations; iii) to optimise utilisation of the human and non-human resources available quickly for efficient disaster management and; iv) to leverage the power of social media to support recovery and response efforts. The thesis highlights the role of cooperation, collaboration, and connection, considering the changing landscape of disaster volunteerism. Additionally, it outlines the importance of understanding spontaneous volunteers' experiences because research suggests that well-facilitated and satisfied volunteers express their intention to volunteer more often (Garner & Garner, 2011).

For the community and potential volunteers, the thesis unpacks the scope of social media for information dissemination and coordination of volunteers, for efficient recovery and response efforts. For the social media platform providers, the thesis provides recommendations from social media users about their platforms and the policies and procedures that guide the development of new and supportive features.

1.5 Thesis organisation

This dissertation is structured into seven chapters. This chapter introduces the thesis topic. Chapter 2 provides a review of relevant literature on disaster volunteers, spontaneous volunteering during disasters, social media use during disasters, and challenges affecting existing emergency management. That literature collates information from a variety of disciplines, including computer human interface and disaster risk reduction, to capture different perspectives and gain a holistic review of the phenomenon. The theoretical

framework for this study was based on Structuration Theory (Giddens, 1984; M Jones & Karsten, 2008) and the Co-production of knowledge model (Callon, 1999b; Limoges et al., 1994).

Chapter 3 outlines the methodology and research design, describing the rationale for a qualitative approach and explaining why phenomenology was the best fit philosophically. The sampling technique used a social media listening tool. Selection criteria were used for the data collection and data collection techniques. Chapter 3 also lists the interview questions, and details of the Go-Along interviews collecting data from spontaneous volunteers in Western Australia, London, and Melbourne.

Chapter 4 presents the data analysis process, describing specifics of the inductive approach from interview transcription that ensures spontaneous volunteer experience was accurately captured, to manual and electronic (NVivo) coding processes ensuring rigour and validity. The member check promoted trustworthiness and consistency by ensuring that interpretations aligned with the spontaneous volunteers' experiences, thus reviewing and confirming accuracy. The iterative coding process ensured the themes captured the essence of the phenomenon. The use of existing theories helped anchor the study in the wider body of knowledge. The chapter also describes how other experts reviewed the research design, data analysis, and findings, adding an additional layer of rigour and objectivity. The researcher also maintained a reflective journal throughout the research process, outlining the decisions made, and the challenges faced, maintaining meeting notes with supervisors to record how these challenges were resolved, while adhering to the university ethical guidelines.

Chapter 5 records the findings of the phenomenological study, presenting the overarching themes and subthemes that emerged from asking the four Research Questions. The themes reveal how spontaneous volunteers used social media to overcome the challenges they faced due to the disaster, and how social media facilitated their agency and enabled them to co-produce knowledge. Chapter 5 also records spontaneous volunteers' recommendations related to social media platforms and emergency services organisations.

Chapter 6 presents the discussion of the results and implications for future research and practice. New knowledge, advances to, and modifications of existing knowledge that emerged from the findings of the four questions, were reported. The chapter compares the findings with the extant theory detailed in the literature review chapter (Chapter 2). Where previous research had not occurred regarding volunteering, literature from other relevant fields such as computer-human interface, disaster risk reduction, and social work were used. Since no previously published research material was available, the thesis added new knowledge.

Finally, Chapter 7 presents the conclusion of the study and provides the theoretical, methodological, and practical contributions and limitations of the study along with recommendations for future research.

Chapter 2: Literature review

2.1 Introduction

To provide a clearer understanding of the diverse aspects of disaster response and resilience, this chapter synthesises literature on spontaneous volunteers and their use of social media during disasters from disaster management literature, volunteering literature, digital technologies literature, community-based disaster management literature, and other fields such as environmental hazards and community resilience. It covers the pre-, during, and post-phases of disasters, the role of information-sharing during disasters, the challenges facing emergency management organisations during disasters, and the gaps in disaster research. Further, it provides an overview of the state-of-the-art knowledge available on social media during disasters, the key issues regarding when it is used, the role of social media in information management, the types of social media users, and the dearth of coverage within the literature. Lastly, it draws on past and contemporary studies from Australia, North America, Europe, and Asia to highlight the existing emergency management structures, their process of social media adoption, and the importance of bottom-up processes in disaster management. The chapter finally presents the theoretical framework employed in this thesis.

The literature review was conducted in three phases to understand the dynamics of spontaneous volunteering and social media usage during disasters. In the first phase, a comprehensive exploration of the most recent

literature was performed using platforms like Scopus, Google Scholar, JSTOR, and Science Direct. A keyword search was employed with terms such as "spontaneous volunteers", "social media use during disasters", "digital volunteers", and "crisis communication". Boolean operators were utilised to refine the search. To ensure credibility and relevance, the search was predominantly restricted to top-tier journals and conferences published within the last six to ten years, considering their rigorous peer review standards. However, older foundational works and grey literature were also included for their historical significance.

In the second phase, the gathered information was read and synthesised to identify core themes, theories, and gaps in the existing research. The third and final phase entailed the creation of a comprehensive literature review chapter, encapsulating knowledge about spontaneous volunteering during disasters, the role of social media, volunteer management practices, strategies, and challenges faced by organisations in engaging with spontaneous volunteers.

The chapter will now review the importance of volunteers before conceptualising spontaneous volunteers, and how they contribute in the pre-, during, and post-disaster phases. Thereafter, the chapter discusses volunteering and emergency management, the involvement/exclusion paradox, and the role of social media in disasters. This is followed by the gaps identified in the literature, the theoretical framework, and the chapter summary.

2.2 Background

Volunteers are an essential part of disaster management globally, contributing to the preparatory, responsive, and recovery phases. Volunteers play a vital role as they help to supplement the workforce during times of crisis. They are often able to provide additional manpower and expertise that may not be readily available, allowing for better coordination and response efforts. Additionally, volunteers bring unique skills, experiences, and insights that can be valuable in emergencies. Such contributions can help to improve the overall effectiveness of the emergency management system.

While disaster research has predominantly focused on formal or traditional volunteerism (see glossary) for decades (Strandh, 2019; Strandh & Eklund, 2018), recently, informal volunteerism (see glossary) has gained more attention in disaster research to understand these volunteers better (Kruger & McLennan, 2018; Trautwein et al., 2020).

Governments and volunteer-involving organisations around the world are experiencing a change in the quality and style of volunteering (Rochester et al., 2016): individualistic, episodic, and shorter-duration forms of volunteering are increasing, while traditional and organisationally affiliated forms of volunteering are declining (Grubb & Henriksen, 2019; McLennan et al., 2016). Episodic volunteering is flexible, and, depending on the activity, it may or may not require a special skill set (Hyde et al., 2016). Many of these volunteers lack a formal connection to any organisation, and are therefore difficult to identify.

The volunteer world is transforming from a more traditional one, where activities occur within the structure of a registered emergency management organisation, that require training and commitment, to a more informal and

reflexive one, where assistance or acts of kindness are sporadic or flexible depending on the needs of the person or community being helped, and which might not require any formal training (Hustinx & Lammertyn, 2003; Mao et al., 2021). The 'right to volunteer' (Rochester et al., 2016) regardless of race, gender, and disability are being realised in new forms, including self-organised and more individualistic methods (Eckstein, 2001; Haivas et al., 2014). Unfortunately, there is also a genuine lack of understanding of the definition of volunteering among individuals who volunteer and volunteer involving organisations, and many do not even identify as volunteers (Bryen & Madden, 2006; Compion et al., 2022; Dunn et al., 2016; Hyde et al., 2016).

In this literature review, informal volunteerism is used as a broad umbrella term that refers to self-organised, spontaneous, unaffiliated, or emergent volunteering as well as existing informal social support networks that emerge during disasters to assist with recovery and response efforts. It is defined as:

“Time willingly given for the common good and without financial gain, taking place outside the context of a formal organisation or group. This includes assisting people in the community, excluding one’s family members. For example, looking after children, property, or pets; providing home or personal assistance; or giving someone professional advice”
(Volunteering Australia, 2023).

The key difference lies in the context and immediacy. Spontaneous volunteering in disasters refers to individuals who offer their assistance immediately and without prior planning in response to an unexpected event,

such as a natural disaster or emergency. These volunteers typically engage in short-term, urgent activities driven by the immediate needs of the situation (Whittaker et al., 2015). In contrast, 'ad hoc' volunteering in day-to-day situations involves individuals who participate in volunteer activities on an irregular, as-needed basis, but not necessarily in response to an emergency (Hustinx et al., 2010). This type of volunteering is more routine and can occur in everyday contexts, such as helping at a local event or providing assistance within the community, without the same level of urgency or unpredictability as spontaneous disaster volunteering. Therefore, while spontaneous volunteering is reactive to emergencies (Simsa et al., 2019), ad hoc volunteering is more casual and integrated into regular life.

The rise in informal volunteering makes one wonder why this is so. Scholars suggest that some people who have a desire to give back might be looking for social interaction, while others might be connected to a cause or an event (Dunn et al., 2016). It is indeed the flexibility of this volunteering model that often attracts students and working professionals with limited time (Bryen & Madden, 2006). Informal volunteering, however, challenges organisations in terms of locating, training, management, and retention of volunteers.

In the emergency management space, informal volunteers, particularly spontaneous volunteers (see glossary), often provide much of the additional surge capacity required to respond to emergencies and disasters. Shaskolsky (1967) suggests that spontaneous individual volunteers provide assistance as individuals, usually in the early stages of a disaster, for example, in search and rescue activities. Spontaneous organisation volunteers offer assistance to organisations once an emergency or disaster has occurred.

Spontaneous volunteering has its challenges. Issues such as timing of arrival, lack of skills, training, and equipment, exacerbated by unpredictable high numbers, present some difficulties for local authorities (Harris et al., 2017; Quarantelli, 1989; Twigg & Mosel, 2017). Organisations are often forced to accommodate spontaneous volunteers (Cnaan & Handy, 2005; Compion et al., 2022; Dunn et al., 2016), who create management and safety issues, coordination and collaboration issues for official emergency responders (Harris et al., 2017; Twigg & Mosel, 2017). Today, volunteer managers are also forced to adopt new ways to prepare, manage, and build resilience that suit the needs of culturally diverse communities (Abedin & Babar, 2018; Scanlon et al., 2014; Velotti & Murphy, 2020).

There is a silver lining though, spontaneous volunteers can augment emergency services in crisis situations by providing complementary expertise and resources (Schmidt & Albert, 2022; Yang, 2021). Notable instances include the 2 million spontaneous volunteers after the Mexico City earthquake (Twigg & Mosel, 2017) and the 22,000 individuals who registered with the Australian Red Cross during the Black Saturday bushfires in Victoria (Cross, 2010). The COVID-19 pandemic also highlighted spontaneous volunteers' role in overcoming new challenges, fostering community engagement, collective problem-solving, and emergency planning (Kifle Mekonen & Adarkwah, 2022; Mao et al., 2021; Power & Nedvetskaya, 2022).

The frequency of disasters and the varied nature of spontaneous volunteer responses highlight the need to develop strategies that assist with building local capacity for disaster response and recovery at short notice (McLennan et al., 2021; Paciarotti et al., 2018b; Sperling & Schryen, 2022). It requires

empowering local communities to take an active role in planning, incorporating traditional knowledge and local resources into emergency management strategies and disaster management (Villeneuve, 2021). This includes formulating strategies that promote a bottom-up approach to emergency management (Institute, 2013).

Unfortunately, there are many limitations of current research. Most research to date adopts a top-down approach and records only volunteer organisations' perspectives (Fosso Wamba et al., 2017; Gerstmann et al., 2019; Nissen et al., 2022a). Local emergency and disaster authorities, researchers, and practitioners advocate for a disaster-risk management approach over crisis-management-oriented approaches (Cardona et al., 2012; Center, 2015). There is also a lack of spontaneous volunteer perspectives to understand their experiences, which could guide strategies for better engagement (Carlton & Mills, 2017; Cowan, 2017; Mao et al., 2021).

Such strategies are important. There are many instances where nations are unable to respond adequately to emergencies and disasters (Carlton & Mills, 2017; Cowan, 2017; Mao et al., 2021). These events uncover the key role of planning and coordinating with volunteers before disaster strikes, and building resilient communities (United, 2007).

Social media platforms are important tools for disaster-resilient communities (Dufty, 2015; Huang et al., 2010; Hughes & Tapia, 2015). However, little is known about spontaneous volunteers' experiences with social media platforms. The following review synthesises what we know about spontaneous volunteering during disasters, the involvement/exclusion paradox (Harris et al.,

2017) that is faced by the official responders as a result of spontaneous volunteer emergence, and the role of social media during disasters. The chapter ends with the theoretical framework for the thesis.

2.3 Conceptualising spontaneous volunteering

Spontaneous volunteering is not a new phenomenon. Natural and man-made disasters have always instigated spontaneous assistance globally (McLennan et al., 2021; Stallings & Quarantelli, 1985). Spontaneous volunteers are people without a formal association with a volunteer-involving organisation who seek out or are invited to help with various volunteering opportunities, often in connection with a community response to disasters (Volunteering Australia, 2023). Various terms have been used to refer to spontaneous volunteers, including informal, emergent, and unaffiliated (Whittaker et al., 2015). There is a tendency to conceptualise spontaneous volunteers as one homogenous group, often only discussed in the context of emergency volunteering.

Spontaneous volunteers are different from traditional volunteers (Sperling & Schryen, 2022). Altruism, a desire to give back to the community, perceived ability to use skills and experiences are common motivators for spontaneous volunteers (Whittaker, McLennan & Handmer, 2015). Without a clear definition that describes precisely what spontaneous volunteering entails, it is a significant concern that it will continue to be rarely “incorporated into formal disaster and humanitarian planning” (Twigg & Mosel, 2017, p.443). Table 2.1

provides an overview of some of the definitions commonly found in the literature to understand the concept of spontaneous volunteering.

Table 2. 1 Definitions of Spontaneous Volunteers

Definition	Reference
Individuals that come together to help accomplish a specific task or a series of related tasks in response to unexpected situations that require immediate attention	(Britton, 1991)
Spontaneous volunteers fall into four categories: established, expanding, extending, and emergent.	(Dynes, 1994)
Spontaneous volunteers that engage with organisations were called spontaneous organisation volunteers and are subdivided into four groups, those who: (a) Help a regular disaster organisation; (b) formally create an <i>ad hoc</i> organisation for dealing with the circumstances of the specific disaster; (c) use their pre-existing non-disaster organisation for disaster work; or (d) carry out disaster-related tasks within a loose informal network.	(Shaskolsky, 1967; Whittaker et al., 2015)
Various terms to describe them include convergent, un-affiliated, walk-in, unexpected, emergent and extending	(Whittaker et al., 2015; Whittaker, McLennan, & Handmer, 2015)
Community members who might have limited skills, prior training, experience, and prior planning	(Cottrell, 2010; Drabek & McEntire, 2003)
Respond to the immediacy of the situation and most importantly are sure to arrive at the scene of the disaster to help in any way they can	(Harris et al., 2017; McLennan, 2019; Stallings & Quarantelli, 1985)
The arrival of unexpected or uninvited personnel wishing to render aid. They may be operating without the knowledge or direction of official responders.	(Cone et al., 2003)

Those who are not with an assigned resource and have not been specifically recruited	(Fernandez, Barbera, & Dorp, 2006)
Unaffiliated individuals who may or may not have relevant training, skills, or experience	(Drabek & McEntire, 2003)
Individuals or groups of people who seek or are invited to contribute their assistance during and/or after an event and who are unaffiliated with any part of an existing official emergency management response and recovery system and may or may not have relevant training, skills or experience	(Cross, 2010)
People without a formal association with a volunteer-involving organisation who seek out or are invited to help with various volunteering opportunities, often in connection with a community response to disasters.	(Volunteering Australia, 2023)

Table 2.1 highlights that the descriptions of spontaneous volunteers vary as much as the different fields that are investigating this phenomenon. Generally, spontaneous volunteers are described as individuals or groups respond to unexpected situations and assist to help in any way they can to accomplish specific tasks. At the same time some definitions also suggest that they are unexpected and uninvited personnel, and that they may have limited knowledge and skills. Due to their unaffiliated nature, there is uncertainty with regards to their training and experience. Current definitions of spontaneous volunteering have limitations (McLennan et al., 2021; Nahkur et al., 2022). For example, the breadth makes it challenging to clearly delineate what it constitutes in fields such as Disaster Risk Reduction. Strandh and Eklund (2018) highlight that a persistent issue in the analysis of disaster volunteering is the use of dichotomies such as formal/informal, affiliated/unaffiliated, and

beneficial/challenging that create problems with the legitimacy and accountability of all actors.

While Table 2.1 describes the different facets of spontaneous volunteering, this thesis aligns with the definition provided by the Australian National Strategy for Volunteering 2023-2033 (Volunteering Australia, 2023). In addition, definitions offered by Cross (2010), Harris et al., (2017), and McLennan (2019) aligned well with the National Strategy for Volunteering 2023-2033 and assisted the researcher in making sense of the phenomenon of spontaneous volunteering.

2.4 Spontaneous volunteering in disaster management

Existing literature in Emergency Management, Community Based Disaster Management, and Digital Technologies in Disaster Management often draws on case studies of disaster response scenarios and large-scale event management, to provide insights and best practices for handling spontaneous volunteers effectively. The common perception is that spontaneous volunteers' emergence is uncertain, uninvited, that they are unskilled and a hindrance for the official emergency responders (Harris et al., 2017). Issues such as timing of arrival, lack of skills, training, and equipment, exacerbated by unpredictable high numbers, present some of the many challenges identified in these studies, which are faced by the local authorities due to this emergence (Harris et al., 2017; Quarantelli, 1989; Twigg & Mosel, 2017).

More recently, utilisation of spontaneous volunteers has been identified as critical, particularly when official emergency responders' limitations are stretched to meet the need for surge capacity (Paret et al., 2021; Sperling &

Schryen, 2022; Twigg & Mosel, 2017; Waldman et al., 2018). Naturally, the management of spontaneous volunteers has also become important in disaster response and community initiatives. Several scholars from Western countries, (Harris et al., 2017; Lodree & Davis, 2016; Ludwig et al., 2017; McLennan et al., 2016; Nielsen, 2019; Paciarotti et al., 2018a) to the east (Atsumi & Goltz, 2014; Azad et al., 2021; Guarnacci, 2016; Hutagalung & Indrajat, 2020; Kaigo, 2012; Morse, 2018; Shareef et al., 2019; Wallop, 2011; Wekke et al., 2019) discussed several key aspects of spontaneous volunteering.

Literature does not holistically recognise spontaneous volunteers' distinctive collective problem-solving efforts (Hendriks et al., 2023). This lack of recognition and value as compared to formal volunteering often leads to lack of support and resources for them. Furthermore, the literature is mostly silent on spontaneous volunteer contributions before, during and after a disasters, despite recognising their online and on-the-ground efforts and increasing adoption of social media platforms despite its limitations (Griswold, 2013; Reuter & Kaufhold, 2018; Reuter et al., 2023; Sperling & Schryen, 2022).

Similar to Europe and North America, spontaneous volunteering has an increasingly legitimate place in Australian emergency management (McLennan et al., 2021; Volunteering Australia, 2023). Spontaneous volunteers are often reported as the first responders to arrive at the disaster site (McLennan, 2022; Yang, 2021) and are often the primary rescuers in collapsed structures, such as buildings (Sauer et al., 2014). They can also assist with situational awareness and support authorities (Raisio et al., 2019). They can provide assistance with logistics, such as distributing food and water

or helping with shelter operations (Hodge et al., 2007; Morse, 2018; D. Shaw et al., 2015). Helping and supporting their community were the most common factors that motivated people to volunteer spontaneously (Barraket et al., 2013a), in addition to a compelling need to help (Michel, 2007).

Volunteers may be 'upset' with what they observe during a disaster (Barraket et al., 2013a), suggesting many are motivated to react to a situation. Spontaneous volunteers provide emotional support to disaster survivors, which can be critical in reducing the psychological impact of the disaster and social media assisted with it (Azad et al., 2021; Taylor et al., 2012; Yuan et al., 2021). The recent COVID-19 pandemic increased interest in volunteers as human resources in emergencies and disasters (Biddle & Gray, 2022; Churchill OBE, 2020; Samuel, 2020; Trautwein et al., 2020).

Many issues surface when spontaneous volunteers arrive at the disaster scene. The main issue is that their arrival is difficult to predict (Daddoust et al., 2021; Twigg & Mosel, 2017; Yang, 2021), making it challenging to plan engagement with them. Moreover, their numbers, the duration of their help, and the kinds of tasks they may be able to perform also remain uncertain. To date, very few studies have focused on volunteer management with uncertain task demands in an ever-changing environment (AIDR, 2017; Lassiter et al., 2015; Paret et al., 2021). Table 2.2 shows the varying scale of convergence of spontaneous volunteers, who can sometimes be in the thousands, and on rare occasions in the millions.

Table 2. 2 Magnitude of convergence in relation to the impacted population

Year	Place	Spontaneous Volunteers	Type of Disaster
1985	Mexico City (Lodree & Davis, 2016)	2,000,000	Earthquake
1989	Loma Prieta, USA (Fernandez et al., 2006)	60% of San Francisco's Population and 70% of Santa Cruz's Population	Earthquake
1995	Kobe, Japan (Yamamura, 2013)	1,000,000 (recognised as the first year of voluntary activities in Japan)	Earthquake
2001	New York, USA (Lodree & Davis, 2016)	40,000	9/11 attacks
2013	Germany (Kaufhold & Reuter, 2016)	Thousands across Germany	Floods
2017	Grenfell Tower fire, London (Plender, 2018)	Hundreds of volunteers	Fire
2020	COVID-19 Pandemic (Jukarainen, 2020; Landler, 2020; Moodie, 2020; Samuel, 2020)	Thousands	Pandemic

With an uncertain degree of convergence, it becomes challenging to ascertain the volunteers' skill set, resources, and the quality of assistance they may provide. Researchers from Human-Computer Studies and Risk, Hazard & Crisis Public Policy suggest that this lack of information poses challenges in effectively utilising and integrating these volunteers into organised response efforts (Ludwig et al., 2017; Yang, 2021). These challenges have forced

emergency services to ignore or use these resources only sparingly, which often results in frustration for spontaneous volunteers (Nielsen, 2019), and creates delays in the provision of response and recovery efforts (Paret et al., 2021).

Today, spontaneous volunteers assist with many aspects of emergency response, for example, search and rescue operations, and food donations, to medical professionals and facilities. They also assist with reconstruction of housing, acquisition and allocation of equipment, transportation of affected people, donations, and temporary shelter. Volunteer engagement in shelter for animals, advocating and protecting endangered species and habitats from ecological destruction and environmental harm is also increasing (Boersma et al., 2018; Jukarainen, 2020; Rebellion, 2019; Schmidt & Albert, 2022). Thus spontaneous volunteer roles span many aspects of social, health, and emergency services to communities.

The European 2015 refugee crisis demonstrated that spontaneous volunteers were highly self-organised and partially substituted official response systems (Simsa et al., 2018). Self-organisation of spontaneous volunteers requires fluid structures that provide agency and abundant resources for support, care, and coordination, which are very different from the hierarchical command and control structure of emergency management organisations (Albahari & Schultz, 2017; Bennett, 2014; Bird, 2012; S. Choi & Park, 2014; Cowan, 2017; Huang et al., 2010; Kaufhold & Reuter, 2016; Matejic, 2015; Paciarotti et al., 2018a; Slagh, 2010; Yates & Paquette, 2011).

The spontaneous volunteer emergence, and how they can be engaged effectively, also require an understanding of the three phases of disaster, which are: the pre-disaster phase - the period before the emergency; during the disaster phase - the immediate aftermath of the disaster; and the post-disaster phase - where recovery is taking place and conditions are returning to normal (Lettieri et al., 2009; Robert & Lajtha, 2002). The following sections will discuss spontaneous volunteering in relation to the three phases of disaster.

2.4.1 Pre-disaster

The pre-disaster phase involves actions taken to prevent or mitigate the impact of disasters before they occur. Extant literature includes guidance for many of the activities involved in this phase, including risk assessments, hazard identification, land-use planning, and infrastructure development, which involve volunteers, to reduce the likelihood and impact of disasters (Cross, 2010; Dufty, 2015; Eriksson & Danielsson, 2022; Shaw et al., 2012; Wannous & Velasquez, 2017).

Planning for spontaneous volunteers also occurs in this phase to reduce the negative effect of convergence, and to utilise spontaneous efforts efficiently. To date, no study records planning *with* spontaneous volunteers, rather the focus remains on planning *for* spontaneous volunteers. As local community members, spontaneous volunteers are uniquely positioned to identify vulnerable populations in their communities (McLennan, 2022). It is important to engage with spontaneous volunteers in the pre-disaster phase and record their lived experiences so that they can help raise awareness about disaster risks within their community. This phase is important for establishing networks

with them so that they can perhaps gain basic training in first aid, and assist with disaster planning and drills.

2.4.2 During disaster

This phase begins when a disaster occurs and includes the immediate actions taken to respond to the disaster (IFRC, 2023; Nissen, Carlton, & Wong, 2022b). This can include activities such as search and rescue, medical care, evacuation, and the provision of emergency supplies and services (Ager et al., 2015). The majority of studies focus on this phase to learn lessons for the future to improve disaster management plans (Clukey, 2010; Greenhalgh, 2018; Group, 2013; Wridt et al., 2014; Yuan et al., 2021) and assist with the challenge of integrating spontaneous volunteers into the official disaster management activities to realise their potential (Betke et al., 2024). This is also the phase where spontaneous volunteer engagement is most noticeable when research records the extent of their participation, and the kinds of activities they performed (Albahari & Schultz, 2017; J. Barraket et al., 2013b; Boersma et al., 2018; Daddoust et al., 2021; Fernandez et al., 2006; Nissen et al., 2021; Yearworth & White, 2018).

Spontaneous volunteer participation during this phase has been described as a mixed blessing (Kvarnlöf & Johansson, 2014). While they bring certain challenges with them, they play an important role in building community resilience (Duffy, 2012b; Jurgens & Helsloot, 2018). Resilience as a concept seeks to explain the human ability to cope and respond positively when faced with adversity (Lough, 2020). It includes learning, and using experiences to modify responses and continue ongoing functions (Berkes et al., 2008).

A system that is too open will create inefficiencies and frustration (Simsa et al., 2018), while a system that focuses too much on bureaucracy and tight coordination would limit flexibility and adaptability (Raisio et al., 2019). To balance the bottom-up self-organisation, and top-down tight coordination, so that spontaneous volunteers could be included, some options have been identified: for example, assign tasks that involve less risk or expert knowledge (Scanlon et al., 2014), or allow spontaneous volunteers to select tasks (Ludwig et al., 2017), or coordinate convergent citizens that appear at disaster locations (McLennan et al., 2021).

Empowering volunteers and identifying the leadership potential of volunteers is also important (Tsai et al., 2022). This points to the need to communicate with and record spontaneous volunteers' perspectives while seeking their suggestions on how to improve future engagement. Scholars suggest there is a need to shift focus, from management and coordination of spontaneous volunteers to integration of spontaneous volunteers at every phase of disaster (Auferbauer et al., 2019; Hughes & Tapia, 2015; Kankanamge et al., 2021; Ludwig et al., 2017; Paciarotti et al., 2018a; Waldman & Kaminska, 2015; Waldman et al., 2018; Yuan et al., 2021; Zhao et al., 2019).

Integrating spontaneous volunteers in the planning phase (pre-disaster) would assist in mitigating several challenges associated with them during the response phase, including issues related to safety, liability, and coordination with official response agencies (Harris et al., 2017; McLennan, 2019). These challenges can hinder the effective deployment of spontaneous volunteers. More research is needed to create frameworks and guidelines that would encourage inclusive community-led problem-solving and ensure that such

efforts are not stifled (Hendriks et al., 2023; Larry, 2023; Osofsky et al., 2018; Sewell et al., 2023).

2.4.3 Post-disaster

This phase involves actions taken to restore the community to its pre-disaster state or a new state of normalcy (Maguire & Hagan, 2007). The recovery phase can take months or even years depending on the extent of the disaster (Hugelius et al., 2016; Minamoto, 2010). Activities can include repairing or rebuilding infrastructure, providing assistance to affected individuals and businesses, and addressing the physical, emotional, and psychological needs of those impacted by the disaster (Sadri et al., 2018).

Existing studies in Environmental Research & Public Health, Social Service Research, and Nonprofit and Volunteer Sector Studies identify the important role of spontaneous volunteers in the post-disaster phase. This includes both rebuilding, such as debris removal, home repair and clean-up, and emotional support for those dealing with trauma (Domaradzki, 2022; Kifle Mekonen & Adarkwah, 2022; Mao et al., 2021; D. Shaw et al., 2015; Trautwein et al., 2020). In short, spontaneous volunteer efforts allow individuals and communities to adapt, recover from, and bounce back in the face of adversity (Aldrich, 2012). However, there is limited information available in the context of online and offline communities (Zhang & Sung, 2023).

2.5 Volunteering and emergency management structure

For decades, emergency organisations globally have had a centralised, hierarchical command and control structure, based on trained and qualified staff that strictly follow the standard operation procedures (Baxter-Tomkins &

Wallace, 2009; Luna & Pennock, 2018; McLennan et al., 2021; Scanlon et al., 2014). As for the volunteers, each volunteer is vetted to ensure the disaster recovery and response efforts run smoothly (Chen et al., 2008). Complete control over the internal flow of information is therefore an essential aspect of emergency organisations that ensures trust, security, and accuracy (Reuter et al., 2016a). However, as this standardised command structure is inflexible and top-down, it may prevent emergency managers from integrating spontaneous volunteers with the resources they offer (FEMA, 2015a).

Traditional emergency services volunteers go through various training and qualifications. They may be driven by career and personal success, but their main motivation is their concern about community wellbeing (Francis & Jones, 2012). With the changing landscape, and to combat attrition, scholars suggest that it is important to focus on diversity and inclusion when recruiting volunteers as well as modifying management practices to make them more flexible and empowered so that the younger members are satisfied with their jobs (Jones & Berry, 2017).

A core challenge for local authorities and emergency services agencies is ensuring that they receive authentic updated information from the ground so they can encourage people to take protective action and initiate recovery and response quickly (Elbanna et al., 2019; Reddy et al., 2009). The hierarchical, top-down structure is particularly noticeable in the case of information sharing. Emergency managers generate, consume, and share information with peers, and disseminate information to the public (Chen et al., 2010). They are cautious to view and integrate any information that is offered from outside

official sources, particularly through social media platforms (Reuter et al., 2016a).

Another challenge is combating conflicting and incomplete information when emergencies happen, and verifying the accuracy and source of information (Dootson et al., 2022). This has been identified as one reason for official responders' reservations regarding the use of social media for crisis communication (Reuter et al., 2016b). Information that comes from trusted sources is perceived as more reliable, regardless of how authentic the information is (Tapia & Moore, 2014). It seems the emergency management structure does not allow them to readily accept the same data that is brought forward by non-verifiable sources, and therefore often viewed as a barrier for spontaneous forms of participation in crisis communication (Hughes & Tapia, 2015; Plotnick et al., 2015; Tapia et al., 2013).

Scholars from Disaster Management, Urban Studies, Environmental Science, and Disaster Risk Reduction also note the impact of such cautious attitudes on other actors feeling excluded, and developing negative perceptions of the official responders (Griswold, 2013; McLennan et al., 2021; Twigg & Mosel, 2017). Affiliated and non-affiliated volunteers who are working in the same context, but have differing access to information, may construct varying narratives about various institutions and perceive different barriers to coordination (Williams & Jacobs, 2021). For example, individuals who are not included in crisis communication and geographic information systems (Munkvold et al., 2015), or lack access to professional software like Emergency Response Systems that are designed to automate and manage

emergency services across all service providers) cannot add any information to it due to the lack of training necessary to handle such advanced systems.

Emergency services share vital data such as incident details and resources available in real-time, which is why this information must remain secure. However, emergency services' social media engagement is very different (Reuter et al., 2016b). It typically only involves information dissemination, and very rarely do they engage in two-way communication or interact with other entities via social media (Carter et al., 2014; Larsson & Ågerfalk, 2013). A deeper comprehension of the present usage of social media platforms is necessary to influence emergency services' attitudes regarding them and their potential (Anson et al., 2017; Li et al., 2018; Sufi & Khalil, 2022).

With the increasing frequency and varying degrees of disasters, sometimes emergency managers are not the first responders. Moreover, recent disasters have uncovered many instances where official responders are not aware of the ground situation (Arain, 2015; Jukarainen, 2020; Morse, 2018; Raisio et al., 2022; Wallop, 2011; Wekke et al., 2019). Social media and 24-hour news broadcast channels have made situational awareness readily available, enabling increased local responses to disasters, while creating issues for volunteers' integration into the disaster response (Jayathilaka et al., 2021; Skar et al., 2016). Despite increased social media usage for situational awareness, emergency services personnel's attitude toward communicating via social media platforms shows reluctance (Reuter et al., 2020). This attitude is primarily due to the challenges they face when using social media such as difficulties in verifying social media data, liability risks, and information overload. Additionally, the lack of resources to manage both social media

communications and social media data are also important reasons that pose barriers to connecting and networking with spontaneous volunteers within communities.

Given the larger context, as traditional forms of volunteering face attrition, volunteers become more time-poor and show a preference for having a variety of tasks that are of shorter duration (Hustinx & Lammertyn, 2003; Volunteering Australia, 2023; Yang, 2021), there needs to be a way to reduce barriers for spontaneous volunteers to offer assistance during disasters. Coordinating and collaborating with multiple agencies is becoming challenging for emergency services (Velotti & Murphy, 2020). Ensuring a steady supply of volunteers that can commit to an organised form of volunteering is becoming more difficult for emergency services in Australia (McLennan et al., 2016). The way forward needs to create timely public awareness about crisis situations and to recognise and integrate local skills and knowledge when disasters strike (Fosso Wamba et al., 2017; Reuter et al., 2020).

2.6 The involvement/exclusion paradox

The landscape of involvement in emergency recovery and response is not even. It influences how different actors are viewed; that is, whether they are worth engaging with or considered obstacles (Williams & Jacobs, 2021). Harris et al. (2017) identified the 'paradox of spontaneous volunteering' where volunteers try to assist, but official emergency responders face pressure to exclude them for various reasons including safety, limited skills, and lack of resources to train and supervise them. Ordinary citizens are often considered non-participants in disaster management operations (Drabek & McEntire,

2003; Harris et al., 2017). Official emergency respondents cite the necessity of centrally located and directed volunteer intake using volunteer reception centres (Williams & Jacobs, 2021).

The importance of spontaneity and flexibility, as well as regulated command and control in disaster management, are well recognised in the extant literature (Harrald, 2006; Janssen et al., 2010; Waldman et al., 2018). The involvement/exclusion paradox offers a unique opportunity to understand the barriers faced by spontaneous volunteers and to examine the divergent perspectives of traditional and non-traditional volunteers that arise during emergencies and disasters. Paradoxes represent interrelated elements that are contradictory. While these elements seem logical if observed in isolation, when combined they seem irrational (Lewis, 2000).

Past research in Disaster Resilience and Volunteering states that emergency managers often thought of volunteer convergence as a disaster within a disaster, resulting in many management and coordination challenges for emergency managers (Sharon, 2004). Due to the perceived lack of skills and expertise, spontaneous volunteers are often handed tasks such as cleaning, catering, or traffic management which separate them from official emergency responders (AIDR, 2017; Cross, 2010; Ludwig et al., 2017; Rivera & Wood, 2016; Saaroni, 2015). While these tasks are important, this is also done to avoid any damage to reputation and to avoid duplication of efforts (Cottrell, 2010). The inaccurate perceptions about unaffiliated spontaneous volunteers sometimes result in losing valuable local skills and resources (AIDR, 2015). Additionally, lack of engagement with spontaneous volunteers also means loss of recruitment opportunities, in addition to any negative experiences for

spontaneous volunteers that may undermine the trust and the reputation of official emergency responders (Bruce, 2014; McLennan et al., 2017).

2.6.1 The challenges and benefits of involving spontaneous volunteers

Engagement with spontaneous volunteers may entail various costs, such as training, financial implications, supervisor costs, protective gear and clothing, food and shelter, and social implications (Barsky et al., 2007; Twigg & Mosel, 2017). Scholars also identify various legal issues, such as insurance and certifications that need to be addressed in advance to prevent negative experiences (Daddoust et al., 2021; Sauer et al., 2014). Disasters themselves are traumatic experiences and therefore, the social and psychological implications on spontaneous volunteers also need to be considered when engaging with them (Daddoust et al., 2021).

In addition to the challenges spontaneous volunteers present (See 2.3), involving volunteers who emerge at the disaster location can be tricky. These spontaneous volunteers may lack sensitivity to the psychosocial, cultural, and practical needs of the disaster survivors (Brooks et al., 2015; Walker et al., 2016; Zhang et al., 2021). Sometimes they may create a sense of competition or may conflict with traditional emergency management volunteers and staff (Nissen et al., 2021; Saaroni, 2015). There is also a concern about mismatches of skills and roles that could hinder the recovery and response efforts (McLennan et al., 2017; Twigg & Mosel, 2017).

Spontaneous volunteering often comes with significant coordination, communication, managerial, legal, health, and safety challenges (Daddoust et al., 2021) for both volunteers and official emergency management

organisations. Yet, with the changing emergency volunteering landscape, researchers suggest the advantages of including them are equally important. They may bring new ways of doing things to respond to disasters, for example, location sharing to assist official responders during Hurricane Katrina (Greenhalgh, 2018; Yuan et al., 2021). They may provide access to local knowledge and resources that may reduce costs for governments and organisations (Kaufhold et al., 2020; Wekke et al., 2019). They may be immediately available and bring unique skills that may not be readily available (Schmidt & Albert, 2022; Simsa et al., 2018; Yang, 2021).

Equipped with social media platforms, spontaneous volunteers correct misinformation and provide real-time stories from the ground (Ahmed et al, 2016; Y. Huang & Wang, 2022). They also assist with building connections between official responders and communities (Kaltenbrunner & Renzl, 2019; Ramsell et al., 2017). Their role in building therapeutic communities and providing emotional support is also recorded (Hawkins & Maurer, 2009). As for the volunteers themselves, sometimes their engagement can result in life-changing experiences and satisfaction with one's self (Clukey, 2010; Geng et al., 2022).

In summary, there is a possibility that spontaneous volunteers may pose threats to themselves, official emergency responders, and the victims. For example, many rescuers lost their lives in the 1985 Mexico City earthquake because they lacked the necessary skills, knowledge, and tools for urban search and rescue (Helsloot & Ruitenbergh, 2004). Many well-meaning helpers caused a 32-kilometre traffic jam that prevented emergency response teams from reaching the scene during the 1999 Turkey Marmara earthquake

(Helsloot & Ruitenbergh, 2004). At the same time, the literature supports that there are many advantages in utilising spontaneous volunteers, especially when disasters are prolonged and official responders are overstretched, hence the apprehensions experienced by the official responders represented by the involvement/exclusion paradox.

The COVID-19 pandemic presents an interesting case where traditional forms of volunteering faced various limitations and evoked an increase in spontaneous volunteering. It demonstrated their strategic role during crises, which has also revealed some valuable lessons for future disasters (Luksyte et al., 2021). For example, help from individuals within communities became a significant resource, prominently in healthcare (Domaradzki, 2022; Mao et al., 2021; Paine et al., 2019). This evidenced the need to design strategies to effectively engage with spontaneous volunteers on multiple levels. Managing spontaneous volunteers' expectations is a hot topic of discussion within emergency services too (McLennan et al., 2016; Nissen et al., 2022b; Trautwein et al., 2020).

Self-organising has its limits; the extent to which individuals can participate in disaster management depends on the structure and arrangements of emergency services organisations (Whittaker et al., 2015). Guidelines have been established internationally to assist with this (Dulloo et al., 2020). A recent study explored the tools used to engage with spontaneous volunteers in Germany, Italy, Belgium, Hungary, Sweden, Norway, Finland, and Estonia, and the perceived benefits and challenges when engaging with spontaneous volunteers (Nahkur et al., 2022). It found that in all countries, except Italy, crisis-preparedness campaigns encouraged community members and

spontaneous volunteers to seek and respond to the needs of the vulnerable individuals. In Italy, the campaigns were organised by the affiliated volunteers themselves. These campaigns sought to recruit formal or traditional volunteers for their organisations. In addition, the awareness-building campaigns offered information on training opportunities and the kinds of activities that could engage local support networks. The researchers also found that social media was used as a means for informing, registering and/or directing spontaneous volunteers during emergencies. Thus, spontaneous volunteers were viewed as a supportive resource for the official responders.

There is a drive to encourage non-profit organisations such as The Red Cross and Red Crescent which often operate as intermediaries between spontaneous volunteers and official emergency services, to identify the skills and resources available in the community, and to offer quick training to collaborate with spontaneous volunteers when needed (Kaltenbrunner & Renzl, 2019). The German Red Cross guidelines list tasks that can be performed by volunteers with specific knowledge and skills (Krüger & Albris, 2021). The Swedish Red Cross took responsibility for coordinating with spontaneous volunteers, while Norway and Finland established protocols (including insurance and reimbursements) to assist with engagement.

The efforts towards inclusion suggest a shift in the perception of spontaneous volunteers. The guidelines also identify that it is important to ensure spontaneous volunteers' experiences are positive and that volunteers are satisfied with their efforts so that they may continue to volunteer in the emergency sector (Volunteering Australia, 2023). In Australia, Disaster Relief Australia (DRA) operates nine disaster relief teams across different states that

recruit and manage local spontaneous volunteers during emergencies (DRA, 2023). DRA was highly commended for its operations as well as the development and delivery of their post-operative reviews that aim to help local communities build resilience to natural disasters (Price, 2022; DRA, 2023). It trains spontaneous volunteers and collaborates with them in recovery and response efforts so that they may continue to volunteer in the emergency sector. Furthermore, various social media platforms have been identified as important tools to engage with spontaneous volunteers (Kankanamge et al., 2020), and to inform about opportunities to collaborate, while providing contact points to assist such engagement (Krüger & Albris, 2021; D. Shaw et al., 2015). Social media presents an opportunity to network and establish relationships with key spontaneous volunteers on various social media platforms and groups (Haro-de-Rosario et al., 2018). Whether spontaneous volunteers take advantage of these opportunities is not recorded.

2.7 The role of social media in disaster management

The last two decades have witnessed an exponential increase in research on social media use during the prevention/mitigation phase (D. E. Alexander, 2014; Saroj & Pal, 2020; Veil et al., 2011). Social media has emerged as a powerful tool in disaster management, facilitating communication and coordination among stakeholders (Saroj & Pal, 2020). Zhang et al., (2019) identify several aspects of social media informatics that assist in the disaster recovery phase, damage assessment, and assisting with aid-seeking and aid-providing activities.

Social media has been defined as a group of internet-based applications built on the foundation of Web 2.0, which allows the creation and exchange of user-generated content (Kaplan & Haenlein, 2010). An increasing number of researchers have identified the utility of social media during this preparedness phase, especially for knowledge management (Hutagalung & Indrajat, 2020). There is an increase in the adoption of social media platforms to respond to emergencies (Reuter et al., 2023; Ginanjar & Mubarrok, 2020; Rebellion, 2019). Social media can harness this knowledge quickly (Arain, 2015; Reuter & Kaufhold, 2018; Saroj & Pal, 2020; Zhang et al., 2019).

Social media has enabled individuals to participate in the actual crisis communication for major disasters (Lovari & Bowen, 2020). It has been widely used to collect information about missing people, inform the public, as well as provide situational updates (Harrald et al., 2002; Palen & Liu, 2007). Yet, how social media facilitates individuals to assist with disaster management is not clearly understood (Huang & Wang, 2022; Merchant & Lurie, 2020; Zhao et al., 2019). Existing research records how social media platforms such as Twitter, Facebook, and Instagram have been used in disaster management (Reuter et al., 2018; Reuter & Kaufhold, 2018). These studies suggest that individuals use social media to disseminate information, organise volunteers, and coordinate relief efforts.

Twitter emerged as the most frequently investigated platform to research social media engagement during disasters (Haro-de-Rosario et al., 2018; Kalsnes & Larsson, 2018; Willson et al., 2021). The application of these strategies on other platforms remains unknown (Smith et al., 2021; Yuan et al., 2021). Evidence from the 2010 Haiti earthquake shows that information about

the earthquake circulated via social media, informed a large number of people, and facilitated more than US\$25 million to the American Red Cross in a short period (Gurman & Ellenberger, 2015). Facebook discussion groups did not just share information, they also helped in coordinating donations and offering support to victims (Brown, 2022; Fosso Wamba et al., 2017). Research records many instances where social media helped save thousands of lives and altered the process of disaster management (Eismann et al., 2016; Stephens et al. 2020).

There is increased scholarship on how to utilise this platform for efficient disaster management (Reuter & Kaufhold, 2018). Social media can combine real and virtual volunteers (see 2.6.1 below). The fields of Crisis Communication, Computer-Human Interaction, and Disaster Risk Reduction record numerous instances where social media was used by community-based volunteers for recovery and response efforts (Chen et al., 2010; Li et al., 2018; Nissen et al., 2021; Wridt et al., 2014; Wulandari et al., 2018; Yuan & Liu, 2018). However, they offer little information on the perspectives of these users.

More recently, scholars have started exploring the role of modern information and communication technologies in understanding spontaneous volunteer convergence (Feinberg & Malur, 2020). Volunteer behaviour under various circumstances is being studied (Lindner et al., 2018). Scholars are also investigating how to facilitate the interaction between spontaneous volunteers and official emergency services using social media (Abedin & Babar, 2018; Paret, 2020; Sperling & Schryen, 2022). A key characteristic of spontaneous volunteering via social media is that it knows no geographical boundaries,

social media platforms facilitate volunteers everywhere to contribute to local and international causes. The Indonesian case study of Beidar shows how social media was used in the local context. It records how volcanic activities were monitored by volunteer groups, and early warning signs were shared with the villagers within the hazard zone when Mt. Sinabung in North Sumatra erupted (Wulandari et al., 2018). It records how local volunteers emerged as repositories of local knowledge and wisdom, filling gaps in the official response. Social media has also been used to organise and manage spontaneous volunteer efforts during floods (Sharp & Carter, 2020).

During the COVID-19 pandemic, social media platforms played a crucial role in organising peer support on a global scale (Jukarainen, 2020). Although organised volunteering revealed structural differences across regions—such as variations in resources, skills, and policies—social media users from different areas and countries participated in similar ways. Scholars have identified methods for leveraging Virtual Operations Support Teams (VOST) to establish trust-based relationships with local volunteers, which can be mobilised during emergencies (Fathi et al., 2020). These collective efforts highlight an increasing awareness of the role social media platforms play in engaging spontaneous volunteers across geographic boundaries.

Nissen et al., (2021) study highlights that social media promoted prosocial behaviour among university students, enabling an army of helpers to be mobilised following the Canterbury, NZ earthquakes 2010-2011 (Nissen et al., 2021). Prosocial behaviour was also witnessed during COVID-19 pandemic among medical students that used social media to assist their local communities around the world (Adejimi et al., 2021; Buckland, 2020;

Chermside-Scabbo et al., 2021; Choi et al., 2020; Domaradzki, 2022; Domaradzki & Walkowiak, 2021; Pickell, Gu, & Williams, 2020). With an increase in the use of social media platforms, emerging studies are also investigating the power dynamics in online spaces. Some recent research focuses on power and agency in online work settings (Curchod et al., 2020), cyberbullying (Ademiluyi et al., 2022), and social exclusion (Meshi & Ellithorpe, 2021). The next section discusses research on virtual volunteers.

2.7.1 Virtual volunteers

Virtual volunteering (also known as online or e-volunteering) has been growing in popularity over the years (Evans & Saxton, 2005; Reuter et al., 2013), especially with the push for remote activities due to the COVID-19 pandemic (Lachance, 2021). Virtual disaster volunteers are described as individuals who volunteer on a non-traditional basis and assist with disaster relief and other activities online (Plotnick et al., 2015; Reuter et al., 2013; Starbird & Palen, 2011; Tapia et al., 2013). Virtual volunteers act as information brokers, collect information from various networks, and attempt to help the affected disaster area (Pickell et al., 2020). Often referred to as disaster knowledge workers, they operate behind the scenes to provide communication and coordination support (Smith et al., 2021).

Existing research on Natural Hazards and Digital Technologies in Disaster Management suggests that individuals increasingly turning to social media and information communication technologies during disasters to gain information, and help one another (Sutton et al., 2018; Smith et al., 2021). The activities performed by spontaneous volunteers on the ground and virtual volunteers are

similar as far as collecting donations or providing psychological relief are concerned, however, virtual digital volunteers work mainly online (Ludwig et al., 2015). Researchers are investigating the roles digital volunteers play during disaster response (Reuter & Kaufhold, 2018) and how inclusive the neighbourhood-based social networks are (Smith et al., 2021). Reuter et al. (2013) further classified Twitter users as helpers, reporters, re-tweeters, repeaters, and readers.

Virtual volunteering allows individuals to contribute their skills and time to a cause or organization from the comfort of their homes or offices, making it a safe, convenient, and flexible form of volunteering. The volunteers may register with an organisation to perform specific roles (Yu et al., 2010). Virtual volunteering can also be spontaneous if individuals are not part of an organisation (Reuter et al., 2013). Social media has been identified as an enabler for spontaneous volunteering that does not only then occur on the ground but also inside virtual spaces (Gunessee et al., 2017). A recent study by Arslan et al., (2021) showed how social media promoted a sense of belonging among volunteers during COVID-19 highlighting the role of virtual volunteering. Sense of belonging also assists in developing a community's ability to build resilience, that is, to not just bounce back but bounce forward (Manyena et al., 2011).

Eismann et al. (2016) identified various types of volunteers that utilise social media to respond to disasters. They were divided into public and organisational roles in the real and virtual realms. Public roles in the real realm relate to local community members who have experienced the disaster first-hand and use social media platforms to post real-time updates, photos, or

videos from affected areas. They may also mobilise immediate neighbourhood response efforts via social media groups. Public roles in the virtual realm relate to individuals who may be in a different city or country, not directly affected by the disaster but who share information, resources, and fundraising campaign data related to the disaster on social media platforms. They co-create knowledge and activities. Co-creation is a process through which two or more entities constructively exchange experiences, knowledge, resources, competencies, energies, and ideas that advance the quality of plans or policies to solve a shared problem, challenge, or task (Torfing, Sørensen, & Røiseland, 2019).

On the other hand, organisational roles in the real realm relate to members of a recognised humanitarian organisation on the ground in the disaster zone, who post official updates, call for aid, or provide safety instructions on the organisation's social media channels. Organisational roles in the virtual realm relate to response teams working remotely for a humanitarian organisation, monitoring social media feeds for real-time information, mapping crisis data, or coordinating with other organisations virtually to streamline relief efforts (Eismann et al., 2016).

Before the COVID-19 pandemic, limited information was available on spontaneous volunteering and even less on virtual volunteering. Afzalan et al. (2015) examined active and influential Facebook group members following Hurricane Sandy to find that the majority of active online members were also involved in on-the-ground recovery activities. They played an important role in the integration of online and on-the-ground disaster recovery efforts (Afzalan et al., 2015). Unfortunately, the study does not record the experiences of these

group members. Such information would offer insights into how people naturally react, communicate, and seek information during emergencies. It would also assist with creating future disaster communication strategies.

During the recent hurricanes Matthew (Yuan & Liu, 2018) in Haiti, Harvey (Greenhalgh, 2018) in Texas, and with the Indonesian tsunami (Djalante, 2018), it was the local spontaneous volunteers who created awareness as well as reached those in need through the use of social media. These developments have led to increased research in online activities during disasters (Damanpour & Schneider, 2006; Hansen, 2011; Nissen et al., 2022a; Nissen et al., 2021; Wekke et al., 2019; Xiao et al., 2015), and more specifically, of social media influencers (Hazarika et al., 2021).

As a result of these studies, the important role of social media influencers has surfaced. Social media influencers are individuals who have established credibility within a specific industry or niche on social media platforms (Freberg et al., 2011). They have a relationship with their audience that allows them to influence them (Ouvrein et al., 2021). While the focus of much research has remained on influencer marketing (Hudders et al., 2021; Ouvrein et al., 2021) the impact of social media influencers can be seen in every sphere of life (Magno & Cassia, 2018; Smit et al., 2020).

Social media engagements during COVID-19 were found to be critical to sharing messages to combat the adverse impacts of social isolation (Hou, 2023), and for real-time information communication (Bazan et al., 2021). The COVID-19 pandemic also saw an outpouring of spontaneous volunteers who self-organised through social media to deliver groceries, sew masks, and

support those in self-isolation (Biddle & Gray, 2022; Mao et al., 2021; McCabe et al., 2020; Trautwein et al., 2020). Volunteers could easily connect with others who were interested in providing aid. Similarly, during the Australian Bushfires in 2020, thousands of individuals took to social media platforms to offer assistance, ranging from supplying food and water to providing temporary housing for those displaced (Willson et al., 2021).

Online or virtual volunteering makes it easier to be a spontaneous volunteer since individuals are able to spontaneously self-organise and mobilise without necessarily being affiliated with a traditional volunteering organisation. Social media also facilitates micro-volunteering, where people can contribute to a cause with minimal barriers to entry while enabling them to rapidly scale their efforts when a crisis arises (Summet, 2019). Micro-volunteering consists of small, quick, low-commitment actions that are often facilitated by the internet or mobile devices (Churchill, 2020; Cravens & Ellis, 2000). WhatsApp, Facebook, Twitter, and Slack emerged as platforms for communication: to share updates, and to make plans to provide aid in a coordinated and effective manner (Biddle & Gray, 2022; Kifle Mekonen & Adarkwah, 2022; Mao et al., 2021; Samuel, 2020).

While research on virtual volunteers and their social media use during emergencies is expanding (Cowan, 2017; Haro-de-Rosario et al., 2018; Raisio et al., 2022), this information is not readily available to inform emergency managers, policymakers, and practitioners in the field, as it is often siloed under crisis informatics and other fields. It seems social media is changing the crisis management framework from a formal “hierarchical” decision-making one to a spontaneous, emergent framework, involving peer communication

and allowing volunteer citizens to actively take part in crisis response efforts (Sabou et al., 2015; Vieweg et al., 2010; Yates & Paquette, 2011).

However, there are various issues identified with social media use. Misinformation is a significant problem as it facilitates the spreading of information quickly and widely (Huang & Wang, 2022; Starbird et al., 2014; Starbird & Palen, 2011). There is also a lack of understanding of how social media facilitates volunteers to share knowledge (Rowley & Fullwood, 2017). Tagging individuals who were at higher risk was recorded, both to ensure that they received information in the early stages of the pandemic and to minimise risk for many lives (Biddle & Gray, 2021; Christianson & Barton, 2021; Spear et al., 2020). At the same time, misinformation, rumours, and the spread of fake news were also recorded, identifying the need to mitigate their harmful effects. The next section records the gaps in the literature that present a missed opportunity for official responders and that require immediate attention.

2.8 Limitations of current research

The literature review revealed several gaps. First, there is no clear definition of spontaneous volunteers. This highlights the need for greater conceptual clarity on the phenomenon of spontaneous volunteering. There is also a lack of empirical research on their experiences before, during, and after a disaster. The focus of existing research remains on the coordination, selection, and recruitment of spontaneous volunteers (Martínez et al., 2021; Sharp & Carter, 2020; Sperling & Schryen, 2022).

Second, there is a need to explore emergency voluntary work further to address the involvement/exclusion paradox. This is important because of the

decline in traditional emergency services volunteers and the growth in social media use during emergencies. Third, it is hard to find spontaneous volunteer voices in research, we do not know how they use social media, which platforms are used most frequently, along with how social media platforms facilitate them to perform recovery and response efforts. This information would assist in designing strategies that are inclusive, and aid in sustainable emergency management (Villeneuve, 2021).

Scholars also identify that more attention needs to be given to collaborative efforts such as jointly creating new understanding and solutions through collaboration and shared experience (Muñoz-Erickson, 2014; Muñoz-Erickson et al., 2017). This can be done by exploring how social media has enabled a diversity of actors to gather and share timely information and assist with recovery and response efforts.

To date, little is known about how spontaneous volunteers used social media to collaborate behind the scenes. We do not know why spontaneous volunteers turned to social media initially (Yang, 2021). One could ask, 'What do they gain from it' (Aguirre & Bolton, 2013; Cottrell, 2012), and, 'What challenges do they face when engaging with these platforms' (Reuter & Kaufhold, 2018). For a more holistic understanding, existing knowledge must be complemented with the voices of spontaneous volunteers. The next section describes the theoretical concepts that were used to guide the investigation of spontaneous volunteers' experiences.

2.9 The theoretical framework

In examining how spontaneous volunteers use social media to participate in recovery and response efforts, this thesis seeks to understand how social media facilitates spontaneous volunteers. Online spontaneous volunteers at the grassroots level pull information from the bottom up in an unstructured format (Palen & Liu, 2007; Sarcevic et al., 2012), and help create ties with groups that can be mobilised (Lin, 2017). The thesis used Structuration Theory (Giddens, 1984b) to understand what social media platforms offered to spontaneous volunteers. To explore the methods and tools spontaneous volunteers used to engage and co-create knowledge during disasters, the thesis used the Co-production of Knowledge Model (CKM) (Callon, 1999a). Together, these two theories enabled the researcher to understand the lived experiences of spontaneous volunteers.

2.9.1 Structuration Theory and Human Agency.

Structuration Theory, developed by Giddens (1984a), explains human agency (action) in the context of social structure, integrating both concepts. Giddens (1984a) explores how individual actions, interactions, and institutional rules interact to shape the social world. The theory underscores that human agency (the capacity of individuals to act independently, make choices, and influence the world around them) and social structure (the recurrent patterns of social behaviour and the institutionalised rules, norms, and resources that guide and constrain individual actions) are not separate constructs; rather, they are produced together by social actions and interactions. This means that while social structures influence and limit the choices and actions of individuals (agency), they are simultaneously produced and reproduced through those very actions. Giddens (1984a) emphasises the mutual influence of individuals

and societal structures, where individual actions both inform and reshape societal structures.

2.9.1.i Reproduction and transformation of social structures:

Human social activities are recursive, continually recreated by the very means whereby individuals express themselves as actors. Through their activities, agents reproduce the conditions that make these activities possible. Structuration Theory examines how social structures and institutions are reproduced and transformed over time. The theory highlights the "duality of structure," where social structures are both the medium and the outcome of human practice (Giddens, 1979). This duality means that while social structures guide human practices, these practices, in turn, shape and challenge the structures.

2.9.1.ii Agency in the context of social structures

Agency is a dialogic process (Emirbayer, 1997), where an agent can exert control to transform social relations. It is influenced by structures, which dictate individual actions depending on the human and non-human resources accessible to the individual (Sewell Jr., 1992). Agency is not uniform; it differs depending on the power structures within which individuals operate (Giddens, 1979). Human will and agency transform passive inert individuals into active participators (Emirbayer & Mische, 1998). Agency is always exercised towards something afforded by the structure surrounding persons, places, and events (Bandura, 2018).

Moore (2016) describes agency as a sense of autonomy in one's actions, while Goffman's works (1959, 1967) discuss the variability in individual agency.

Literature suggests that social media enhances agency, enabling individuals to set and achieve objectives. Studies like those by Baumer et al. (2018) and Reuter and Kaufhold (2018) highlight this. The extent of agency by individual persons is relative to their position within organisations (W. Sewell & Smith, 1998). Personal agency is often implicated in collective struggles and resistances, influenced by collectively produced differences in power (Gebauer et al., 2013; Haggard, 2017).

2.9.1.iii Social media and spontaneous volunteering

Social media provides a structure for organising and sharing information during disasters, facilitating collaboration and decision-making (Jukarainen, 2020; Nissen et al., 2021). It allows for self-organised, grassroots recovery and response efforts during disasters (Jayathilaka et al., 2021; Reuter & Kaufhold, 2018; Sufi & Khalil, 2022). Studies show that social media fosters community connection by enabling individuals to share experiences and collaborate in real time (Albahari, 2017; Domaradzki, 2022; Zhang et al., 2021). Structuration Theory provides a valuable lens for exploring the world of spontaneous volunteers. It views the social world as a composite system of interacting parts, including rules, institutions, and individuals. It emphasises the fact that individual behaviour, while constrained by existing social structures, also produces practices and structures that may challenge the current status quo. While social structures guide human practices, they are, in turn, shaped by those practices (Giddens, 1984a). Exploring the duality within social media platforms would create a more holistic understanding of the utility and challenges associated with these platforms.

Using Giddens Structuration Theory (1984) this thesis will explore how individual actions are interwoven with social structures, and how spontaneous volunteers' efforts in turn shape societal norms and practices, that support official emergency responders. Understanding how spontaneous volunteers' social media use alters the existing structures of emergency management requires further exploration.

2.9.2 Co-production of knowledge model (CKM)

In conjunction with Structuration Theory, the thesis also used Callon's (1999b) Co-production of knowledge model (CKM). CKM is a conceptual framework that emphasises the collaborative and interactive process through which knowledge is produced. It considers the role of specialists to be essential (Callon, 1999b). In this model, knowledge is not seen as something that is generated solely by experts or scientists in isolation. Instead, it involves the active participation of various stakeholders, including scientists, policymakers, industry representatives, and the public.

2.9.2.i Key features of the co-production of knowledge model:

CKM is a collaborative process where knowledge is produced as a collective activity. Different actors contribute their perspectives, expertise, and interests. This collaboration often spans across disciplines and sectors, integrating scientific knowledge with local, experiential, or practical knowledge.

One of the central tenets of Callon's (1999b) model is the inclusion of non-experts or laypeople in the knowledge production process. This inclusion recognises the value of diverse forms of knowledge and ensures that the

outcomes are more socially robust and applicable. Thus CKM advocates a hybrid forum composed of concerned groups of specialists and lay experts to work together, cooperate, and produce knowledge dynamically. As co-production includes the engagement of different actors (Torfing et al., 2019), this engagement allows them to integrate ideas and experiences through which all can collaborate. The process also involves negotiation among the involved parties, with reflexivity being key. Reflexivity refers to the ongoing reflection on the process, the roles of participants, and the implications of the knowledge being produced.

The model suggests that knowledge and social order are co-produced. This means that as knowledge is generated, it simultaneously shapes and is shaped by social, cultural, political, and economic contexts. Knowledge and society influence each other in a dynamic, reciprocal relationship. Ellis, Gribbs, and Rein (1991) suggest that collaboration is cyclical, involving multiple repeating stages connecting the 3Cs: communication, coordination, and cooperation (Fuks et al., 2008). However, co-production requires trust-based relationships (Norström et al., 2020), which can be achieved by acknowledging the different needs, interests, and beliefs of the actors impacted by the problem. Such actions are also integral to fostering a sense of community engagement and ownership over disaster recovery (Cretney, 2018). In this way Co-production of Knowledge Model challenges traditional notions of knowledge as the domain of experts and instead advocates for a more inclusive, interactive, and context-sensitive approach to generating understanding and solutions.

An important aspect of CKM is that it views knowledge as situated, meaning it is specific to the context in which it is produced. The co-production model acknowledges that knowledge cannot be entirely objective or universal; it is influenced by the environment, culture, and conditions under which it is generated. Norström (2020) summarises that knowledge co-production should be i) context-based; ii) pluralistic; iii) goal-oriented; and iv) interactive (Norström et al., 2020). Scholars suggest that sharing experiences, ideas, and values through frequent interactions can facilitate collective actions (Bimber et al., 2012; Bovaird et al., 2015; Park & Johnston, 2015), which are often critical for emergency disaster response.

In summary, co-production's vision entails: i) that the users are active agents and not passive recipients, ii) the services are user-driven, iii) the user's knowledge and experience are valued as equal to professionals', iv) both professionals and service users recognise the benefit of collaboration, in a reciprocal and mutually beneficial relationship, v) there is an increased capacity to address user's present and emerging needs as the way services are designed and delivered. Lastly, vi) user participation is encouraged and facilitated through networks (Heaton et al., 2015).

2.9.2.ii Issues identified with spontaneous volunteer engagement

Some issues associated with co-production in the social media context as well as engagement with spontaneous volunteers have been identified in the literature (Verschuere et al., 2012). First, it is difficult to manage large groups of citizens during disasters, who do not represent a registered organisation that performs recovery and response efforts (Harris et al., 2017). Second, the

disaster zone presents risks of misperceived intensity that community volunteers might not appreciate (McLennan, 2022; McLennan et al., 2017; McLennan et al., 2021). Engagement with spontaneous volunteers may also risk the reputation of the official responders (Daddoust et al., 2021). Due to their lack of formal training, spontaneous volunteers may not adhere to the established protocols. Their actions might conflict with the official strategies and create confusion. Eventually, such actions could lead to the public misperception that emergency managers are not in control of the situation (Drabek & McEntire, 2003).

There are also legal and ethical concerns about involving spontaneous volunteers. If spontaneous volunteers are injured or cause harm to others, the legal liability may fall on official emergency management whose due diligence in managing volunteers may be questioned (Fernandez et al., 2006). Since spontaneous volunteers are not privy to emergency management's communication channels, their social media reports might reflect poorly on the official emergency managers. However, during COVID-19, volunteers were able to teach others how to use social media effectively and responsibly (Meder, 2021). This included discussing verified information, use of humour, and communicating calmly and reassuringly that may serve well as a guide for local authorities for their future engagements with volunteers.

Other weaknesses of involving spontaneous volunteers include conflicting objectives: goals and values of spontaneous volunteers may differ, eroding public trust in official emergency responders (Whittaker et al., 2015). Post-disaster evaluation and media scrutiny might focus on mistakes and misunderstandings involving spontaneous volunteers. These issues may be

magnified, casting doubt on the overall competence and effectiveness of the official responders. Hence, emergency managers have many things to take under consideration before engaging with spontaneous volunteers.

2.9.3 Combining the two theories and their application to spontaneous volunteers and disaster management

Structuration Theory (Giddens, 1984a) and Co-production of knowledge model (Callon, 1999b) are two approaches that can work together to understand how spontaneous volunteers produce knowledge. Structuration Theory (Giddens, 1984a) emphasises the role of social structures in limiting or enabling action as well as acquisition, production, and dissemination of information that facilitate action. The Co-production of knowledge model (Callon, 1999b) emphasises the role of individuals and communities in creating and using knowledge.

CKM (Callon, 1999b) is important for this thesis because it suggests that human behaviour and decision-making are influenced by the context in which people operate, and by the collective group's objectives, norms, and values. CKM also goes well with Giddens's (1984a) Structuration Theory to explore how the actions of spontaneous volunteers, with their individual needs, demands, expectations, feelings, capacities of action, and cognition, are shaped by the socio-technical environment of their collective. By combining these two approaches, we can gain a more comprehensive understanding of how social media facilitates spontaneous volunteers to participate in recovery and response efforts. It will assist in understanding how this knowledge is produced and disseminated in different contexts. For example, how

spontaneous volunteers work together to create and use knowledge in their daily lives.

2.9.3.i Application of the Structuration Theory

Formal command and control structures often have set rules and goals that limit the agency of spontaneous volunteers (Eliasoph, 2009; Fernandez et al., 2006; Nissen et al., 2022b). Spontaneous volunteering, which often happens outside formal structures, is guided more by community norms than institutional rules. This creates tension between the structured approach of formal responders and the more fluid, adaptive approach of spontaneous volunteers. Little is known about how agency is experienced by spontaneous volunteers, particularly when using social media, and the positive and negative consequences of this interaction. Since power and resources lie with official emergency responders, understanding this dynamic is crucial for improving the engagement and effectiveness of spontaneous volunteers. Through the lens of structuration theory, a deeper exploration of the lived experiences of spontaneous volunteers and the impact of the involvement/exclusion paradox is possible.

Researchers like Kaewkitipong, Chen, and Ractham (2016) advocated for understanding social media's role during crises, using Structuration Theory. The theory is relevant for analysing how spontaneous volunteers interact with the structure of emergency management and how their actions, facilitated by social media, shape and are shaped by societal structures. Social media platforms, as structural elements, provide spontaneous volunteers with tools to plan, organise, and manage disaster response activities effectively.

Agency, the ability of individuals to act and make decisions, arises from one's knowledge of societal norms, access to resources, and the capacity to apply them to new contexts (Bandura, 2018; Emirbayer & Mische, 1998; Sewell Jr., 1992). Self-organised spontaneous volunteering is often a response to perceived limitations of top-down, bureaucratic emergency management structures, as noted by numerous studies (Eriksson & Olsson, 2016; Gurman & Ellenberger, 2015; Harris et al., 2017). Their efforts shape community response and social norms during emergencies, an idea supported by Whittaker et al. (2015), Twigg & Mosel (2017), and many others.

Social media provides a structure for organising and sharing information during disasters, aiding collaboration and decision-making (Jukarainen, 2020; Nissen et al., 2021), that is indicated to overcome command and control limitations encountered in stressful, hostile, chaotic, and large-scale settings (Aldunate et al., 2005). Albahari (2017) and studies like Domaradzki (2022) and Zhang (2021) also show that social media fosters community connection by enabling individuals to share experiences.

Structuration Theory offers a comprehensive framework for understanding the interconnected nature of spontaneous volunteers, their social media use, and their community. It allows for an exploration of the barriers, motivations, coordination, and impact of spontaneous volunteers within the societal context, particularly when using social media platforms. Emirbayer and Goodwin (1994) and Sewell Jr. (1992) note that individuals transform structures like resources and societal norms to achieve their goals. This theoretical view highlights how individual actions, guided by social structures, can reinforce or alter these

structures, providing valuable insights into the dynamics of spontaneous volunteering in disaster management contexts.

Fang et al. (2017) applied Structuration Theory to analyse social media posts during disasters, reaffirming the mutual influence of human actions and societal structures. While their study focused on real-time data from the 2008 Chinese earthquake, this thesis aims to explore how social media offers spontaneous volunteers a structure to plan, organise, and manage activities, making disaster information sharing more effective. It also seeks to learn how social media engagement mobilises relief efforts and impacts existing structures. Therefore, using Giddens Structuration Theory (1984) this thesis will explore how individual actions are interwoven with social structures, and how spontaneous volunteers' efforts in turn shape societal norms and practices, that support official emergency responders. Understanding how spontaneous volunteers' social media use alters the existing structures of emergency management requires further exploration.

2.9.3.ii Application of the Co-production of Knowledge Model (CKM)

The Co-production of Knowledge Model (CKM) has been recognised as a means to address societal problems by fostering collaboration between expert knowledge and local experiences (Ostrom, 1996; Polk, 2015). In the context of disaster recovery and response, efficient and sustainable disaster management would translate to emergency services organisations and spontaneous volunteers working together (Boersma et al., 2022), understand the risks and problems, and making necessary adjustments (McLennan et al., 2021).

The Co-production of Knowledge Model advocates for collaboration between expert knowledge and local experiences. It has been applied in environmental governance, technology development, or public health. By engaging various stakeholders in the knowledge production process, the model aims to create knowledge that is more democratic, contextually relevant, and likely to be accepted and implemented by those it affects to build collective resilience (Muñoz-Erickson, 2014; Muñoz-Erickson et al., 2017). CKM has the capacity to facilitate synergy (Mauroner & Heudorfer, 2016; Sufi & Khalil, 2022)

In disaster recovery efforts, social media has been recorded to play a crucial role in facilitating collaboration (Palen & Hughes, 2018). Specialist emergency services may at times work with local communities and spontaneous volunteers towards recovery (Houston et al., 2015; Park & Johnston, 2015). Social media has increased such occurrences (Palen & Hughes, 2018), challenging the divide between specialists and laypeople (Azad et al., 2021). CKM provides a framework for understanding how social media facilitates the co-production of knowledge by allowing multiple stakeholders to contribute to crisis response and recovery (Sufi & Khalil, 2022). This model is particularly relevant as it highlights how social media challenges traditional hierarchical structures, enabling more inclusive and democratic participation (Azad et al., 2021).

CKM can also be applied to analyse new forms of volunteer management, such as crowd-tasking, which have become prominent with the rise of social media. For example, humanitarian organizations like the Austrian Red Cross have used crowd-tasking to mobilise volunteers for disaster response efforts (Neubauer et al., 2013). Social media platforms facilitate this process by

enabling volunteers to contribute labour, services, and ideas, often in real-time, which is critical in crisis situations like the search for the missing Malaysian Airlines flight MH370 (Fishwick, 2014).

CKM provides valuable insights into how the experiences and knowledge generated by spontaneous volunteers through social media can be integrated into formal disaster management policies. By understanding the co-production process, policymakers can create more inclusive and responsive strategies that better engage spontaneous volunteers, thereby enhancing disaster management and community resilience (Li et al., 2022).

Through CKM, we can explore how spontaneous volunteers use social media to co-create knowledge and value during disaster recovery efforts. This model allows for a deeper understanding of the lived experiences of volunteers, revealing how their actions shape and are shaped by the socio-technical environment of their collective (Callon, 1999). Such insights are critical for developing effective strategies for engaging and retaining spontaneous volunteers, ensuring that their contributions are recognised, and collaborating with them in the broader disaster response efforts.

The COVID-19 pandemic proved that social media can be a tool for communities to interconnect, share resources, and provide emotional support to those struggling (Carlana & La Ferrara, 2021). Social media may assist in the development of strong bonds and trusted relationships that help build community resilience (Dayson et al., 2021). Communicating and strengthening ties with the local community has been identified as a more resilient crisis management approach (Boersma et al., 2022; Boersma et al., 2018).

Unfortunately, co-producing volunteers are still not able to participate in the development or design of policies and services but rather continue to fill gaps in the existing public services (Frederiksen et al., 2021).

Co-production also aims to remove barriers that arise due to hierarchy and bureaucracy, thus leading to synergy between citizens and government officials (Ostrom, 1996), which encourages reciprocal exchange (Duggan, 2021) as it acknowledges diversity and mutual efforts (Sardar, 2010). CKM involves the recognition of the important role of practical knowledge, informal processes, and improvisation when circumstances are unpredictable (Scott, 1998). By consolidating collaboration, streamlining the role of social media, integrating volunteer management practices like crowd-tasking (when people contribute labour, services, solutions, ideas, or content to complete a task or project), and providing insights for policy integration, CKM may help to uncover the complex dynamics of spontaneous volunteerism. It offers a comprehensive framework for understanding how spontaneous volunteers participate in disaster recovery and response efforts using social media platforms. This understanding is essential for building resilient communities and enhancing the effectiveness of disaster management strategies.

Neubauer et al., (2013) suggest new media services for volunteer management to enable new modes of voluntary binding. Computer human studies suggest various applications and public displays to facilitate such engagement. Crowdsourcing participants (paid or unpaid) use the internet to provide information or input on a task or project, highlighting a facet of digital spontaneous volunteerism, as observed in the online search party for a missing Malaysian Airlines flight MH370 (Fishwick, 2014). Additionally,

emergency responders and researchers have used crowdsourcing to devise innovative ways to obtain information on people with specialised skills, availability of material resources, and connections to assist with disaster recovery and response (Ludwig et al., 2017). These examples of how social media has empowered digitally savvy volunteers and facilitated peer-to-peer communication to gain information (Hughes et al., 2008; Palen & Liu, 2007; Reuter & Spielhofer, 2017; Sarcevic et al., 2012; Starbird & Palen, 2011; White et al., 2014), suggest that volunteers may no longer depend on official sources for information. These lessons learnt need to be integrated into policy to enhance disaster management, spontaneous volunteer experiences, and opportunities for collaboration (Li et al., 2022; McLennan, 2018, 2020; Nissen et al., 2021).

Scholars acknowledge the different ways individuals and groups function at the grass-roots level to devise effective communication and engagement strategies (Simsa et al., 2019). Social media's structure accommodates different needs, interests, and beliefs (Jayathilaka et al., 2021). Unfortunately, there is no information on how spontaneous volunteers co-produce knowledge, nor on what that process looks like. Understanding how spontaneous volunteers use these platforms to build capacity will add to the existing literature on the role of social media. It may also assist local authorities to better engage with spontaneous volunteers utilising social media platforms.

The Co-production of Knowledge Model (Callon, 1999b) as a theoretical lens is appropriate to explore how social media facilitated spontaneous volunteers to co-produce knowledge, and uncover the activities they co-create. It promotes the researcher's understanding of how social media is used to

establish trust-based relationships before a disaster occurs, that can be leveraged for self-organising during, and after a disaster. In doing so, this thesis extends existing literature on both spontaneous volunteering in the context of disasters and their use of social media platforms to participate in recovery and response efforts.

2.10 Summary

The literature review presents what is known about spontaneous volunteers and their participation in different phases of disasters. Disaster planning, recovery, and response are facing new and diverse challenges around the world (McLennan et al., 2016) (IFRC, 2023; Zhao et al., 2019). With high attrition rates in traditional volunteering, the sustainability of these services is at risk. The literature review also highlights that the hierarchical emergency management structure is very different from that of spontaneous volunteers. The emergency services personnel experience many challenges, but little is known about spontaneous volunteers' experiences when they participate in efforts to help themselves and their communities during disasters.

A rise in the use of social media applications and networks during disasters has been charted, in addition to spontaneous volunteers' use of these platforms to assist with recovery and response efforts during disasters (Schmidt & Albert, 2022; Yang, 2021). This thesis explores why spontaneous volunteers are turning to social media, and how their local knowledge and resources are utilised efficiently and effectively using social media. Information exists about why spontaneous volunteers get activated; little information is available about their experiences with social media platforms.

Volunteers are a community's hidden assets (Bittman & Doyle, 2002). Spontaneous participation during disasters is no longer just an opportunity, it is becoming a necessary economic reality, which requires emergency managers to rethink the structure of their organisations, communications, and practices. Social media supports spontaneous volunteers' participation in disaster recovery and response activities in unique ways. Co-creating disaster relief activities with spontaneous volunteers helps develop long-term relationships between them and emergency services, and build trust. This study offers insights into the engagement with spontaneous volunteers.

The study also aims to explore how spontaneous volunteers co-produce knowledge using various social media platforms during disasters to understand the phenomenon better (Kvarnlöf, 2018; Nissen et al., 2022a; Stone et al., 2019; Strandh & Eklund, 2018). This requires a critical examination of how various social media platforms have facilitated spontaneous volunteers' engagement in disaster recovery and response, and their lived experiences of when they engaged with various actors in the disaster management space, and how they shape their world.

Chapter 3: Methodology and research design

3.1 Introduction

This chapter describes the study's research methodology and design, the instruments used for data collection, the sampling method, and the ethical guidelines that were followed. The research conducted for this study addressed the following Research Questions:

Research Question One: How do spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases?

Research Question Two: How does social media enable/facilitate spontaneous volunteers' agency?

Research Question Three: What are the ways in which social media enable spontaneous volunteers to co-create knowledge to leverage offers of help, resources, and skills?

Research Question Four: What recommendations do spontaneous volunteers make to improve social media platforms and to enhance their experiences to encourage future volunteering?

Chapter 2 records that working with social media platforms is different from traditional forms of communication and therefore presents a different phenomenon to explore. It was necessary to devise an approach that enabled gathering data to interpret how social media facilitates spontaneous volunteers to communicate, collect information, share knowledge, and perform recovery and response efforts in the pre-, during, and post-disaster phases.

3.2 Research philosophy and phenomenology

The selection of a particular branch of philosophy implies a certain worldview (Saunders, Lewis, & Thornhill, 2009), and philosophical assumptions form the basis of that view. The researcher believes that personal experiences and past knowledge cannot be separated from the study and therefore judgments will be subjective (Saunders, 2016). The subjectivist view led to the adoption of the epistemology of interpretivism and a qualitative method (Saunders, 2016) for collecting and analysing the data in this thesis.

3.2.1 Interpretive research philosophy

The research paradigm adopted for this thesis was interpretivism (Saunders, 2016) as stated above. Interpretivist research philosophy (Denzin & Lincoln, 2011) focuses on naturalistic inquiry (Lincoln, 1985), which states that reality is not objective and fixed, rather it is constructed through social interactions (Carson et al., 2001). Reality can change based on personal experiences and interpretations, social actors create partially shared meanings. Thus, reality is multiple and relative (Hudson & Ozanne, 1988).

The interpretivist approach seeks to understand the social, cultural, and historical contexts in which phenomena exist, and to use this knowledge to inform the interpretation of the phenomenon. Knowledge is socially constructed from multiple and subjective truths, which are interpreted by individuals (Tuohy et al., 2013). It also emphasises the importance of subjective experiences and perceptions and works to uncover the meanings that participants attach to these experiences. The researcher would be subjectively involved in knowledge-making (Denzin, 2008; Denzin & Lincoln, 2011), In this way, the interpretivist approach helps to increase the depth

(Morehouse, 2012) and richness of the understanding of the human experience (Groenewald, 2004).

To understand the spontaneous volunteering experiences, as experienced by the spontaneous volunteer, it was necessary to investigate the underlying meanings created by the spontaneous volunteer.

Interpretivism helps to understand why one acts the way they do in their natural settings by analysing the meanings and interpretations that individuals assign to their experiences and interactions with others. These understandings and meanings had initially led the spontaneous volunteers to the activities they performed using social media.

Interpretivism also takes into account the role of power, emotions, and subjectivity in human behaviour, which can provide deeper insights into the underlying reasons for specific actions. Therefore, interpretivism can be a valuable tool for understanding complex human behaviour in natural settings (Arghode, 2012). The explanations of the social world of spontaneous volunteers are thus grounded in their understanding of themselves, their experiences, and their perceptions.

Interpretivism enables the study of multiple perspectives, being open to change, and promotes participatory and holistic research. It goes beyond inductive and deductive approaches (Willis et al., 2007). Listening to the experiences of multiple spontaneous volunteers will enable making sense of their realities and understanding what it is like to be a spontaneous volunteer. Spontaneous volunteer understanding of what constitutes reality, including their agency and action, is socially constructed by human actors and contingent upon human practices and structures they experience. Adopting

interpretivism allowed the researcher to explore spontaneous volunteers' thoughts and ideas while playing an active role in understanding their lives, actions, and experiences holistically. Therefore, this philosophy was believed to be suitable as it emphasised the influence that social and cultural factors have on individuals (Crotty, 1998).

Interpretivist research can adopt either cross-sectional (studying a phenomenon at a particular time) or longitudinal (studying a phenomenon over a prolonged period) time horizons, depending on the research question. This study is cross-sectional because it explores the experiences of spontaneous volunteers at a particular time when they were involved in a specific disaster.

3.2.2 Research approach

This thesis adopts an inductive approach due to the limited research and theories available for building upon, particularly because past studies have concentrated on the perspectives of official emergency responders and ground activities, rather than on online volunteering. An inductive approach entails generating theories from research (Saunders, 2016). An inductive approach is suitable when there is little information or knowledge available and therefore research would have to be conducted to gain more information. This new information leads to the formation of new theories.

3.2.3 Epistemology

Epistemology refers to the approach to knowledge (Saunders, 2016). In the epistemological branch of interpretivist philosophy, the emphasis is on understanding the lived experience of the participants based on interpretation of meanings, symbols, and discourse rather than through empirical

observation and measurement. In line with interpretivism, the researcher believes that knowledge can be understood based on the interpretation of lived experiences. Therefore, it was important to try and get close to their lives, understand their world and their perceptions, and create close relationships with them.

This approach allowed the researcher to enter the world of the spontaneous volunteers, their environment, and their natural setting to gain a deeper understanding of the underlying structures and patterns that govern spontaneous volunteer behaviour to interpret their words, actions, and body language and get the most accurate meanings to their lived experiences (Saunders, 2016). The next section discusses the researcher's value systems and their influence on the knowledge generated.

3.2.4 Axiology

Axiology relates to how the knowledge generated is valued, and how one's values influence the research process (Hart, 1971). Values play an important part in the knowledge generated in this thesis and cannot be separated from it. The researcher's value system, social, and cultural norms (Creswell, 2013) are as follows:

This topic is felt deeply by the researcher. As a young mother, the researcher was a witness to spontaneous volunteers in action during an earthquake in Pakistan, in 2005. At a time when traditional forms of communication were severed, spontaneous volunteers used social media to participate in recovery and response efforts that saved lives and coordinated timely aid for the victims. Over 19,000 children lost their lives (almost 20 percent of total deaths), over 70,000 people were injured, including many spontaneous volunteers who were

severely injured while trying to offer assistance (Ahmad, 2005). Many of the barriers faced by the community impacted by the earthquake, were due to a breakdown of the communication, lack of timely resources, and lack of coordinated efforts with the official emergency responders that were stretched thin beyond their capacity. This reality was an inspiration to explore the lived experiences of spontaneous volunteers who used social media platforms to offer assistance in recovery and response efforts.

Having witnessed an earthquake where spontaneous volunteers emerged instantaneously, the researcher had also experienced the loss of communication and lack of coordination during the earthquake. These experiences allowed the researcher to relate closely to the experiences of spontaneous volunteers. They also guided the inquiry and interpretation of the lived experiences of the spontaneous volunteers and their world.

3.2.5 Methodological choice

In line with interpretivism, the qualitative research method was selected, which is particularly helpful in understanding the experience of individuals or groups of people (Corbin et al., 2014). A qualitative approach was considered most appropriate to respond to the four research questions. The first research question aimed to explore how spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases. A quantitative approach would use numbers in the form of figures, mathematical models, statistical tables, measurements, and graphs, rather than words (Denzin & Lincoln, 2008). Similarly, the remaining research questions require detailed responses based on spontaneous volunteer lived experiences to understand how social media facilitates their agency and the various ways it enables

spontaneous volunteers to co-create knowledge to leverage offers of help, resources, and skills.

Currently, there exists no qualitative, in-depth research into the experiences of spontaneous volunteers' social media use before, during, or after a disaster. Most extant studies take a top-down approach and do not capture spontaneous volunteer perspectives (Hartley, 2020; Mat Jones et al., 2020; Moodie, 2020).

The use of qualitative research in the field of disaster management, crisis communication, and volunteer studies is encouraged by researchers (Djalante, 2018; McLennan, 2018; Steelman et al., 2014). There is a call to understand individual experiences to unearth more information about the process of social media adoption and facilitation (Cowan, 2017; O'Brien & Cairns, 2016; Raisio et al., 2022), which would complement quantitative methods in validating and enriching their findings (Brown, 2022; Willis et al., 2007).

It was anticipated that a qualitative research design, associated with the interpretive research philosophy (Denzin & Lincoln, 2011), would enable the researcher to generate an interpretive understanding of spontaneous volunteers as the subject of this study (Saunders, 2016). It would also facilitate a deeper understanding of spontaneous volunteers' socially constructed lived experiences while engaging with social media to participate in disaster relief and recovery.

3.2.6 Research strategy- Phenomenology

Within interpretivism, phenomenology was adopted, as it specifically aims to explore and interpret lived experiences. Phenomenology is a type of inquiry

that investigates a phenomenon explicitly from the participant's perspective (Creswell, 2013). In doing so it explores structures of consciousness as experienced from the first-person point of view (Heidegger & Macquarrie, 1962). Phenomenology transforms the lived experience into a textual expression of its essence (van Manen, 1997).

Phenomenology is rooted in the work of Edmund Husserl (Merleau-Ponty & Bannan, 1956). Martin Heidegger, a student of Husserl, emphasised the importance of understanding the unique nature of individuals, the social dimensions of being, relationships, and the need to understand embedded cultures. He introduced interpretation as a concept and method of phenomenology, allowing for the development of a research method that enables one to understand human lived experience (van Manen, 1990). This study draws on the interpretive methods of Gadamer (1975) and van Manen (1990) that are derived from Heidegger's phenomenological philosophy.

Heidegger's philosophical focus was fundamentally different from that of Husserl; his concerns were the ontological nature of existence and he aimed to understand the being itself (Heidegger & Macquarrie, 1962). Hence, he stated that a researcher should ask the question, "What does it mean to be?" before trying to investigate what can be known about existence. Heidegger felt Husserl's construction of phenomenology was purely descriptive philosophy and that description without interpretation was impossible (Benner, 1994; Heidegger & Macquarrie, 1962). Nevertheless, Heideggerian phenomenology guides on making sense. The concept of *being in the world* (Heidegger & Macquarrie, 1962) highlights that one is always immersed in, and part of, the world surrounding us, which gives meaning to our self-identification and the

work we do. The following section elaborates on the various Heideggerian concepts and how they were applied to this study while Table 3.1 presents a summary for the reader.

Heidegger's philosophical phenomenology offers a comprehensive framework for analysing the complexity of human experience. Heidegger generated several vocabularies to describe and explain human existence and what is most common to it (Heidegger, 1927). The concept of being in the world (Heidegger, 1927) is a central tenet that facilitates understanding an individual's lifeworld, a term Heidegger used to demonstrate that the realities of individuals are influenced by the world they live in (Horrigan-Kelly, Millar, & Dowling, 2016). The Heideggerian concepts detailed in this section are central to this study because spontaneous volunteers cannot be separated from their world as they perceive it. Spontaneous volunteers emerge as actors in response to an event. These concepts were paramount to answer the Research Questions of this study.

Heidegger explained that Dasein is an individual's state of awareness, it is what makes their existence authentic (Heidegger & Macquarrie, 1962). Dasein is a being that inherently understands its existence (Heidegger, 1927). The researcher used this concept to understand how spontaneous volunteers view their existence, their awareness of the world around them, and how it influences their choices (see Table 3.1 for the definition and application of this concept).

One must also investigate being-in-the-world in the context of being with others (Heidegger & Macquarrie, 1962). This means understanding how spontaneous volunteers interact with other spontaneous volunteers, with their community

members, and with the emergency response personnel. Heidegger uses the term *sorge* (care or concern) to refer to being in the world in a state of concern or care as part of Being. This concern or care is relatable in the context of spontaneous volunteers, as they are characterised by their need to help (Kvarnlöf, 2018), and by their concern for their community (Twigg & Mosel, 2017). Heidegger called this *mineness* (Heidegger & Macquarrie, 1962) suggesting that what is brought to the foreground of the horizon of space and what is left behind depend on the unique concerns of the individual (see Table 3.1 for definition and application in this study). The unique concerns of the spontaneous volunteers could only be recorded by listening to their experiences and perceptions.

The Heideggerian concepts of situated freedom, time, fore-structures, and space (Mackey, 2005) are all integral aspects of being-in-the-world and explained in detail in this section. These concepts contributed to the researcher's understanding of how spontaneous volunteers exist and interact with their world in a way that is deeply interconnected and contextually bound. These concepts are summarised in Table 3.1.

Heidegger's concept of situated freedom refers to the idea that our freedom as humans is always grounded in specific situations and contexts. It is influenced by various external factors such as culture, society, and historical circumstances. To understand the situated freedom of spontaneous volunteers, a personal visit was made to the disaster sites. Concerning being-in-the-world, situated freedom highlighted how spontaneous volunteers navigate their existence and make decisions based on their immersion in the world. Structuration Theory juxtaposed with the concept of situated freedom

further helped uncover the interplay between individual agency and the conditions of their environment.

The concept of time (or temporality) is the fundamental structure of being. Heidegger distinguishes between the ordinary concept of time (chronological time) and existential time (the lived experience of time) that are central to understanding being-in-the-world. Heidegger argues that understanding through interpretation cannot be achieved unless the interpretation is grounded in time (Mackey, 2005). Every being is influenced by the past, the present, and the future, which are all connected (Heidegger, 1996).

In the spontaneous volunteer context, when a disaster strikes, the lived time of people is disturbed. This concept is addressed in this thesis by examining social media use before, during, and after a disaster, which makes this concept critical to the study, since time, according to Heidegger (Heidegger, 2011) is not only related to the sudden disruption of the smooth flow of life at that moment, but also encapsulates the idea that a future that was taken for granted may suddenly become unclear and somewhat distant (Madjar, 1991).

The concept of fore-structure, also called pre-understanding or background (Benner, 1994), or pre-awareness or fore-conception, stems from past experiences (Standing, 2009). The concept provided valuable guidance during the research process to understand the background that shaped their perceptions, actions, and interactions against which spontaneous volunteers made sense (explained ahead). Fore-structure relates to this study in two ways: the spontaneous volunteers' awareness and knowledge about past disasters, social media use, and official emergency services personnel, all of which impact their actions, and secondly, the researcher's growing awareness

and knowledge based on past experiences with a disaster. Furthermore, the two theoretical frameworks, the Co-production of Knowledge Model (Callon, 1999a), and Structuration Theory (Giddens, 1984a), helped understand the contextual features of their experience and scrutinise the content for emerging themes.

For Heidegger, space is not merely physical but is understood in relation to how it is experienced. It includes human activities and relationships creating an understanding of how spaces become meaningful through the ways in which they are inhabited and engaged with by individuals (Mackey, 2005). In terms of spontaneous volunteers' being-in-the-world, space is significant because it reflects the situatedness of spontaneous volunteer existence. It helps uncover how spontaneous volunteers are not just located in the world but actively constitute their spaces through their interactions and relationships, both face-to-face and online, thereby giving space its significance and structure.

There is a significant relationship between the concepts of being-in-the-world, situated freedom, time, fore-structures, and space, and, existentialia (Heidegger, 1927). Existentialia (Heidegger, 1927) refers to the fundamental aspects of human existence, how individuals interact with their world and make meaning out of their existence through language and mood. To understand existentialia, Heidegger introduced concepts such as Thrownness, Circumspection, Mineness, Ready-to-hand, Coming-to-clearing, and Moods and Disposedness (Heidegger, 1927, 1996). These concepts are central to Heidegger's existential phenomenology as outlined in his seminal work, "Being and Time" (1927), and they interconnect to form a comprehensive framework

to understand Dasein, Heidegger's term for human existence. Table 3.1 summarises each of the six concepts relating to existentialia (8-13) and how they relate to they were applied to understand the phenomenon of spontaneous volunteering.

Table 3. 1 Heideggerian concepts and their application in this study

Concept	Definition	Application in this thesis
1. Dasein	Dasein is a being that inherently understands its existence and this understanding is fundamental to its nature (Heidegger, 1927).	<ul style="list-style-type: none"> • Used to understand the self-perception and world engagement of spontaneous volunteers. • How their perceptions influenced their social media engagement before, during, and after disasters.
2. Being-in-the-world	A basic state and essential structure of Dasein is self-relation, and a deep involvement with the world. Heidegger emphasised the inseparability of the individual from their world (Heidegger & Macquarrie, 1962).	<ul style="list-style-type: none"> • Created an understanding that spontaneous volunteers are deeply embedded in their community's social, cultural, and environmental contexts. • It is their being-in-the-world that influence their motivations and actions.
3. Situated freedom	The idea is that while individuals can make choices and take actions, these choices and actions are always made within the context of their specific situation, which includes their historical, social, and environmental conditions. (Mackey, 2005)	<ul style="list-style-type: none"> • Created an understanding that freedom is not absolute, rather it is exercised within the constraints and possibilities offered by one's particular circumstances.
4. Time	Past, present, and future are all connected and shapes how individuals perceive and engage with their existence (Mackey, 2005)	<ul style="list-style-type: none"> • Used to understand how the past (through memory and tradition), the present (through engagement with the current situation), and the future (through

		anticipation and planning) all influence how individuals understand themselves, their place in the world, and the projects or tasks they undertake.
5. Fore-structures	What is known in advance of interpretation and thus helps interpretation (McConnell-Henry et al., 2009).	<ul style="list-style-type: none"> • Used to understand the ideas, beliefs, and cultural practices that shaped spontaneous volunteer engagement with their world. • Also to understand how they interpret and understand their lived experiences.
6. Space	Space is not just physical but also relational. It is created through meaningful interactions (Mackey, 2005)	<ul style="list-style-type: none"> • Used to understand the situatedness of spontaneous volunteer existence. They are not just located in the world but actively constitute their spaces through their interactions and relationships online giving space its significance and structure.
7. Existentialia	How individuals exist and interact with their world. How they make meaning out of their existence through language and mood (Heidegger, 1927)	<ul style="list-style-type: none"> • Understand the six concepts Heidegger discussed to explore existentialia (Heidegger, 1927, 1996) each is discussed individually below (8-13)

Existentialia deals with the human experience of existence. It has six components and Table 3.2 illustrates how they were applied to this study.

Table 3. 2 Six components of existentialia

1. Thrownness	Thrownness is how an entity finds itself in a specific historical context and situation, or world that matters to them, without a choice. Dasein in its thrownness is anxious	<ul style="list-style-type: none"> • This concept facilitated an understanding of the feelings of disorientation, confusion, disappointment, and frustration when spontaneous volunteers
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	and confronts every situation it is thrown into (Heidegger & Macquarrie, 1962).	were thrown into disasters unpreparedly. <ul style="list-style-type: none"> •Thrownness led to a strong desire to address the gaps they perceived in emergency management.
2. Circumspection	A special kind of 'Sicht' (sight) or awareness is present, where one is practically interpreting the world, looking around for a way to get something done, especially in terms of the immediate environment and tools (Heidegger & Macquarrie, 1962).	<ul style="list-style-type: none"> •Assisted in exploring the context-awareness of spontaneous volunteers (such as the physical layout or the social context of the disaster-affected area) that assisted them in making quick, informed decisions to navigate through their world •Circumspection enabled spontaneous volunteers to respond to the challenges, utilising the tools (social media) that were available immediately, to meet the needs and constraints of their community.
3. Mineness	Dasein has in each case mineness [Jemeinigkeit], the individuality of existence, denoted by personal pronoun (I am, you are). Mineness is that with which one is primarily concerned in one's Being (Heidegger & Macquarrie, 1962).	<ul style="list-style-type: none"> •Crucial to understand the individual concerns, interests, and perspectives of spontaneous volunteers. •Mineness influenced their participation in disaster recovery and response efforts through social media. •It played a role in personal agency, ownership, and commitment to collective actions that were meaningful to them.
4. Ready-to-hand	Dasein has an awareness of the objects in their functional and utilitarian aspects that may be used as tools to meet goals.	<ul style="list-style-type: none"> • The concept clarified the utilitarian aspect of social media platforms that were ready-to-hand as they were seamlessly integrated into spontaneous volunteer

	These tools are encountered within-the-world and seamlessly integrated into human activities rather than being merely observed as objects (another concept called present-at-hand) (Heidegger & Macquarrie, 1962).	activities, becoming almost extensions of their intentions and actions, and often being used in unique and novel ways.
5. Coming-to-clearing	Often referred to as 'the clearing' (Schatzki, 1989) was at the heart of Heidegger's philosophy of being. It is an opening through which entities emerged or were brought to light. Heidegger discusses this as the moment when beings reveal themselves in their essence. It is the human understanding that opens up the clearing (Schatzki, 1989).	<ul style="list-style-type: none"> • Uncovered how spontaneous volunteers reveal themselves in their essence, illuminating aspects of their existence that are often hidden or obscured in everyday life. • They viewed themselves as helpers (and not volunteers) and felt a strong duty towards their community.
6. Moods and Disposedness	A mood "comes neither from 'outside' nor from 'inside', but arises out of Being-in-the-world, as a way of such being" (Heidegger & Macquarrie, 1962, p.176). It is the pre-reflective, affective state that discloses how one is 'thrown' into the world, influencing how the world is encountered.	<ul style="list-style-type: none"> • Used to understand the impact of the emotional states such as fear, anxiety, and frustration that spontaneous volunteers experienced on their actions. • The concept also assisted in exploring the kinds of structures that facilitated (or hindered) spontaneous volunteering.

Using Heidegger's concepts as a framework to guide this study developed a sensitivity to spontaneous volunteers' ways of being in the world (Crist & Tanner, 2003). Juxtaposed with Structuration Theory (Giddens, 1984a), it helped the researcher understand how personal opinions and choices were

affected by socially constructed structures. Understanding and describing those structures would help to uncover aspects of spontaneous volunteer agency that are hidden from view.

Phenomenological research design was unique and appropriate for this study. It offered the researcher an opportunity to obtain meaning from the words of the sample group participants (Creswell, 2007). The researcher captured the richness of spontaneous volunteers' lived experiences, to provide deeper insights into the essence of their experience. Phenomenology can be used to give voice (Larkin 2006). The researcher used this research strategy to interrogate the meaning of a phenomenon from spontaneous volunteer perspectives as they are the ones who experienced the phenomenon (Tuohy et al., 2013) and make sense of their lived experiences

Organizational psychologist Karl Weick coined the term sense-making, to explain how humans make sense of the world (Weick, 1995). Sense-making explains how individuals and groups socially construct the meaning of an event or an experience and create structure from the unknown, thus constructing their reality (Louis, 1980). Sense-making can be individual or collective, prospective or retrospective. Human emotions, thinking, actions, culture, and environment shape the sense-making processes. The term 'sense-making' explains how individuals and groups socially construct the meaning of an event or an experience to create structure from the unknown.

In selecting this approach, a commitment was made in this thesis to an ontological approach that seeks to understand the being of a spontaneous volunteer, rather than what can be known about them, to understand their perceptions and actions before, during, and after a disaster.

Post-event sense-making has been a neglected area in sense-making studies (Dwyer et al., 2021). The approach taken in this thesis addresses post-event sense-making. In adopting this approach, the researcher hoped to create an understanding of how spontaneous volunteers use social media during the three phases of the disaster, and how social media facilitates them.

Further guidance was sought from Guiette & Vandembemt (2016) who advanced three phenomenal qualities of sense-making; absorbed coping, detached coping, and mindful coping, based on Heideggerian phenomenology.

Absorbed coping refers to a state where individual actions and decisions are made seamlessly, guided by tacit understanding and familiarity with the context (Guiette & Vandembemt, 2016). In absorbed coping, individuals are deeply engrossed in their activities or experiences, they act intuitively and without reflective thought. The concept of sense-making is grounded in the idea of absorbed coping which relates to Heideggerian concepts of ready-to-hand (see Table 3.1 for definition and application of this concept). Heidegger posited that human activity predominantly involves an immersed, skilful interaction with the world around us. In situations where individuals navigate their environment skilfully, they perceive the elements within it as immediately usable or ready-to-hand (Heidegger & Macquarrie, 1962). Utilising this framework, the researcher investigated how spontaneous volunteers in this study used social media during disasters to interact with their surroundings in a direct and unfiltered manner.

Through observing their lived experiences, the researcher was able to capture detailed accounts of their activities and interactions on social media platforms,

where they were deeply engaged. This provided insights into the intuitive processes of experience that occur beneath conscious awareness, highlighting how spontaneous volunteers in this study used social media to navigate, coordinate, and make sense of disaster situations in real time.

Detached coping is characterised by a more reflective and analytical stance toward one's experiences. This happens when individuals step back from their immediate engagement with the world to evaluate, plan, and make decisions based on a more detached assessment of their situation (Guiette & Vandembemt, 2016). This manner of sense-making enabled the researcher to examine how spontaneous volunteers in this study processed their experiences through thoughtful reflection and careful consideration. For example, after a natural disaster, a group of spontaneous volunteers might use social media not only for an immediate response but also to step back and analyse the situation. They could gather and compare information from various sources, discuss various strategies in online forums, and plan their next steps based on the needs of their community on the ground. This contrasted with absorbed coping, where spontaneous volunteers would react based on instinct and an immediate understanding of the situation. It highlighted the deliberate and reflective nature of detached coping that enabled a more structured response from the spontaneous volunteers via social media platforms.

The researcher explored how spontaneous volunteers in this study consciously navigated through their world and the reasons they offered for using different platforms under challenging circumstances. Detached coping assisted the researcher in uncovering how spontaneous volunteers in this

study interpret, analyse, and ascribe meaning to their experiences, providing insights into the reflective aspects of lived experience.

Finally, mindful coping merges the qualities of absorption and detachment. It is characterised by awareness and attentiveness to the present moment. It involves a conscious engagement with one's experiences (Guiette & Vandembemt, 2016). This concept enhanced the understanding of how spontaneous volunteers in this study remained aware, attentive, and focused on navigating through their situation in the context of stress and challenges. For instance, during their relief efforts, spontaneous volunteers might employ mindful coping by actively participating in relief operations while simultaneously being conscious of their own emotional and physical states. This enabled them to adapt their strategies in real-time, based on the immediate needs and their own capacities. Unlike absorbed coping, where actions are instinctual and unreflective, or detached coping, where the spontaneous volunteers stepped back for reflection, mindful coping allowed the spontaneous volunteers to remain engaged and flexible. They were able to acknowledge their feelings and thoughts, sometimes even get overwhelmed by them, as they try to remain steadfast.

Mindful coping created an awareness for the researcher of a more balanced approach to recovery and response efforts where spontaneous volunteers could make informed decisions swiftly, and effectively manage the complexities of the situation they were facing. Mindful coping facilitates a more adaptive response to stress and challenges (Guiette & Vandembemt, 2016). Through listening to their lived experiences the researcher could appreciate

how mindful coping enabled a flexible yet dynamic approach to recovery and response efforts for spontaneous volunteers in this study.

Analysing the rich data, the researcher explored how spontaneous volunteers understood their options and made choices that aligned with their values and needs, rather than acting impulsively. For example, it created an awareness of how spontaneous volunteers in this study understood their options and made choices that aligned with their values and needs. It uncovered how many of the spontaneous volunteers quickly improvised during the disaster, or learned new skills such as how to use a new application. Incorporating these three qualities of sense-making served to be a profound framework for investigating how spontaneous volunteers in this study understood their world and how they perceived themselves. The following section will now present the sampling procedure which is crucial in phenomenological research because it determines who or what will be included in the study to provide the rich, detailed descriptions that are necessary for understanding the essence of the lived experiences being investigated.

3.2.7 Sample

This section will describe the disaster locations, the sampling procedure, and the tools used to recruit spontaneous volunteers for this study.

3.2.7.i Disaster locations

Investigating multiple locations to offer a comparative analysis is an accepted academic practice (Cooper, 2017). When looking for a suitable disaster to study, the researcher had to consider disasters where spontaneous volunteering took place via social media and the potential to collect data from

all three phases of the disaster (before, during, and after). This meant that evolving disasters were not suitable. Second, there was also a limited travel allowance available for research, as the researcher did not have any other source of funding. The 2016 Yarloop Bushfires in Western Australia were first selected because the researcher had been part of the donation drive when the disaster occurred and thus, had a better understanding of the location.

First location: Waroona/Harvey/Yarloop, Western Australia.

In early January 2016, a major bushfire swept through the settlements of Waroona, Harvey, Yarloop, and surrounding areas. 69,000 hectares of the town of Yarloop burnt down in seven minutes, two people lost their lives and 181 dwellings were destroyed. The bushfire also attracted intense social media activity, due to its remote location requiring a two-hour drive from Perth. For the researcher, driving to Yarloop meant travel approval could be obtained easily and work could commence on the data collection process as soon as ethics approval was received. Additionally, the publicly available social media data on Yarloop bushfires suggested that this disaster was suitable for the data collection method identified for the study (see 3.3 below).

Since transcription and data analyses were performed simultaneously (see 3.4 below), presenting preliminary findings of the data analysis from the first sample at a conference in the UK, opened up the opportunity to collect data from a disaster that occurred in that location.

Second location: Grenfell, London.

Studying spontaneous volunteering during an urban structural fire was anticipated to add a new dimension and richness to the study. The researcher

conducted interviews with spontaneous volunteers who had participated in recovery and response efforts during the Grenfell Tower fire (2017). While investigations about the Grenfell Tower fire were still underway at the time of the interviews, the information that had emerged suggested that the tragedy began with a faulty electrical item that ignited exposed gas pipes and highly flammable building materials. The Grenfell Tower fire resulted in the loss of 79 lives.

Upon receiving ethics approval, the Social Studio tool was used to identify and recruit spontaneous volunteers. A description of Social Studio, and how it was used is provided in section 3.2.7.iii of this chapter. The researcher used Social Studio to identify conversations that had occurred during the Grenfell Tower fire. In addition, emails were sent to the local councils, libraries, volunteer centres, and resource centres to share information about the research and to seek spontaneous volunteers as participants.

The Social Studio data showed intense social media activity across many social media platforms. Potential participants were contacted via the social media platform they had used, in addition to contacting the different local community Facebook groups that had emerged as a result of the search conducted. The inclusion of the Grenfell Tower fire offered an opportunity to investigate spontaneous volunteer participation in a different setting. While both disasters were fire-related, it was an opportunity to compare the social networks of spontaneous volunteers from a rural bushfire in Western Australia with a structural urban fire in the heart of the city of London. One of the recommendations was to consider investigating different kinds of disasters to enhance theory development.

The researcher pondered if she could investigate a completely different disaster for this study, such as a cyclone or a flood. Consideration was given to whether the findings would be any different and what more could be learned from the social networks of spontaneous volunteers. Fortunately, the researcher was able to receive a mobility grant that enabled travel to Melbourne to present initial findings at RMIT University, Melbourne. This opportunity allowed the exploration of spontaneous volunteering during the 2018 Melbourne floods. An additional ethics application (Section 3.5) was granted to facilitate interviewing spontaneous volunteers who had helped with the floods.

Third location: Melbourne, Victoria.

In 2018, thousands of residents were left without power after a slow-moving storm had caused half of the city's average November rainfall to fall in just three hours, causing chaos in the city of Melbourne. Adding the experiences from another kind of disaster also helped the researcher formulate a more holistic understanding of this different phenomenon.

Due to the limitations of time, only a handful of spontaneous volunteers in London and Melbourne were able to be interviewed. The number of participants in a phenomenological study typically ranges from five to 25 (Finlay, 1999; van Manen, 2016). The aim of a phenomenological study is not to generalise the findings to a larger population but rather to gain an in-depth understanding of the experiences and perspectives of a small group of participants (van Manen, 2007). A smaller sample size allows for a detailed exploration of the phenomenon under investigation. Including three

spontaneous volunteers from both the 2017 Grenfell Tower fire and the 2018 Melbourne floods was thought to be a good sampling strategy because it would improve the transferability of the findings (Creswell, 2013).

The discussion so far described the interviews that were conducted with spontaneous volunteers as the primary data collection method. In addition to this, publicly available social media data shared by the spontaneous volunteers was used, to understand the world of spontaneous volunteers as they experienced it before, during, and after a disaster. Each spontaneous volunteer shared their social media posts with the researcher during the interviews. These posts were saved as screenshots. The following section provides a detailed description of the sampling procedure for this study.

3.2.7.ii Sampling procedure

The selection criteria for this study were determined by the research questions and the objectives. This was to record the experiences, perceptions, opinions, attitudes, feelings, and knowledge among spontaneous volunteers who had used social media in the context of a disaster (Saunders, 2016). The researcher followed Guba and Lincoln's (1985) suggestion that all sampling strategies are done with some purpose in mind and therefore all are purposeful. Patton (2015) added that purposeful sampling can be used to select information-rich individuals that would allow the researcher to learn the most about the topic to yield insights and in-depth understanding (Patton, 2015).

To explore the phenomenon of spontaneous volunteering facilitated by social media before, during, and after a disaster, the aim was to obtain data from a

sample of participants who would fit the existing definition of spontaneous volunteers provided in Chapter 2, and who had directly used social media platforms to participate in recovery and response efforts independently during the disaster under study. Keeping in mind that the goal of phenomenology is to come to a fuller understanding of the phenomenon as experienced by the participant (van Manen & Adams, 2010), phenomenological studies can have a small sample size. The aim of this study was to recruit up to 20 spontaneous volunteers following Baker and Edwards' (2012) thoughts that quality takes precedence over quantity, and to focus on making a persuasive case (Baker & Edwards, 2012). The minimum number of participants in a phenomenological study can vary depending on the nature of the study and the depth of analysis required. While Morse (1994) notes that phenomenological studies can effectively be conducted with at least 6 participants, it is generally accepted that phenomenological studies can be conducted with as few as 5 to 10 participants (Creswell, 2013). This range allows for an in-depth exploration of participants' experiences while maintaining manageability in terms of data analysis.

This section will outline the issues faced by the researcher, and how they were navigated when trying to gain in-depth data from a sample of qualified participants.

As identified in Chapter 2, there is limited qualitative research on spontaneous volunteers, primarily because they are hard to reach (Harris et al., 2017). Therefore, the first step was to navigate this challenge. The researcher contacted many volunteer-involving organisations that generally assist official emergency responders during disasters. This was because these

organisations may have engaged with spontaneous volunteers and may have recorded some information about them. Many of these organisations suggested the possibility of waiting for a disaster to occur, and then immediately traveling to the location to recruit spontaneous volunteers. Although some studies have used this approach (Lorenz et al., 2018; Wekke et al., 2019), this opportunistic approach could not have worked because the research questions of this study address three stages: before, during, and after a disaster. This meant research could only be conducted once the disaster was in the past, as recovery can often be a long process and the study had to be completed within a certain time frame. Furthermore, while recording observations was easy, it would not be easy to get spontaneous volunteers to talk in-depth about their experiences while the disaster was unfolding, especially since it would impact ongoing disaster response practices, and would become challenging administratively for health and safety issues.

Information about the study was left with Western Australia's state peak volunteering organisation, community resource centres, and community-based volunteer organisations in Perth to share this information and to help recruit spontaneous volunteers for interviews. This was because typically, volunteers are sourced through population surveys or through volunteer-involving organisations (AIDR, 2014; Villeneuve, 2021) that maintain lists of volunteers. Due to the unaffiliated nature of spontaneous volunteers, there was no list. This was a challenge. After contacting many local governments, local community and resource centres, and libraries to seek their assistance, WA State peak volunteer organisation, Volunteering WA was requested to share

an approved request for participation via their social media platform as shown in Image 3.1.



Image 3. 1Request for research project volunteer participation disseminated by Volunteering WA

No responses arrived as a result of these efforts. However, the Yarloop resource centre did provide one email contact (see 3.2.7.iv). Furthermore, the local organisations were reluctant to share any information, understandably, to protect volunteer confidentiality and adhere to privacy laws. One last attempt via the Curtin University's radio station, Curtin FM, was made, requesting them to share information about the research, and encourage individuals who may have volunteered spontaneously to participate in the project in their next broadcast. Unfortunately, there was again no success. The researcher recognised that a new method to recruit spontaneous volunteers for this study was required. Since the study involved social media use of spontaneous volunteers, it was decided to use Radian6 Salesforce Social Studio (Social Studio henceforth) as discussed in the following section.

3.2.7.iii Social Studio

Social Studio is a social media listening and analytical tool that was used to identify and recruit spontaneous volunteers in this study (University, 2018). Social Studio has been used to identify and evaluate online discussions (Hockenhuil et al., 2021). It has been used to discover what consumers are saying about a brand or a product (Ngo & Pilecki, 2016), and discovering trending topics and influential conversations (Brivot et al., 2017), It is essentially a web monitoring platform that includes meta data such as location, language, gender, shared links, and posts that can be used to search for conversations. The researcher learned how to use Topic Profiles, a feature provided by Social Studio that lets users search keywords to fetch any conversation or comment that contains the related keywords.

Since Social Studio was developed for businesses to respond to comments or engage in conversations where they are not directly mentioned, the researcher thought to use its capability to see all conversations during the set disaster. Keywords within given time frames, locations, and across the major social networks, were then used to refine this search to ensure all conversations that emerged were relevant to the specific disaster. With the help of Curtin University Staff at the Social Media Research Lab, the researcher was able to view conversations across Twitter, Instagram, Facebook, Forums, and discussion boards, along with mainstream news outlets, as well as image-sharing sites such as YouTube, Vimeo, Flickr, and Google (Salesforce, 2023). Given the prominence of conversations about the three disasters revealed from Social Studio, ethics clearance was obtained to use Curtin University's Social Studio Lab to search for spontaneous volunteers.

Learning how to use the Social Studio was exciting. The language selected was English, while topic profiles and keywords such as “fire”, “volunteer”, “help”, “Yarloop”, and “rebuild” were used to identify conversations that had happened during the 2016 WA bushfires. The time frame was set for January-February 2016. In this way, the sample was broken into many subgroups as the focus was on particular events, for example, June-July of 2017 for the Grenfell Tower fire, and November-December of 2018 for the Melbourne floods. The language selected was English. It is important to note that this tool had its limitations. The information timeframe was limited to three years. Access was limited for information related to the Yarloop bushfires earlier in the research journey, as it was no longer accessible a few months later. Fortunately, by that time the Yarloop data collection process was almost complete.

Image 3.2 presents an example of the results that identified 653 posts during the 2018 Melbourne floods while 18,000 posts were identified for the 2016 Yarloop bushfires. It also identified the different platforms that were used most frequently. By clicking on any one of the platforms, one could access the conversations, and the owner of the post.

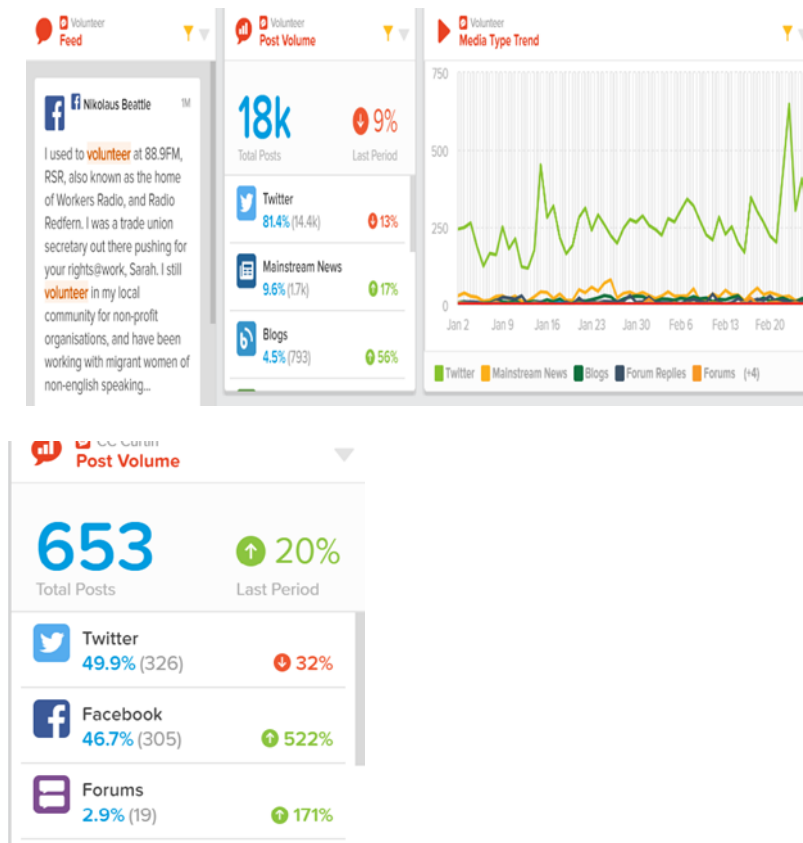


Image 3. 2 Data on Social Studio

Image 3.2 shows that the highest number of posts were on Twitter for both the 2016 WA bushfires and the 2018 Melbourne flood. Posts are single communications entered by one user at a specific time point. These publicly available social media posts provided an opportunity to observe individuals' posts, opinions, and behaviours in a more natural setting before contacting them, to better understand the context and nuances of the phenomenon being studied, thus assisting with the selection and recruitment of the right spontaneous volunteers most likely to help answer the research questions.

The topic profiles and keywords revealed how many posts were talking about a disaster. The information included the channel they used, their posts highlighting what they said, and also the trending topics. This information was saved onto an account created by the Curtin University staff member

responsible for monitoring each account holder and ensuring that the information accessed adheres to universally accepted ethical practices. The access to the account was discontinued once all data collection processes were complete.

Saved posts that talked about selected disasters, for instance, that discussed the 2016 bushfires, were all saved in one folder. Additionally, differentiation was made between individuals who were simply requesting additional information for situational analysis during disasters, and those who actively engaged with the various platforms to share the information, offer help, or share their experiences. This was very time-consuming.

It was necessary to ensure the relevancy of the posts initially by confirming that the post was retrieved during the time frame, for example between January 2nd, 2016 and February 26th, 2016 in Australia for the 2016 WA bushfires. Second, due to the volume of the posts, additional keywords such as 'rebuild Yarloop,' 'bushfires,' and 'volunteer' were used within the set time frame to see which platform experienced the most activity before accessing those platforms to see individual posts. Eventually, due to the volume of the posts, the researcher decided to only explore Facebook and Twitter further. This reduced the number of multiple posts being saved since it was observed that most of this information was repeated on other social media platforms by the posters.

The Social Studio also had the option to exclude conversations, therefore organisations like Perth Now, ABC Perth, Department of Fire and Emergency Services (DFES), and duplicate posts were filtered because the researcher

was only looking for posts by individual spontaneous volunteers. This revealed 140 unique posts that were inspected individually. Eventually, 49 individuals from the 2016 WA bushfires were contacted via the platform they used to ascertain if they were spontaneous volunteers, and whether they would be interested in participating in the research.

In the following months, the same process was repeated for the 2017 Grenfell Tower fire and the 2018 Melbourne flood, using similar keywords and topic profiles to identify the owners of various posts, but with different location settings and time frames. The time frame identified conversations that occurred before, during, and after each disaster. Social Studio revealed some information about actors (spontaneous volunteers) involved in the three disasters. Once identified, the spontaneous volunteers were contacted via the same social media platform they had used and requested to participate in the research. Other recruitment methods used are also discussed in this chapter (See 3.2.7.iv).

The next step was to communicate with the potential participants to confirm if they indeed fit the selection criteria or not. Notes were made of all the individuals who had expressed interest or had offered help online or shared their knowledge or experiences during the disaster, to ensure that a variety of valuable insights and perspectives were drawn upon. Each was then contacted individually and was provided information about the research and a request to participate. Some of these individuals had a singular post, either in response to a post or had shared existing information. Other owners of posts had hundreds of responses. Across the three disasters, 94 owners of different posts were contacted to enquire if they were spontaneous volunteers. This

was done using the same platform they had used during the disaster. This is what the initial message looked like:

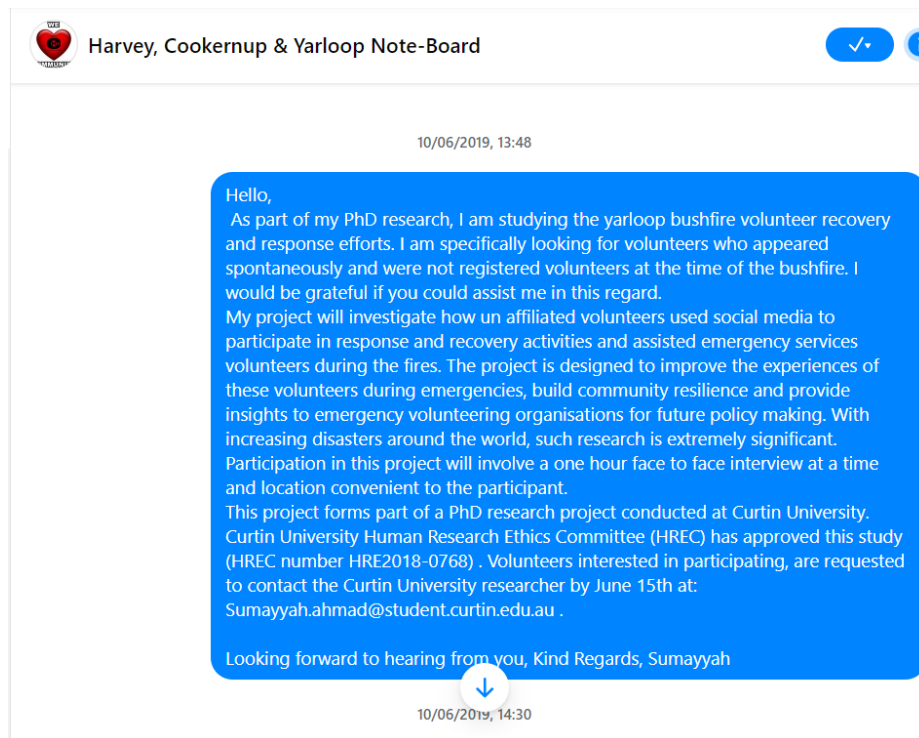


Image 3. 3 Request to participate in research via Facebook

As evident from this request, the research goals and objectives were shared with the owners of the posts, who were requested to contact the researcher if they would like additional information or were interested in participating in the in-depth interviews.

Social Studio was a cost-effective method compared to travelling to the different disaster locations with printed advertisements and waiting for the responders. Additionally, using filters enhanced the search process by limiting the results to only those locations and timeframes. For example, the Rebuild Yarloop Facebook group came up when searching for the WA 2016 Waroona-Yarloop bushfires. The group members were then contacted to reach potential spontaneous volunteers for the study.

The social media engagement observed on Social Studio also identified key influencers (See 2.7.1). These are individuals who have established credibility within a specific industry or niche on social media platforms (Freberg et al., 2011). These individuals shared information regularly and had access to a huge audience that engaged with the posts. Social media influencers were able to persuade others to act based on their recommendations, such as donating water bottles. They could disseminate positive or negative information and opinions about the state of affairs that influenced their audience to act and engage in discussion. In this way, social media influencers can influence the actions and thought processes of their audiences in social media spaces (Gillin, 2008; Hearn & Schoenhoff, 2015). The impact of social media influencers can often be substantial (Vollenbroek et al., 2014). Social Studio identified many influencers. Some influencers had simple blogs, whereas others had a Facebook or Twitter presence, or provided situational analysis via videos posted on YouTube or Flickr, a similar file-sharing forum.



Image 3. 4 Social media influencers highlighted by Social Studio

For this study, influencers were those individuals that had posted actively, had large networks, responded to requests, and allocated tasks. Image 3.4 shows the social media influencers identified by Social Studio. These influencers made frequent requests for help, such as donations or accommodations, and shared multiple posts frequently to keep their community engaged. Upon communicating with the identified influencers, the researcher was able to cull those that did not fit the definition of spontaneous volunteers. These individuals were then requested to participate in the research to allow an understanding of the kind of activities they performed, and to learn more about their social media activity. For example, one of the WA spontaneous volunteers, (pseudonym Tia), was identified as a social media influencer due to the number of followers that reacted to her posts. Tia frequently shared information, often as multiple posts in a day to keep her community engaged.

As a result of using Social Studio, 11 responses were received. Of these, seven spontaneous volunteers confirmed that they were not affiliated with any organisation and had participated spontaneously during the disaster. The reality was that it was not possible to obtain more than a few potential participants entirely through Social Studio. Of the seven people who confirmed that they had volunteered spontaneously, only two agreed to be interviewed for the Yarloop bushfires. Similarly, only one person who had volunteered spontaneously during the 2018 Melbourne floods agreed to be interviewed, bringing the total to three spontaneous volunteers who were sourced using the Social Studio (see Table 3).

The snowballing sampling technique was used to recruit all the other participants. Snowball sampling (Saunders, 2016) is a method used in qualitative research, where initial participants recommend other potential participants for the study. It is considered a prominent form of purposeful sampling (Merriam, 2009). Once the first spontaneous volunteer from the desired population was identified, they were then requested to identify further spontaneous volunteers who had also used social media to volunteer spontaneously and to offer assistance during and after the disaster. In a qualitative study, the sample is identified both at the start and during the emergent research, making it an emergent and iterative process (Murphy et al., 1998). It was not possible to specify the number of participants at the start of the study.

Furthermore, scholarly guidance suggests that sample size is frequently determined by the process of theoretical saturation. Theoretical saturation (Glaser & Strauss, 2017; Glaser et al., 1968) refers to the point during data

analysis at which the interviews produce little or no new useful information to answer the research questions.

It is often advocated that best practice means to interview until saturation is achieved (Guest et al., 2006). Some scholars provide guidelines for sample size in phenomenology, for example, Creswell (1998) suggests five to 25, while Morse suggests at least six participants (1994). Finlay suggested the number of participants could be as low as one (Finlay, 2009), while Colaizzi (1978) utilised 12 participants for descriptive phenomenology (Colaizzi, 1978). Publications in psychology and nursing have numbers varying from one to 20 participants (ALmegewly et al., 2021; Eatough & Smith, 2006). Marshall et al. (2013) suggest that sample size for phenomenological research ranges from six to 10 participants, and Gentles et al. (2015) suggest fewer than 10 participants were considered the ideal sample size (Gentles et al., 2015).

The data collection process uncovered just how difficult it was to reach spontaneous volunteers who had experienced the phenomena. Snowball sampling is useful in such scenarios, as there is no obvious list of the population of interest. With snowball sampling, individuals recruit other individuals with common characteristics or factors. Additionally, such sampling may help unearth other unknown characteristics that could be of interest to the researcher, for example, platform preferences (Bird, 2012). The process of snowball sampling continued until a diverse sample was gathered from the larger study population (Merriam, 2009). Having a diverse sample in a phenomenological study offers several benefits that enhance the depth, richness, generalisability, and validity of the research findings. Patton (2014)

emphasises that diversity in sampling is crucial for enhancing the credibility of qualitative research by offering multiple perspectives that validate the findings.

Those who fit the definition of spontaneous volunteering were then recruited using purposeful sampling: a non-probability sampling technique (Patton, 2015) commonly used in qualitative research studies to select participants based on their specific characteristics or experiences. This technique allowed the gathering of information-rich cases that could provide valuable insights into the phenomena being studied.

It was essential to select spontaneous volunteers who were interested in sharing their experiences and were willing to explore their lived experiences. Therefore, the requests to participate were shared either through the social media platform (See Image 3.3) or a recruitment email (Appendix A) sent directly after receiving contact information via snowball sampling. The request to participate was designed to attract only those spontaneous volunteers who would engage deeply with the research and were passionate about their experiences.

Having received responses from potential participants, the participant information statement (Appendix B) was shared with them. Participant information statement provided a brief introduction to the various aspects of the project. It included the research team, details about the research process, and the eligibility criteria for participants and their expected role in the study. It also highlighted the potential benefits of participation, who would be granted access to the collection data, the ethical considerations, and the expected dissemination of the findings. The researcher prepared another information

sheet for the recruited participants (Appendix C) that was shared with them on the day of the interview. This one-page information sheet provided a summary of the project and research team that they could take back with them. The researcher also prepared a short brochure (Appendix D) that provided basic information about spontaneous volunteers, social media engagement during disasters, the importance of this study, and a list of websites that could assist individuals prepare for disasters.

3.2.7.iv Other recruitment methods

Many other recruitment methods were employed simultaneously to ensure a maximum number of participants were accessed. For example, in London, emails were sent to the local North Kensington Library, Kensington Central Library, community resource centres, local clinics, local Mosque and Islamic Centres, Community Church, Kensington Leisure Centres, and volunteer-involving organisations to request a short appointment before visiting the UK. Despite a handful of automatic email responses, fortunately, some valuable information was received, along with contact numbers from the help desks in response to the emails.

Once the researcher arrived in the UK, she called the numbers to set up four appointments with local organisations. Each organisation was personally visited wherein meetings were held with 17 individuals. Additionally, different online groups identified by these individuals were contacted. Two individuals were identified as spontaneous volunteers after physically visiting these locations, one from a local library and the other from the leisure centre. The snowball method was then used again to contact additional spontaneous

volunteers. After three days, only one more spontaneous volunteer could be interviewed before returning to Australia.

In addition to those spontaneous volunteers who were identified using Social Studio, the success of all recruitment methods was low. In total, 56 emails were sent out, more than 70 phone calls were made, and 94 Facebook messages were sent for the three disasters. The researcher received 14 responses via Facebook, from which four were eventually interviewed. Of these spontaneous volunteers, three had helped with the 2017 Yarloop bushfires and one had assisted with the 2018 Melbourne floods. Facebook was a faster and more efficient way to communicate, as those present online responded immediately, and others responded within a few hours. Furthermore, some Facebook groups kindly shared the request for research participation (ethics approved) within their social networks, which resulted in the recruitment of four additional spontaneous volunteers via snowball sampling.

The sample descriptions (Table 3.2 and 3.3) suggest that social media platforms provide access to diverse populations. The researcher was able to access potential participants from various backgrounds, ages, locations, and interests from the same location using social media platforms. This helped ensure a diverse and representative sample for the investigation.

Yarloop resource centre shared one contact. This initial contact was able to connect the researcher with one potential participant, who was interviewed successfully in WA. Similarly, as a result of the information shared in London, four spontaneous volunteers were self-selected, but only one was identified as

a spontaneous volunteer at the time of the Grenfell Tower fire, and henceforth interviewed. A spontaneous volunteer, who self-selected in Melbourne, fit the criteria for the sample frame, following requests advertised by the local library and community centre. Two additional spontaneous volunteers in Melbourne were interviewed following the snowball method. While potential participants identified by these initial ones were contacted with requests to participate in each location.

Table 3.2 presents a summary of how the 18 spontaneous volunteers were recruited for this study. Out of the 18 interviews conducted, three were self-selected, six were recruited through snowball, and nine through social media requests. The table also identifies the inability to access a single spontaneous volunteer via telephone calls made to various local governments, libraries, resource centres, FM radio, or through traditional peak bodies for volunteering. Of the 94 contacts made via Facebook Messenger to individuals and community Facebook groups, only four were successfully interviewed.

Table 3. 3 Sampling and recruitment method

Recruitment method and relevant disaster	Number contacted	SV	Self-Select	Snowball	Facebook	Yarloop Bushfire	Grenfell Tower Fire	Melbourne Flood
Social studio	8	3	1	0	3	2	1	1
Telephone calls	72	0	0	0	0	0	0	0
Emails	56	4	0	1	3	3	0	1
Facebook Groups	94	4	0	2	2	4	0	0
Curtin FM	0	0	0	0	0	0	0	0
Volunteering WA	0	0	0	0	0	0	0	0
Resource Centres	11	3	1	1	1	3	0	0
Libraries	7	3	1	1	0	0	1	1
Leisure Centre	10	1	0	0	0	0	1	0
Total	258	18	3	6	9	12	3	3

Table 3.3 records the details of all the participants in this study. All the names in the table are pseudonyms. The spontaneous volunteers that were identified as influencers have an asterisk (*) sign next to their pseudonyms. Most of the spontaneous volunteers self-selected their pseudonyms to represent themselves to maintain confidentiality.

Table 3. 4 Interview participant details

Participant	Pseudonym	Age	Occupation	Gender	Disaster
1.	Sally	49	Government	Female	Yarloop Bushfire
2.	Tia*	35	Farmer	Female	Yarloop Bushfire
3.	Al	62	Government	Male	Yarloop Bushfire
4.	Aleena	59	Government	Female	Yarloop Bushfire
5.	Mary	25	Entrepreneur	Female	Yarloop Bushfire
6.	Harris*	28	Businessman	Male	Grenfell Fire London

7.	Anne	36	Government	Female	Grenfell Fire London
8.	Suleiman	21	University student	Male	Grenfell Fire London
9.	Adrian	25	N/A	Male	Melbourne Flood
10.	Sarah EI*	27	N/A	Female	Melbourne Flood
11.	Iman	33	University Student	Female	Melbourne Flood
12.	Chris	38	Shop owner	Male	Yarloop Bushfire
13.	Malinda	55	Artist	Female	Yarloop Bushfire
14.	Gordon	38	Odd jobs	Male	Yarloop Bushfire
15.	Clinton*	45	Manager	Male	Yarloop Bushfire
16.	Steven	52	Farm owner	Male	Yarloop Bushfire
17.	Harry	58	Farm owner	Male	Yarloop Bushfire
18.	David*	49	Construction	Male	Yarloop Bushfire

* These participants were the influencers.

The table shows that a total of 18 spontaneous volunteers were interviewed for this study, including three from Grenfell Tower fire, London, three from the Melbourne flood, and twelve from Yarloop Bushfires. Having included spontaneous volunteers from the 2017 Grenfell Tower fire, the 2018 Melbourne flood, as well as the Yarloop bushfires, ensured that participants had varied experiences and backgrounds to capture a wider range of perspectives.

The following section explains the researcher's approach to knowledge-making (Denzin, 2008; Denzin & Lincoln, 2011). The researcher followed the five basic steps in phenomenology identified by Giorgi (1997). The first step, collecting verbal data, will be discussed in this chapter, while the remaining four steps of reading data, breaking data into parts, organising and expressing data in a disciplinary modality, and summarising data for scholars, are discussed in the following Chapter 4.

3.3 Data collection methods

The researcher had to apply for ethics approval (Section 3.5) before she could send out requests for research participation. Once ethics approval was received, the data collection commenced. This section describes the research tools employed to collect the data for this thesis. In phenomenological studies, the data collection method is chosen based on its ability to elicit details. Phenomenology usually collects data through in-depth interviews with participants (Kusenbach, 2003; Quinn Patton, 2002) that focus on the phenomenon as experienced by the participants (Lopez & Willis, 2004). This study used in-depth interviews to collect accounts of spontaneous volunteers' lived experiences, perceptions, feelings, and thoughts regarding the phenomenon of interest.

The In-depth interviews, social media data shared by the spontaneous volunteers, and notes made by the researcher that documented their facial expressions and emotions in response to the questions asked, formed the data for this research. The researcher added notes to the reflexive journal (Appendix H), written while the spontaneous volunteers shared their stories,

that helped delve deeply into their individual experiences as well as interpret the meanings that spontaneous volunteers attributed to them.

The researcher's understanding was added to the reflexive journal (Appendix H) before the data collection process started. By maintaining a reflexive journal, the formulation of ideas about spontaneous volunteering began. This journal was maintained throughout the data collection process. Notes relating to each spontaneous volunteer were also added after each interview including information on the interview setting, the kind of disaster, and anything that caught attention. Any preliminary thoughts on emerging themes were also recorded. This list of themes evolved as more interviews were conducted (Creswell, 2013). Ideas about the spontaneous volunteers and their world were also created (Wilson, 2014). The list of questions (Appendix F) also evolved as prompts that helped narrow the scope and ensure relevant experiences were captured

3.3.1 Interviews

Interviews are the most common data collection tool for phenomenological studies and were therefore selected for this study (Creswell, 2013; van Manen, 2007). There are many different types of qualitative interviews. Selecting the appropriate type of qualitative interview depends on the research design and objectives (Creswell, 2013). Phenomenological research may use either structured interviews, semi-structured interviews, or unstructured interviews (Finlay, 1999; Giorgi, 2012).

In structured interviews, researchers ask a set of predetermined questions, always in a specific order, to gather specific information and insights from the

participants (Saunders, 2016). In comparison, semi-structured interviews allow for more flexibility and exploration of the subjective experiences of the participants (Saunders, 2016). Unstructured interviews are less formal, free-flowing conversations where open-ended questions are asked, allowing the expression of thoughts and perspectives while listening for patterns and themes in the participants' responses (Saunders, 2016).

Semi-structured interviews were used (Saunders, 2016) because they offered not just flexibility, but also the ability to ask questions based on two broad theoretical constructs, Giddens' (1984a) Structuration Theory and Callon's (1999b) Co-production of Knowledge Model, which guides this study. The interview protocol (Appendix E) was designed to create rapport with the participants through an ice-breaking introduction that made the participants comfortable sharing their experiences. The interview protocol assisted in structuring the interview process around the interview questions (see Table 3.5) that were developed from the list of questions (Appendix F) that would lead the conversation to elicit additional details where needed. All participants were asked the same list of questions. The participant information sheet (Appendix C) and the brochure (Appendix D) prepared by the researcher, which explained the scope of the research and provided important information related to their participation, were shared with them to help set the tone for the interviews. All spontaneous volunteers were requested to read through the information provided before the meeting. They were also given time to read through and ask questions related to the information material before the interview began, as per ethics approval. A more detailed description of the interview procedures is provided in section 3.3.1.iii.

3.3.1.i Go-Along interviews

There are many ways to conduct semi-structured interviews. Go-Along interviews were selected for this study because they are conversational and allowed participants to take the lead when accompanied in their natural settings, such as their homes, parks, workplaces, or other relevant environments (Kusenbach, 2017). Go-Along interviews have been used to understand implications for practice in health care (Carpiano, 2009), the behaviour of older adults (Van Cauwenberg et al., 2012), and to gain access to practices, experiences, and interpretations of individuals in their everyday routines (Parzer et al., 2017). The Go-Along approach, also known as the Walk Along (Carpiano, 2009), allowed observation of the social and spatial contexts in which the phenomenon was experienced, in this case, the disaster that occurred. Informal conversations were held with the spontaneous volunteers that made them feel at ease to share their spontaneous volunteering experiences (Carpiano, 2009; Garcia et al., 2012; Kusenbach, 2017). Hence, Go-Along interviews facilitated the building of trusting relationships and candid discussions that led to a more nuanced understanding of a phenomenon. The next section elaborates on the interview questions.

3.3.1.ii The interview questions

In line with phenomenology, the interview questions were designed to contextualise the phenomenon, then apprehend the phenomenon, and lastly, clarify the phenomenon (Bevan, 2014). All questions were in simple language with no technical jargon employed to ensure spontaneous volunteers

understood the question and could relate to their real-life experiences (Saunders, 2016). All spontaneous volunteers were asked the same questions. The questions typically began with "how", "what", "why", or "describe", to elicit detailed and nuanced responses that provided valuable insights into the research questions. A separate list of probes (Kusenbach,2003; Patton, 2015) was developed to better elicit and understand similarities and differences among the three disasters. Probes can be especially useful in semi-structured or unstructured interviews, where flexibility is key (Alirezaei & Latifnejad Roudsari, 2020; Parzer et al., 2017).

Table 3.5 lists the interview questions relating to each research question.

Table 3. 5 Interview questions related to each research question

Research Question	Interview Questions
<p>Research Question One: How do spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases?</p>	<p>What are the social media platforms that you use currently?</p> <p>How often do you use social media?</p> <p>Thinking back, which platform did you use before the disaster?</p> <p>Did the platform change during the disaster?</p> <p>How do you decide which platform to use and why?</p> <p>Are you aware of any social media platforms (e.g., Facebook/Twitter) that emergency organisations are using? If so, which ones, and do you still follow them?</p> <p>Is it important to follow them or interact with them? Why or why not?</p> <p>How would you describe the kind of information that was shared during the different phases of the disaster? Tell me about the ways you used social media during the disaster.</p> <p>Demonstrate how to create posts, and please also show the devices you use/used to communicate.</p> <p>Are you aware of any official emergency management websites/ social media pages?</p>

	Have you ever offered assistance with official disaster management?
Research Question Two: How does social media facilitate spontaneous volunteers' agency?	<p>What are the ways in which social media was helpful pre-, during, and post-disaster?</p> <p>Tell me about your feelings when you used social media during the disaster.</p> <p>In your opinion, what were the benefits of using the social media platforms of your choice?</p> <p>What types of activities did you do independently during and after the disaster using social media?</p> <p>What kinds of activities did you perform with others?</p> <p>Was there any communication and collaboration with the official emergency responders?</p> <p>Talk about your experience with any social media platform pre-, during, and post-disaster phases.</p>
Research Question Three: What are the ways in which social media enables spontaneous volunteers to co-create knowledge during a disaster?	<p>Talk about your experience of communicating and sharing knowledge using your platform of choice.</p> <p>How important are social media for generating information?</p> <p>Now that the disaster has passed, how important do you think the collaboration was?</p> <p>How did you form groups on social media?</p> <p>Were there any individual skills or expertise that you identified that could help? Can you provide examples of successful projects or initiatives where you co-produced knowledge or activities?</p> <p>Can you tell why you used both video and images as message content for these posts?</p> <p>Are you still using social media to produce content?</p> <p>Are you still using social media to co-produce knowledge and activities? If so, in what way?</p> <p>Do you follow them or interact with them? If so, with which causes?</p>
Research Question Four: What recommendations do spontaneous volunteers have to	Can you identify the issues you faced when the disaster struck?

improve social media for disaster response?	<p>What recommendations do you have to improve the experience of other spontaneous volunteers in the future? Can you identify them?</p> <p>Were the features offered by social media more engaging or easy to use?</p> <p>What recommendations do you have to improve social media platforms <i>before</i> the disaster?</p> <p>How can social media platforms be enhanced to facilitate you <i>during</i> and <i>after</i> the disaster?</p> <p>What recommendations do you have to improve your experience in the future and how would it facilitate future volunteerism in your opinion?</p> <p>Please give specific examples to illustrate this.</p>
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As the list of interview questions suggests, the interview questions were structured around the four Research Questions. All participants were asked the same list of questions. The interview procedure is explained in the next section.

3.3.1.iii The interview procedure

The Go-Along interviews took place between July 2019 and February 2020. In line with phenomenologists' suggestions, the researcher herself conducted all interviews (Alirezaei & Latifnejad Roudsari, 2020; Høffding & Martiny, 2016). All the interviews were conducted at a time and place convenient for the spontaneous volunteers near the disaster location. The 18 Go-Along in-depth interviews were conducted in English, using simple vocabulary to gain access to their perspectives without confusing them with theoretical terms (Benner, 1994). Of these, 16 interviews were conducted face-to-face while two were conducted online via Zoom. The interviews in WA were conducted three years after the Waroona-Yarloop bushfires; those in London were conducted two

years after the Grenfell Tower fire, and the interviews in Melbourne took place almost a year after the floods.

“Initially, introduction to and rapport with spontaneous volunteers were developed through phone calls where the researcher confirmed that they were indeed spontaneous volunteers. This was followed by an exchange of emails and phone messages to organise a time to meet. At this stage, the researcher confirmed once again that participants conformed to the researcher’s definition of ‘spontaneous volunteer’. The researcher then visited the local resource centres, libraries, community spaces where the volunteers had participated in various activities. Initial visitation to the different places where spontaneous volunteers carried out their day-to-day activities, interacted with their friends, and observed their world, were undertaken. An attendance at a morning tea with the spontaneous volunteers and their friends was an attempt to try to be a part of their lives, even if only for a short period due to time constraints.

As per ethics approval (section 3.5), each spontaneous volunteer returned the signed consent form before the initiation of the interview. Guided by the literature on good practice for interviewing (Garcia et al., 2012; Opdenakker, 2006), the tested recording devices were turned on with the final confirmation from the spontaneous volunteer. Care was taken to maintain eye contact and to listen to the spontaneous volunteers intently.

Additionally, a brief ice-breaking session was conducted before each interview to reduce tension or awkwardness between the researcher and the spontaneous volunteers. During this session, the researcher asked some casual questions to encourage relaxation and openness. The goal was to establish a professional relationship and make the spontaneous volunteers

feel more comfortable, thus reducing nerves and enabling them to ease into the topic of discussion more effectively during the interview. During the ice-breaking session, the researcher also provided an overview of how the Go-Along interview would proceed, the spontaneous volunteers were advised about the recording devices used, and that they could end the interview whenever they wanted.

Ensuring the spontaneous volunteers knew they could disengage at any time was important because disasters are traumatic times. Extra care was taken not to digress from the topic or ask sensitive questions that could potentially trigger traumatic memories. The focus remained on the objectives of the study, and the questions primarily focused on their social media engagement before, during, and after the disasters. While some spontaneous volunteers were happy to start talking about their experiences immediately, others described their lives before the disaster and how they made sense of their world at that time before they discussed their participation during the disaster. These valuable differences were noted and added to the transcripts.

Each spontaneous volunteer was asked the same questions, however, the sequence varied according to the flow of the interview conversation, enabling inductive probing in key response areas. The interview length ranged from 30 minutes to 3 hours, averaging about 1 hour. Spontaneous volunteers were requested to think back to the day of the disaster and to describe what happened as a 'warm-up' question. The spontaneous volunteers reflected on the day of the disaster, identifying where they were when the disaster happened, what they saw, and how they experienced it.

The initial interview questions essentially asked the spontaneous volunteers to share their experiences. Minimal prompts were provided to avoid giving them directions on how to respond. In this way, each spontaneous volunteer began by telling their story, the researcher occasionally requesting more details about a comment or two such as, “Can you explain this further?” or “Do you recall any more benefits that you experienced?”. The flexibility of semi-structured Go-Along interviews enabled the extraction of relevant information while adhering to the research questions. Although various strategies were planned to keep the participants on track and avoid going off track during the discussion, in practice, it was extremely challenging to do so with some of the older participants as they had several disaster-related events to share.

Listening to the spontaneous volunteers with openness to the unexpected, while communicating openly, built trusted relationships with them that enabled the researcher to enter their world with a readiness to revise her preconceptions. This was important since reality is dynamic (Gadamer et al., 2004). Thus, a subjectivist view was adopted, being subjectively involved in knowledge-making (Denzin, 2008; Denzin & Lincoln, 2011). Their words were recorded, along with actions, and body language, while listening to their feelings and perceptions about the disaster. The same characteristics were noted when they described how they used social media to participate in helping themselves and their community. These lived experiences enabled the development of a relationship with this knowledge, to interpret spontaneous volunteers’ experiences, give meaning to these experiences, and then make decisions about them (Stals et al., 2014).

The spontaneous volunteers also shared their social media posts and discussed what was happening around them as they used various platforms during the disaster. One of the spontaneous volunteers from London, for instance, reflected on how the spontaneous memorials started appearing on the walls (Image 3.7) in the vicinity of the towers, and how they continue to do so. She took the interviewer along the streets that they had been standing on, as they described the event almost as if it were unfolding in front of their eyes. This allowed photographing some of the locations, to preserve the love that continues to be expressed by the local people along the streets. The following photos depicted below were taken while walking along with the spontaneous volunteers around the Grenfell Tower in September 2019, in London.



Image 3. 5 Participant 7 residential area



Image 3. 6 Hearts along the wall to share their voice



Image 3. 7 Peaceful and reflective memorials still present today



Image 3. 8 Bereaved family members' and residents' messages

Walking along with the spontaneous volunteers enabled the researcher to visit the local monuments and places of significance such as the local library, and the recreation centre where many of the spontaneous efforts began. This is how the researcher was introduced to their everyday life, almost becoming a part of their world. This visual data, and social media data shared by this spontaneous volunteer, brought forth details about the context and uncovered many conversations that had happened during the disaster, creating a deeper understanding of the local sentiments.

For the Grenfell fire, spontaneous volunteers from other disasters described how their social media posts came to be. They invited the researcher to their community centres where they conducted various activities to participate in recovery and response efforts. The spontaneous nature of the memorials also acted as conversation starters allowing further absorption of what being a spontaneous volunteer felt like, and how their past experiences helped them assist spontaneously during the disaster.

This approach developed a deeper insight into the world of spontaneous volunteers. Relevant questions were asked to clarify ambiguities that would not have happened otherwise. Together, the data uncovered many facets of their spontaneous volunteer efforts that were hidden from view. Each encounter was more dynamic and interactive, improving any understanding of the lived experience despite the limited time spent with the spontaneous volunteers. During the interviews, the spontaneous volunteers discussed their social media activity before, during, and after the disaster. They identified various platforms of their choice that they used at the time of the disaster, uncovering a variety of approaches used to make sense of what was happening, to maintain a sense of order, and to contribute during a disaster. The researcher sought to be an active listener, taking notes and paraphrasing statements to facilitate understanding when transcribing the recordings. There were times when incomplete sentences and prompts were used to encourage discussion and to redirect the interview if the spontaneous volunteer went off on a tangent or became distracted (Marshall et al., 2013; Vandermause & Fleming, 2011). With the permission of the spontaneous volunteers, the social media posts shared during the interview were saved using screenshots both on the laptop and the mobile phone.

Being at the actual location where various recovery and response efforts took place also prompted the spontaneous volunteers to share implicit or taken-for-granted knowledge and stories that they might not have considered sharing otherwise, adding richness to the data. Spontaneous volunteers often used their mobile phones to revisit their social media posts while sharing their experiences before, during, and after the disaster. These observations were

noted down during or soon after the interview as individual participant notes (Appendix G) to be incorporated for data analysis.

These observations were limited for two spontaneous volunteers who were interviewed via Zoom. They had used their laptops to share social media data. The remaining 16 spontaneous volunteers shared that their mobile phones had all the applications they used, and were able to discuss everything with ease. The data shared by the spontaneous volunteers highlighted the extensive conversations that took place online, including planning and coordinating spontaneous efforts discussed in Chapter 5.

The Go-Along interviews enabled building a connection with the spontaneous volunteers and led to positive conversations. Before ending the interview, all four parts of the interview questions were revisited to ask if there was any additional information that came to mind. The spontaneous volunteers were then thanked for their time and for sharing their experiences and recommendations. All spontaneous volunteers were informed that they would receive a copy of the findings and then were thanked for their valuable contribution. They were also provided with researchers' contact details for the future if they would like to add anything that comes to mind. Two spontaneous volunteers sent emails a few days after the interview to add information that they had recalled that they felt was relevant to the research. This information was incorporated into their transcripts. The transcription process of this study is discussed in the following section.

3.4 Transcription

After each interview, all investigations were transcribed verbatim, rather than at the end of the data collection. Much of the transcriptions occurred during the

fieldwork interview stage. Walking along with the spontaneous volunteers as they recalled their lived experiences introduced ideas related to the barriers they experienced or the different ways social media helped them. These ideas could be tested on subsequent spontaneous volunteers and also could potentially extend the theory (Miles et al., 2013). Therefore, while transcribing, many of the ideas that emerged also led to initial data analyses being performed simultaneously. For example, section 3.3 discussed a list of questions that emerged (Appendix F) and section 3.3.1.i discussed participant notes (Appendix G).

Idea generation and ongoing analyses also served to test the researcher's biases and sometimes also the participants' biases. For example, in the first few interviews, a spontaneous volunteer from the 2016 WA bushfires commented on the paid emergency responders' attitude towards unpaid volunteers and the general public. The perception of this spontaneous volunteer was that those who were trained to watch over prescribed burnings often slept on the job and that it often forced the unpaid volunteers to be called to action in the middle of the night. Additionally, while the official responders would not directly communicate with the locals, they would use pieces of information through informal channels, such as Facebook, without acknowledgement. This comment was noted as a point of reflection for the researcher and to cross-check if any other spontaneous volunteer shared such perceptions.

Therefore, while transcribing, some ongoing data analyses occurred that related to the quality of the data collected, how appropriate it was, and whether

new questions needed to be introduced (Whiteley et al., 2012). Based on some comments made by the spontaneous volunteers in Western Australia, some questions relating to spontaneous volunteers' experience with the disaster were revised to focus more on social media rather than the issues and barriers with official responders. Nevertheless, such comments were relevant for the questions related to the involvement/exclusion paradox that was addressed during the data collection period. In this way, the interviews yielded a unique source of knowledge that was co-generated. The additional questions were all considered to be pertinent to this research as they related to emerging themes. They uncovered how spontaneous volunteers were experiencing the paradox, navigating through it, and whether it was hampering their participation in recovery and response efforts. Here is an example of a question that was added to the list after the first two interviews. It relates to the experience of exclusion:

“How did this lack of information impact you?”

What happened next? How did you manage to overcome this problem?

Therefore, as new ideas emerged, the list of questions (Appendix F) was updated to ensure that the data would add meaning and value (Creswell, 2013; Miles et al., 2013).

It was sensible to undertake transcription whilst the interviews were still fresh in one's mind (Kusenbach, 2003), and some hints for possible improvement of future interviews were gathered. The spontaneous volunteers were asked if they were available to check the transcript and provide their feedback and

approval. Only two spontaneous volunteers responded and both were happy with their transcripts and used as is for the data analysis.

3.5 Ethics

In line with the National Statement on Ethical Conduct in Human Research, the data collection and recruitment process started after gaining ethics approval to conduct the interviews. The Curtin Human Research Ethics Committee (HREC) approved the participant information sheet (Appendix C), the interview protocol (Appendix E), and the recruitment email. The approval number, HRE2018-0768, was added to the Participant Information Statement (Appendix B) shared with each participant in this study. Following the procedures outlined by Curtin's HREC about using social media platforms as well, only the information about the study that was approved by the ethics committee was shared online. More importantly, only publicly available information was accessed via Social Studio, keeping in mind privacy concerns. Once participants were self-selected, confirmation was gained that they were not affiliated with any organisation, and that they had used social media before, during, and after the disaster to help their community. Then they received consent forms. Additionally, keeping good ethical practices in mind, the researcher provided all spontaneous volunteers with information sheets before the interview, along with an opportunity to ask any questions relevant to the study. All spontaneous volunteers were allowed time to read through the participant information sheet and to return the signed consent form before the interview was initiated (Bailey, 1996).

All interviews were recorded with permission according to the ethics approval received. The interviews followed the interview guide with meaning-orientated

questions to understand the significance of the phenomena (Marcel, 1950), to explore the topic and gain a deeper understanding. Spontaneous volunteers who were interviewed online due to their inability to meet face-to-face were advised the interviews were being recorded and that their consent was received before starting interviews. All spontaneous volunteers were informed about their privacy, for which they had an opportunity to select a pseudonym for themselves, otherwise one would be assigned to them.

Spontaneous volunteers were also requested to share their emails so that they could check the transcript and confirm if anything was missing. Only two participants responded to the email and provided some additional information about the Yarloop bushfires. Spontaneous volunteers were also advised about data storage in a secure place and their ability to withdraw from the interview at any time.

During the transcription process, any personally identifiable information was removed to maintain participant confidentiality. All audio recordings and transcripts are stored on a secure password-protected server, accessible only to the research team. In the write-up and reporting of data, pseudonyms have been employed to further protect participant identities. Direct quotes were used to stay true to participants' experiences, but care was taken to ensure that these quotes could not be linked back to individual participants.

3.6 Summary

This chapter presented the methods used to collect the data in this thesis. It detailed the research philosophy and the rationale for selecting a qualitative, phenomenological approach to address the research questions. The thesis took a qualitative approach, using phenomenology to understand the lived

experiences and perspectives of spontaneous volunteers (Creswell, 2013). Section 3.2 introduced the overall research approach utilising the interpretive paradigm. The phenomenon in question was the subjective nature of spontaneous volunteer experience. The research approach was inductive and the data was collected to formulate or extend theory. Taking a qualitative approach was suitable to explore the subjective nature of spontaneous volunteer experiences since it can study this (Cilesiz, 2011).

The chapter described the data collection method including the Go-Along interviews, and the locations at which they were conducted. The sampling procedure detailed many issues faced in trying to access spontaneous volunteers, before developing a novel approach, i.e., using Radian6 Salesforce Social Studio to locate spontaneous volunteers. The recruitment methods table highlights all the methods employed that eventually led to the interviews of 18 spontaneous volunteers.

The in-depth Go-Along interviews were conducted at a time and a place convenient to the participants. Descriptions consist of what they experienced and how they experienced it to present the viewpoint of spontaneous volunteers to the world. The study conducted purposeful sampling to ensure that all participants brought rich experiences that were relevant to the topic. The various recruitment methods as well as three different disasters brought a diversity of samples and captured experiences from a range of perspectives. In addition to interviews, this rich data was supported with publicly available social media data shared by the spontaneous volunteers. This added fullness to the context and facilitated a holistic grasp of the phenomenon. After transcribing all the interviews, the researcher engaged in member checking to

verify and clarify the content. Collectively, these practices ensured that the research was rigorous and adhered to best practice. The methodology employed, therefore, helped develop a composite description of the experiences of the spontaneous volunteers participating in disaster response and recovery. The chapter concludes with an outline of the ethical procedure of the study. The next chapter details the data analysis procedure.

Chapter 4: Data analysis

This chapter describes the data interpretation process followed by the researcher. The chapter is structured around six steps; identifying one's pre-understandings, reading and re-reading the data, identifying significant statements, identifying themes and subthemes, and lastly the final write-up. The chapter then discusses the quality of data and the researcher's reflexivity before presenting the summary of the chapter.

The six steps are inspired by the key components of the process outlined by Giorgi (1997), the first of which, collecting verbal data, was discussed in Chapter 3 along with the transcription process. The transcripts were transferred to NVivo software along with the Facebook posts and the additional notes. The remaining four steps outlined in Giorgi's (1997) process, reading data, breaking data into parts, organising and expressing data in a disciplinary mode, and summarising data for scholars, are adapted to form the six steps for the data interpretation process described in this chapter as subheadings for section 4.2.

The data analysis approach was inductive and data-driven, meaning the data were allowed to inductively reveal the meaning that spontaneous volunteers ascribed to their lived experience of using social media to participate in recovery and response activities.

4.1 Introduction

Choosing Heideggerian phenomenology (discussed in Chapter 3) as the foundation for research created difficulty in selecting an approach for the analysis and interpretation of the interview data, the notes, and the social

media data shared by the spontaneous volunteers. Heidegger (1927) offers little insight into how one can analyse and interpret data. His works, especially "Being and Time" (Heidegger, 1927), focused on the fundamental ontology of human existence and were philosophical in nature (Wilson, 2014).

Additionally, the current literature on spontaneous volunteering does not offer any guidance on how to conduct a phenomenological study. Instead, studies from psychology, tourism, medicine, and nursing (Almegewly et al., 2021; Gill & Liamputtong, 2009; Mastain, 2006; Miller & Mair, 2015) afforded guidance on how to interpret data. Navigating the data analysis process, therefore, was very challenging, and due to its iterative nature, an extremely time-consuming process. Often, it felt like a colossal task, combining the spontaneous volunteer's experiences and those of the researcher, with what the social media data presented about the meaning of their experiences. This chapter explains the data analysis approach that was developed and followed.

4.2 Phenomenological data interpretation process

Phenomenological data analysis is not a linear process, rather it is iterative where one moves back and forth between steps to refine an understanding and interpretation of the data within the context of the whole (Wilson, 2014). In line with Heidegger (Heidegger & Macquarrie, 1962), the belief that spontaneous volunteers' understanding of their experiences, their world, was situated within a larger context or the disaster, was observed. This context influences how their experiences are interpreted. Constant review of the rich data of the interview transcripts was important to interpret the meanings of the

experience in relation to the broader disaster context. Significant statements or phrases were highlighted and noted why they were important.

Following this, a thematic analysis of these significant statements was conducted to identify themes. The themes that emerged represent patterns or recurring elements in the data, rather than predefined codes that emerged through an iterative interpretive process (Tuohy et al., 2013). One such significant statement that relates to the “Strong desire to help” is:

“I was their local community ... I knew the community. I knew people who live there. I was closely associated with obviously, you know, being a manager for some people who were directly affected by the fire, and my willingness to be involved was [paused]... I felt a sense of duty, it’s just something you have to. You can’t not help.” (Anne, local leader, Grenfell Tower fire).

The significant statement highlights Anne’s desire and proactive approach was strongly connected to the ownership of her community and her strong sense of duty towards it. Many themes that emerged represented the experiences of the study’s participants that did not directly relate to the research questions but were important tangential findings, nonetheless. Discussions were held with the thesis supervisors who kept the researcher focused on the remaining data analysis and interpretation processes. An important advantage of having these notes and ideas written down emerged when data analysis confirmed or elaborated on a concept discussed in the literature review.

Once all themes had been identified, the focus moved to organising and expressing data in a disciplinary modality (Giorgi, 1997). This means breaking down complex ideas into smaller, more manageable units and logically organising them, ensuring rigour. Each significant statement was extricated from among the spontaneous volunteers' direct words, not just from a reiteration of their descriptions. For the researcher, this interpretation was an exciting stage of data analysis as it enabled creating comprehensive descriptions of the phenomenon, thus capturing its essence. This essence lay in transforming the raw, lived experiences of spontaneous volunteers into a description that is insightful, and significantly meaningful.

The researcher developed an acute awareness of the fine line balanced in staying true to what the spontaneous volunteers were saying while translating it into terms that resonate with the discipline's constructs and understanding. This step required a deep familiarity with both the phenomenological method disaster management literature, volunteer studies, and local emergency management plans. Networking with the local emergency practitioners and volunteer managers at this stage, whether it was during conferences, webinars, or face-to-face workshops, was essential to this process. It offered a special space enabling a view into the world of spontaneous volunteers from within while experiencing how they were viewed from without by those with whom they engage.

With better comprehension of their world came an awareness of the barriers they faced, and an entry into their use of social media. This process ensures that the resulting findings are both rooted in authentic human experience and

could be meaningfully integrated into the scientific or academic discourse of the discipline.

In Heideggerian phenomenology, interpretation is central (Conroy, 2003; Giorgi, 1985; Tuohy et al., 2013). The process of interpretation differs from the more descriptive approach of other forms of phenomenology (Wilson, 2014). Interpretation was followed by writing and rewriting the findings. This became a time-consuming process that focused on refining and integrating the themes to understand the essence which can then be summarised for the scholars. Throughout the data analysis, the high quality of data was maintained, while engaging in reflexivity or self-reflection to remain aware of the researcher's biases or assumptions that may influence any interpretations of the data.

The process outlined above provided a snapshot of the interpretation of the data. The following subsections expand on each step of the process, and how to stay aware of pre-understandings to analyse the rich data.

4.2.1 Identifying one's pre-understandings (fore-structures)

Heidegger (1927) argued that we cannot look at an experience objectively; rather we must recognise that our understanding of the experience includes the situation we are in and the environment of which we are part. The researcher's reflection on her understanding of spontaneous volunteering during disasters assisted in developing a clearer idea of the assumptions, beliefs, and attitudes about this phenomenon in this study. Additional personal notes made during transcription (both on what the volunteers said and how the researcher felt while conducting the Go-Along interviews) were also added to the reflections, following Miles and Huberman's suggestions (1984). These

notes and occasional comments from the spontaneous volunteers added insights to their experiences at another level. Here is an example note about impact of location:

“Sally (Participant 1) noted that the tearoom at the community centre in Yarloop was crowded and noisy, so the interview was paused and we resumed in the adjacent hall. This was a blessing in disguise as it turned out to be the very same hall where she had volunteered during the bushfire. The change of location brought forth many memories from the initial days of the disaster that might not have been uncovered had we remained in the tearoom. Location is significant; new memories that emerge when you are present at a location can be powerful. Sally, who was very happily composed in the tearoom, suddenly became emotional as she recalled the difficulties she had experienced relating to her child’s school, and other community issues. As I was getting her some tissues, she mentioned that she had forgotten all about the initial troubles with the school; she had not recalled those experiences in many months. I paused the interview to comfort her, but she was much more resilient. Almost instantly Sally was composed again, “Ok, where were we?” eager to continue with the interview.

While these notes complemented the transcripts, they alerted the researcher to become aware of the different tangents conversations could take, and to keep in mind the importance of quickly steering the conversation back to the

topic of interest. There was also a note discussing how motivated Sally was, and an observation that she had just displayed resilience in the way she bounced back.

The researcher engaged in conversations with two PhD students and thesis supervisors, in addition to reflexive journaling, to identify biases and pre-understandings. The researcher's reflections on these pre-understandings, or forestructures, initiated the understanding of the pre-reflective experience (Tuohy et al., 2013). This was an ongoing process that developed every time a new transcript or piece of social media data was discovered.

4.2.2 Reading and re-reading the data

Reading and re-reading the transcripts better familiarised the researcher with the data, developing a sense of the whole and its parts, following Heidegger (Grondin, 2015). This immersion into the data led to the discovery that the individual experiences of spontaneous volunteers are intricately woven into their community relationships, roles, and activities. This reinforced what Heidegger argued about Dasein (Table 3.1) as not just being, but rather being-in-the-world (Heidegger & Macquarrie, 1962). The researcher's understanding of the non-static world of spontaneous volunteers emerged, strengthening with each reading of a new transcript. The world of spontaneous volunteers was emerging as a constantly evolving one, influenced by the needs of their community, and by their ongoing experiences. Their emotions such as confusion or frustration were parts of the whole (disaster experience) that could not be detached from it, nor could they be studied in isolation.

The ideas that started to emerge showed that spontaneous volunteer actions were in response to what mattered most to them; they were deeply involved,

engaged, and concerned about the impact of the disaster on themselves, their family, friends, and the wider community. These ideas were noted, while continuing reading and re-reading transcripts. They assisted the evolution of pre-understanding about the 'unexpected' and 'unstructured' (Simsa et al., 2019) responses of spontaneous volunteers. The researcher was drawn to their lived experiences, to explore how they actively interpreted and shaped their world through their actions and relationships. Highlighting all ideas relevant to the research questions from each transcript, led to the next step, the researcher's preliminary understanding and identification of significant statements or phrases.

4.2.3 Significant statements

In trying to make meaning of the text and visual data, labelling or highlighting significant statements that correlated with specific experiences were required. Each participant's transcript became a guide. This openness led to the identification of many significant statements and allowed initial understandings to emerge. Significant statements, also known as meaning units or horizons, are sentences or quotes that provide a unique understanding of the experience under investigation (Finlay, 2014). These are excerpts from the raw data that provide important insights into the phenomenon.

When applying Heideggerian phenomenology to data analysis, significant statements or phrases provided insight into how a particular experience was perceived by the participant (Johnson, 2000; Wilson, 2014). This process is also known as thematic analysis or coding for significant statements (Creswell, 2013; Saunders, 2016). Significant statements or phrases capture the key aspects of participant experiences that identify how they make sense of their

world. Image 4.1 presents an example of a significant statement related to why this spontaneous volunteer used social media, particularly Facebook.

Think back to when the disaster happened over here and tell me how you became involved?

From the onset it would have been from the contact from the outside world to the Facebook page I was currently running with people trying to get information about family because obviously I guess there seems to be a real disconnect between what's really happening on the ground and what media channels put out and it that's always the case I mean obviously someone closer to the root of the problem is going to know more about what's happening since that time ive obviously joined the fire brigade and what not to so that I am more finger on the pulse and can report quicker you should I get information and that's if what time allows me to check my phone and and pass information on but I think yeah I have always been a problem solver and it was a case of people messaging the Facebook page which makes you think obviously these people need someone in town to to try and connect the dots for them so to speak so yeah it was a case of falling into the position of position was there and I'll just sort of yeah you stepped up into it so that was it.

Image 4. 1 Significant statements from Tia, Bushfire

One of Tia's statements said:

"... Obviously, these people need someone in town to try and connect the dots for them." (Tia, Bushfires)

This meaningful statement captured the key aspect of Tia's (a spontaneous volunteer from Yarloop bushfires) lived experience. It provided insight into her perception that an information gap existed, and her belief that the local people needed someone to bridge that gap at that time in the disaster. These and other significant statements provided insights into the phenomena being encountered.

Identifying significant statements was an iterative process. While going through the transcripts, often a significant statement emerged from a different context, which brought to light the importance of re-visiting what other spontaneous volunteers had said. Notes were made about pre-understandings

and later understandings that helped comprehension of the significant statements and various ways in which the phenomenon manifests.

Drawing on Heidegger's work (Heidegger, 1927), many phenomenologists have expressed the value of pre-understandings, and the proviso that understanding cannot be possible without them (Gadamer et al., 2004). Frequent revisits to the researcher's pre-understandings during the process of analysis and interpretation resulted in the ability to supplement notes when something interesting emerged.

The significant statements were parts that told the researcher something about the whole. Writing notes in the margins allowed viewing and re-viewing the entire transcript to grasp the myriad ways the spontaneous volunteers felt facilitated by social media. Upon return to these notes, the researcher shifted from the whole to the parts of each transcript, in line with Heidegger's hermeneutic circle (Cohen et al., 2000; Grondin, 2015).

An initial understanding emerged, that spontaneous volunteers recognise a need, and develop strong desires to help. Tia's comment about "connecting the dots" for the people is an example of identifying a need in which she used Facebook to disseminate what she saw in the disaster area. She shared the ground-based information to bridge the information gap. A pre-understanding about the role of social media in connecting distant family and worried friends was reinforced by many spontaneous volunteers falling into information-sharing roles because they perceived that they could fill that void. Social media acted as the platform that enabled them to do just that. In line with Heidegger's approach (Wilson, 2014), an acknowledgment was made about the influence

of the researcher's pre-understandings on interpretation as a reflection on how understanding the context shaped her evolving understanding.

Following Giorgi (1997), these significant statements brought forth the various issues that spontaneous volunteers perceived, which contributed to the evolving understanding of how information gaps contribute to the chaos experienced by the local people as they do not know the situation on the ground. Each significant statement captured an important aspect of the disaster, a specific type of idea that helped develop the themes relevant to Research Question One. In the data analysis, there were similar sentiments expressed by other spontaneous volunteers as well. These significant statements could be grouped under the main theme. For example, "overcoming gaps in emergency response management" was a theme related to Research Question One.

4.2.4 Themes and subthemes

In phenomenology research, themes and subthemes refer to the systematic categorisation of data and insights gained through qualitative research methods. Themes are the highest level of abstraction in phenomenological analysis (Finlay, 1999; Wilson, 2014). They represent the most fundamental and essential aspects of the lived experiences being studied (Tuohy et al., 2013). Themes provide an overarching framework for understanding the research topic, while subthemes offer more specific details within each theme. Subthemes reflect a different aspect of the main theme (Saunders, 2016). In this study, they represent the different meanings or structures that underlie the phenomenon from the spontaneous volunteer's perspective.

Subthemes can be imagined like the branches on a tree. They are smaller, more specific ideas that are related to a larger theme. Several such significant statements emerged from the data that were grouped as subthemes that captured the overarching phenomenon as the main theme (Roulston, 2014). For example, Theme Two “Overcoming gaps in emergency management” had three subthemes that encapsulate what spontaneous volunteers experienced. Each subtheme was supported by many significant statements that enabled the researcher to understand the spontaneous volunteers’ responses to Research Question One.

Table 4. 1 Themes and subthemes example

Theme	Subthemes
Theme Two: Overcoming gaps in emergency management	Subtheme one: Gaps in information Subtheme two: Gaps in communication Subtheme three: Exclusion of spontaneous volunteers

4.2.4.i Cross-links between themes and subthemes

The identified themes interacted with each other as they linked and cross-linked across different contexts. When exploring the question of why social media was used by spontaneous volunteers, the theme ‘strong desire to help’ reflected the underlying motivation driving the spontaneous volunteers, the initial catalyst for volunteers to turn to social media. This theme is also directly connected to other themes such as ‘autonomy’, ‘freedom’, and ‘power’ as their motivation to help empower them to use social media platforms to take independent actions and influence outcomes. The theme is also linked to the “develop resilience” theme, as autonomy in decision-making contributes to

personal and community resilience by building networks, sharing resources, and learning from others.

Similarly, the theme 'overcoming gaps in information' was also linked with 'overcoming gaps in communication and 'co-production of knowledge'. While spontaneous volunteers used social media to bridge the information gaps that often exist in disaster situations, social media platforms served both as information source and a communication tool, enabling volunteers to exercise their agency and work collaboratively with other group members. This theme is further tied in with one of the recommendations about how social media platforms could be improved by highlighting the importance of information accuracy and accessibility.

These cross-links challenged the researcher when writing the analysis, as many themes seemed to be woven together as they influenced one another. For example, when discussing how social media was used to develop resilience, it was their strong desire to help that drove the spontaneous volunteers to find and share information, which in turn built relationships based on trust and networks and influenced their collective resilience.

The recommendations were also clearly informed by the cross-linked themes, for example overcoming communication gaps was identified as crucial, therefore a recommendation about social media platforms was to develop features specifically designed to reduce misinformation and enhance real-time communication in disaster scenarios. Understanding how the themes linked and cross-linked was a time-consuming process that resulted in a more cohesive analysis that not only highlights the distinct aspects of each theme

but also demonstrates their interconnectedness, leading to a deeper understanding of the role social media plays in spontaneous volunteer efforts.

4.2.5 Interpretation of themes

In Heideggerian phenomenology, interpretation is central (Wilson, 2014). This process involved describing the themes, such as 'overcoming gaps in emergency management' that emerged from the data, then interpreting them within the worldviews of the spontaneous volunteers. To interpret themes through a Heideggerian lens one has to immerse one's self in the data, constantly referring to Heidegger's philosophical concepts (Ricoeur, 1976). The iterative process of interpretation was deeply engaging, moving between individual themes and the overall essence of the experience.

Ricoeur's analytical framework recognised Heidegger's stance that understanding incorporates interpretation (Geanellos, 2000; Heidegger, 2011; Ricoeur, 1976). Ricoeur's theory of interpretation (Ricoeur, 1976) suggests that language articulates lived experiences and enables understanding of being-in-the-world. He elaborates that a person becomes aware of his or her participation in the world by talking about it and by explaining how one is affected by a situation. A person orients himself or herself comprehensively in those situations due to the impact of the situation. It is this impact that brings one to say something about that situation, and in doing so brings experience to language (Ricoeur, 1976).

Knowing that understandings and interpretations are influenced by the researcher's background, by prior understanding, and by being-in the world, helped her move beyond patterns in data and delve into the deep existential

and ontological meanings of the experiences. Image 4.2 highlights a part of the transcript that articulates how Facebook assisted this spontaneous volunteer. The following is a Heideggerian interpretation of this theme:

First, social media facilitation was experienced in relation to the ease and efficiency of navigating through the platform. Going back to the whole, one was able to understand how the spontaneous volunteers were able to find information, connect with each other, and express themselves easily during the disaster. Understanding Dasein (Table 3.1)), or being-there (Heidegger & Macquarrie, 1962) for the spontaneous volunteer involves understanding that using social media becomes an extension of their interpretation of being-in-the-world (Heidegger & Macquarrie, 1962). The platform is not just a tool with which to communicate; it was experienced as an integral aspect of their existence, their digital presence, and interactions.

Going back to the parts highlighted allowed an understanding that being-in-the-world for spontaneous volunteers was very different during the disaster. They experienced a disconnect, and social media platforms re-connected them, facilitating formation of relationships, and co-creating or co-constructing meaning as demonstrated in Image 4.2 below:

think it was, things were in full swing down at the hall donations had started to arrive of food and water so then it was just a case of becoming hands on helping sort donations.. a helping direct people also through the Facebook page you know we need a sea containers to store things can we get one and people would contact through the Facebook page to be able to say ok well how do we get it there where are we taking it how many do you need and yeah it was just a... either hands on coordinating physical doing stuff down there that needed doing or it was a case of sharing information, you know making a flyer or putting up a post or making some phone calls so yeah..what ever you fell into whatever needed to be done.

Image 4. 2 Example of bringing experience to language

In practice, there was a circular relationship that was emerging. Through the interpretation of an understanding of the experiences of spontaneous

volunteers, new understandings were revealed, uncovering the circular relationship between interpretations and understanding (Heidegger & Macquarrie, 1962; Horrigan-Kelly et al., 2016; Packer & Addison, 1989). The three subthemes (Table 4.1) relate to deeper exploration, allowing one to make sense of what spontaneous volunteers mean by overcoming gaps and how social media facilitated them.

As this cycle of interpretation continued, the researcher's understanding of using a social media platform to overcome gaps was emerging. Social media platforms were experienced as spaces that were interconnected and interdependent. Each part was seen in relation to the whole: each spontaneous volunteer self-perceived to be a part of the whole group or community. It was all making sense to the researcher as the interpretation of themes allowed the researcher to see the bigger picture. This bigger picture was also emerging visually via the NVivo software.

NVivo enabled one to see an exhaustive summary of what all the different spontaneous volunteers said about a specific topic. For instance, 1595 individual quotes (references in NVivo software) were recorded for 'social media facilitation' (see Image 4.3).

The image shows a screenshot of the NVivo software interface, specifically the 'Codes' section. It displays a table with columns for 'Name', 'Files', and 'References'. The table lists several codes and their corresponding values.

Name	Files	References
Issues highlighted	17	302
Quotes to use	9	62
Recommendations	18	271
Social media facilitation	20	1595
Social Media Use Before, During and Aft	20	238
SV characteristics	18	903
SV Experience with social Media	20	351

Image 4. 3 NVivo references in relation to different topics

Scholars note that computer-aided qualitative data analysis or CAQDAS software can be used to ease the laborious task of analysing text-based data (Goble et al., 2012; Vignato et al., 2022; Roulston, 2014). This software did not suffice for this thesis study because understanding the phenomenon is not an algorithmic process. Nevertheless, the researcher found the software to be very useful for organising and interpreting the data. It facilitated rapid and sophisticated text searches, that have been used for this purpose in phenomenological research (Cooper, 2017; Vignato et al., 2022). NVivo aided continuity, with increased transparency, and methodological rigour (Saunders, 2016; Saunders et al., 2009). NVivo allowed all the transcripts to be coded as one project where code trees could be generated, allowing the researcher-driven data interpretation process to go smoothly (Langdridge, 2007).

In addition to uncovering all the themes, the researcher could think about all the different ways spontaneous volunteering was manifested. The added benefit of viewing social media data in relation to each theme speeded up the interpretation process. Visual data (Riessman, 2008) was an important part of the data interpretation process. The screenshots of various social media posts shared by the spontaneous volunteers were linked to various themes that emerged from the interviews to provide more clarity. Visual data also served as mini-audits for supervisors to see the validity and quality of the data interpretations. They enquired and probed to ensure each image demonstrated what one was being interpreted. For example, Image 4.4 highlights a social media post that demonstrates what spontaneous volunteers meant when they said social media facilitates clear messaging using images and words.

This post was used as evidence to demonstrate how images were integrated into social media posts to convey clear messages from spontaneous volunteers. Image 4.4 told a clear story; it acknowledged many actors who made it possible for the sea containers to be delivered to a town that had lost all its homes. The post was eye-catching, and the message of gratitude was clear. By juxtaposing the recorded descriptions with social media data, the researcher was able to gain a more detailed understanding of their experiences and construct a holistic view of the phenomenon (Miles et al., 2013; Silverman, 2013).



Image 4. 4 Clear message using images and words

The interpretation process made the researcher aware of her reflexivity to be conscious of her own biases, assumptions, and societal norms that were shaping her interpretations. This was the most difficult task where supervisors constantly reminded her to stay true to the voices of the spontaneous volunteers while keeping a critical and analytical stance. Das Man, a critical notion in Heidegger's existential and phenomenological exploration of being (Heidegger & Macquarrie, 1962), offered an understanding that the researcher was discovering both the overt and covert influences of societal norms, values, and expectations of spontaneous volunteers in the research. The researcher

had to ensure the correct interpretation of the tensions between spontaneous volunteers as an individual with personal beliefs and attitudes, and conformity with the traditional, societal norms within which they functioned.

Various articles on phenomenological analysis assisted in applying Heidegger's Phenomenology to guide the interpretation (Leonard, 1989; Tuohy et al., 2013). These articles clarified that the focus is not just on what the participants experienced, but also how they experienced it. Structuration Theory (Giddens, 1984a) further offered a new way to reflect on spontaneous volunteer experiences. Spontaneous volunteers were telling the researcher about the limitations of traditional media frequently used during disasters. They were uncovering the flexible structure of social media that assisted them in overcoming barriers posed by the traditional hierarchical command and control structures. They were sharing how they used the same media that enabled them to share information with a wider audience, while also restricting information sharing or excluding information where necessary. By this means, the researcher was able to see how the duality of structure comes into play. Thus, a new, comprehensive understanding was coming to be that was very thorough and close to what happens and to what is experienced in real life when a disaster occurs.

Reflecting on how the interpretation process began, one could see the benefit of this approach. Familiarity with the spontaneous volunteers and their world at the onset of the research journey, reading and rereading the transcripts after returning home created a refreshed overview and an interconnected understanding. This was followed by a renewed approach to the structural analysis where patterns, subthemes, and themes were identified. In line with

existing guidelines emphasising the importance of having another researcher, such as a supervisor, review the themes for validity (Creswell & Poth,2017; Lincoln & Guba,1985; Nowell et al., 2017) the themes and subthemes were presented to the supervisors before starting critical interpretation of them. During various supervisory meetings, the categorisations of the themes were discussed to ensure that there was an agreement on how the themes were categorised. The supervisors acted as a sounding board, and their agreement with the themes identified was confirmed prior to the final write-up. This ensured that the interpretation of the themes and the categorisation was refined in the final write-up stage.

4.2.6 Final write up

Looking at how social media was used before, during, and after a disaster to obtain a more comprehensive understanding of the phenomenon was a challenging journey throughout. Given Heidegger's (Heidegger & Macquarrie, 1962) emphasis on temporality, there was a discussion on spontaneous volunteers' experiences with social media in terms of their past (how they had used social media before the disaster), their lived experiences with social media during the disaster, and how they used social media after the disaster. When writing the findings it was necessary to focus on how spontaneous volunteers interpret and make sense of their experiences within the broader context of their world (Reiners, 2012). Interpretations were constantly checked by the supervisors. Frequent meetings were held to discuss how to interpret data critically to ensure that findings would present both the authentic voices and what mattered to the spontaneous volunteers.

The final write-up aimed to share what was learned about the individual spontaneous volunteer at a more universal level. It recognises and discusses the challenges and contexts that they found themselves thrown into (Heidegger & Macquarrie, 1962). These were circumstances and situations that they did not necessarily choose for themselves but which had a significant influence on them. These circumstances impacted their experiences and their actions.

In writing the analysis, the researcher was very conscious of the language too and reflected on Heidegger (Heidegger & Macquarrie, 1962) who believed language was fundamental to revealing being. The words of the spontaneous volunteers as they shared their experiences were powerful. The researcher had to reflect on how to carefully select words that captured the depth and nuance of spontaneous volunteer experiences. She wanted also to honour their voice, not just share their experiences. Using excerpts from the transcripts, and their actual social media posts, was seen as the best way to integrate their authentic voices.

Lastly, to let the reader into the researcher's world, she acknowledged her being-in-the-world (Heidegger & Macquarrie, 1962), and how it might influence her interpretation of findings (Johnson, 2000; Reiners, 2012; Wilson, 2014). The recognition is that the study does not seek definitive answers, rather, it seeks to create a deeper understanding of spontaneous volunteers who used social media to participate in recovery and response efforts during three disasters. There was also deep recognition that spontaneous volunteering has always existed; that it has evolved and is still evolving in many ways and that this thesis invites further dialogue and exploration. The findings chapter

presents the 'what' of spontaneous volunteering experiences, they also evidence the efforts made to delve deeply into the 'how' and 'why' of spontaneous volunteers being-in-the-world (Heidegger & Macquarrie, 1962).

4.3 Quality of data

It is important to note that qualitative research prioritises depth, richness, and complexity of understanding over breadth and generalizability. Thus, the standards for judging the quality and trustworthiness of the research are different but no less rigorous. Under guidance from Anfara Jr. et al. (2002), credibility, transferability, dependability, and confirmability were seen as criteria to ensure the trustworthiness and rigour of qualitative research (Anfara Jr. et al., 2002). These concepts originate with Lincoln and Guba's (1986) seminal work on establishing rigour in qualitative methodology (Lincoln & Guba, 1986), Anfara et al. (2002) clarified that credibility refers to believability and trustworthiness of the findings, and can be achieved when the findings accurately represent the perspectives and experiences of the participants. Transferability relates to the extent to which the findings can be applied to other contexts or settings.

The researcher acknowledges that the findings are not universally generalisable, they are representative of the spontaneous volunteers as a sample. Efforts were made to provide sufficient details to judge if the findings could be transferred to other similar contexts. While phenomenology does not aim to generalise, the rich descriptions of the participants' experiences, and the context in which these experiences occur, may assist other researchers' decisions if the findings are applicable to their contexts.

To assist with this, quotations from the spontaneous volunteers highlighted the essence of the phenomenon. These quotations aimed to enhance the reader's understanding and may help them judge the applicability of the findings of this thesis. Furthermore, this thesis covered three different disasters and recorded lived experiences from three geographical locations, as well as detailed demographic information about the spontaneous volunteers, thus increasing the chances that the findings would be transferable to other disaster contexts. Dependability focuses on the consistency and stability of the research findings over time and conditions. Given the evolving nature of qualitative data, achieving dependability involves ensuring that the research process is logical, traceable, and documented. Therefore, the researcher has provided a clear and detailed account of the methods, decisions, and changes made during the research process to ensure dependability. Multiple sources of data, that is, spontaneous volunteer data along with their social media data, were used to validate the findings. In addition, the themes that emerged were discussed at various conferences to receive reviews from other researchers and practitioners in the field at various stages of the research process. This served to provide an external check in addition to the internal check provided by the supervisors. These conferences include:

- 2023 Conference paper "An investigation of Spontaneous Volunteers' Social Media Engagement in Emergency Disaster Management," presented at the National Volunteering Conference, February 2023, Canberra;
- 2021 Conference paper "The new frontier of collaboration: An investigation of how spontaneous volunteers use social media to co-

produce recovery and response efforts during disasters,” presented at the International Society for Third Sector Research Conference, July 2021, Montreal;

- 2019 Presentation at the Voluntary Sector and Volunteering Research Conference, Birmingham UK.
- 2021 Presentation at the Emergency Management Network, Department of Premier and Cabinet, South Australia, March 2021;
- 2019 Presentation at RMIT Melbourne at the Centre for Urban Research where academics, volunteer managers, and researchers attended the talk. This opportunity also paved the way to communicate with international academics and practitioners who were attending the Geo Safe 2019 Conference in Melbourne; it received feedback about the appropriateness and usefulness of this research in Europe as well.

One of the spontaneous volunteers in this study also attended one of the conferences where the findings were discussed, and provided positive feedback, in addition to an introduction to a local council where spontaneous volunteers could be included in the local emergency management plan for the shire.

Confirmability refers to the degree to which the findings are a result of the participants' experiences and ideas, rather than of the researcher's biases or interpretations. It also relates to the degree to which the study aligns with existing knowledge and theories. A reflexive journal (Appendix H) was maintained which evidenced the researcher's critical stance throughout the research journey. There is an acknowledgement that the data collection happened at a certain point in time, in relation to specific disasters, and at

certain locations. These circumstances are related to the sample and may serve to guide other researchers.

Tracy's (2010) eight criteria presented a useful framework for designing, performing, and evaluating qualitative studies (Tracy, 2010). How they were applied to this study is described below:

1. Worthy topic: The researcher firmly believed in the worth of this topic; in each disaster, human lives were at stake. Traditional forms of volunteering are declining, making all forms of informal volunteering significant, meaningful, interesting, and relevant. Reflection occurred on why this topic should be important to the community, and to this and other researchers and practitioners in the field; similarly, reflection continued on whom this research would impact, and how the suggestions and recommendations would contribute to existing literature and future policies.
2. Rich rigour: Steps were taken to ensure that the study was rigorous in its methodology. This was done using appropriate data collection methods, taking appropriate time to gather sufficient data that tapped into the breadth and depth of information, seeking guidance, applying concepts as per accepted academic practices, investing time in data interpretation, and maintaining deep engagement with the data.
3. Sincerity: This criterion involves transparency. The researcher was conscious of the necessity to write this thesis honestly, ensuring that the research methods, challenges, and biases were recorded in a reflexive journal, and later transferred to this thesis. The journal was maintained to keep track of the observations, and the thought

processes of the participants when collecting and analysing data. The journal was periodically converted to a Word document and saved in multiple locations. Different issues were highlighted that served as points of reflection for the researcher. Many of these ideas were discussed during meetings with the supervisors who encouraged linking these points to theory and literature review.

The reflective journal was also used to record the personal relationship that was built with each spontaneous volunteer before, during, and after the Go-Along interviews. Remaining in contact with the spontaneous volunteers ensured they understood the information sheet, the interview protocol, and their rights. All issues that would require resolution in the future were recorded along with the anticipated outcomes, and the methodological, practical, and theoretical contributions of the research.

The researcher was engaged in reflexivity (reflecting on her role and influence on the research). The steps involved were discussed with the supervisors, who frequently reminded her to remain aware of her influence on the research, and to acknowledge and record the limitations. The reflective journal was prepared following the approach highlighted by Garcia et al., (2012).

4. Credibility: Credibility means conducting research in a manner that confirms that the findings are trustworthy and would resonate with the participants, stakeholders, and readers. Trust was built in the interpretation throughout the research journey through the use of techniques such as member check (Creswell, 2013; M. Saunders, 2016). Member check involves validating the themes, recorded experiences, and perspectives of the participants that were transcribed

through direct interaction and dialogue. This helps to ensure that the understanding of the words and experiences is accurate and authentic. Two of the spontaneous volunteers agreed to member checking; the preliminary findings were reviewed by them to ensure that they accurately reflected their experiences. The supervisors conducted debriefings on coding; meetings were held to discuss themes that emerged while emphasising maintaining focus on the research questions.

5. Resonance: This is a crucial aspect that enables the readers to connect their own experiences and emotions with the findings (Anfara Jr. et al., 2002). The researcher attempted to accurately honour the voices of the spontaneous volunteers, to allow the end users to feel the experiences of the spontaneous volunteers. Having presented at the National Volunteering Conference in 2023 was a unique opportunity to receive feedback from two people from the audience who had volunteered spontaneously in the past. They confirmed the findings and then shared similar situations they had experienced themselves that provided further support for the findings of the study.
6. Significant contribution: Best efforts were made to ensure that the thesis offered a valuable contribution to the field of emergency management, volunteer management, and disaster risk management. The study extends theoretical concepts, and provides rich insights into the world of spontaneous volunteers, why they use social media, and also how their use of social media has instigated a positive change in recovery and response efforts. The theoretical, practical, and methodological

significances outlined in Chapter 7 highlight how this thesis contributes to existing knowledge, challenges conventional wisdom, and provides the perspective of spontaneous volunteers, taking a bottom-up, rather than top-down approach. Being invited to present preliminary analysis at several conferences, and the positive feedback received, also demonstrate the perceived value of this study.

7. Ethical: Formal research ethics approval for this study was obtained from the University prior to collecting the data. Assurance was given that the study was conducted ethically, in line with the National Statement on Ethical Conduct in Human Research (See section 3.8), with an emphasis on respecting the rights and dignity of the participants, with only publicly available data accessed. Ethics clearances were obtained before reaching out to potential participants. Informed consent was received before data collection, ensuring confidentiality, with an awareness of and responsible action toward demonstrating sensitivity to the power relationships in the research.
8. Meaningful coherence: Clear outlines were made of the aims and purpose of the research, the research questions, methods, and findings, to demonstrate coherence and consistency throughout the thesis. This was further achieved by writing and revising different chapters and receiving feedback and reviews from the supervisors, to ensure the logical organisation of content. The iterative nature of revisions ensured that the entire study served the central purposes and aims of the study. Furthermore, the findings were presented to end users at various conferences and workshops.

4.4 Reflexivity

In social science, reflexivity refers to the idea that the researcher reflects upon, acknowledges, and discloses personal biases, values, and perceptions that might influence the research process and outcomes (Ide & Beddoe, 2023). Engaging in a personal reflexive exercise can be a powerful learning experience (Mann et al. 2009). It can reshape a researcher's practices and catalyse change (Finlay 2002). For the researcher, reflexivity involved examining any assumptions, history, or preconceptions that were held about spontaneous volunteers. In addition, the researcher diligently reflected upon any influence of the literature reviewed as suggested (Olmos-Vega et al., 2023). Thus meaning was actively constructed through the research process (Jamieson, Govaart, & Pownall, 2023).

The researcher's reflexivity was based on the ability to be self-aware, to enable reflection on personal perspectives, biases, preconceptions, and on the influence they may have regarding engagement with the world. Following Heidegger's phenomenology, reflection takes account of the perspectives, biases, and preconceptions while engaged in deep reflection, pondering on the very modes of being-in-the-world that shaped any understanding of the phenomenon of spontaneous volunteering (Wilson, 2014).

Personal 'thrownness' (Wrathall, 2014) was taken into account, as the researcher herself experienced and witnessed an earthquake that killed 19,000 children. Upon reflection on that personally felt experience of being a young mother of two toddlers, thrownness (Table 3.1) was felt while watching the news as the authorities disclosed an increasing number of children missing. As the events continued to unfold before the researcher in real time,

she listened to the parents of those thousands of children who had sadly lost their lives. The parents were complaining that they were not allowed to help until it was too late.

Talking to the spontaneous volunteers in her research, personal moods and concerns were recorded (Wrathall, 2014) while listening to the various barriers they faced. The gaps they experienced were similar to what the researcher had experienced more than a decade ago. Notes were made regarding these moods, the spontaneous volunteers' sorrows and victories. The nature of the topic was such that it often incited various emotions.

An example that comes to mind is when a spontaneous volunteer took the researcher around the Grenfell Tower area. Seeing the names of the many children who had passed away in the fire brought tears and much grief, as the researcher witnessed the pain that was still alive on the streets. Taking time to recover, the example highlighted one aspect of the intellectually and emotionally demanding nature of the research journey that is now felt as an incredibly rewarding and cathartic process.

Upon reflection on the researcher's experience, and assumptions about the role of spontaneous volunteers, and on how social media was used in its limited form during the earthquake in 2005. Thoughts arose on how it might shape an understanding of the experiences of the research participants. Reflections on the researcher's own being-in-the-world (Heidegger & Macquarrie, 1962) were juxtaposed with the decisions/changes made in one's personal life after witnessing the earthquake. It was necessary to include the broader socio-cultural and historical contexts of the researcher's being, the geographic location, and their influence on the approach to the research. In

this thesis, reflexivity went beyond just simply acknowledging the biases and attempting to interrogate the researcher's world. When speaking with spontaneous volunteers who had immigrated to Australia, the researcher reflected upon her status as a migrant and how it influenced her social interactions. This helped relate to and understand what the spontaneous volunteer was saying and how to interpret that data.

van Manen (1997) used the term openness to warn researchers against a premature understanding of the phenomenon that was being studied. Therefore, the concept of reflexivity was incorporated from the start of the research journey. Pondering how to design the research questions to understand the phenomenon holistically. The researcher questioned what was most important, and what was one aiming to learn from this study.

Reflexivity was also incorporated during the interview process and at the time of data analysis. During the interview process, the fore-set of experiences were noted (Heidegger & Macquarrie, 1962) and acknowledged that they might affect the understanding and perceptions, ensuring not to ignore important information about the spontaneous volunteers' experiences. The researcher recorded the slightest details such as facial expressions and pauses in conversations while the spontaneous volunteers made sense of and interpreted their own experiences. She probed with follow-up questions that facilitated a deeper exploration of the phenomenon.

The researcher's role, as an active listener, empathising with the spontaneous volunteers in this study, and giving them complete attention, was always at the forefront of her awareness. The Go-Along interviews therefore were an appropriate choice to undertake. They enabled visits to the locations that were

known to the spontaneous volunteers, the researcher ensured that they were comfortable and relaxed. Observing the spontaneous volunteers as they used the various social media platforms, and listening to their views, intently, about those platforms, helped the researcher gain a deeper understanding. The actual process of conducting Go-Along interviews created a deeper appreciation for the method, and the perception of its efficacy increased profoundly.

Reflexivity during the data analysis process aimed to avoid reaching an interpretation prematurely, by trying to make the data interpretation process transparent, and by sharing the codes book and the NVivo project files with the supervisors.

4.5 Summary

This chapter presents the process of data interpretation conducted in this thesis following the five steps proposed by Giorgi (1997). It was not a linear process, rather, it was iterative where one moved back and forth among the six steps. The researcher identified pre-understandings before diving into reading and re-reading the rich data to identify significant statements. These significant statements were grouped to form subthemes and themes that gave an idea about what the spontaneous volunteers were experiencing.

In Heideggerian phenomenology, interpretation is central. This involves not just describing the themes that emerged from the data, but also interpreting them within the context of the participant's world views and larger cultural, social, and historical context. Interpretation was followed by writing and re-writing the findings. Throughout the process of data analysis, it was necessary

to ensure that the quality of data was maintained. The researcher also engaged in reflexivity to stay aware of the assumptions and biases that may be influencing the interpretations, while also sharing how these assumptions and perceptions changed over the course of this research. The findings of this thesis will now be presented in the next chapter.

Chapter 5: Findings

5.1 Introduction

This chapter presents the underlying themes that emerged from the phenomenologically based qualitative data analysis. It interprets spontaneous volunteer interviews and their social media posts to understand their world and how they participated in activities that were meaningful to them. Together, the findings present what was expressed in words, and was shared by them from their social media posts. All findings relate to the spontaneous volunteers in this study. The chapter is organised around the four research questions:

Research Question One: How do spontaneous volunteers use social media platforms in the pre-, during and post-disaster phases?

Research Question Two: How does social media impact spontaneous volunteers' agency?

Research Question Three: What are the ways in which social media enables spontaneous volunteers to co-create knowledge and coordinate offers of help, resources, and skills?

Research Question Four: What recommendations do spontaneous volunteers have i) to enhance the experience of other spontaneous volunteers; ii) to guide those spontaneous volunteers who use social media to respond to and involve themselves in emergencies; and, iii) to encourage their future volunteering?

Collectively, spontaneous volunteers' responses to the four research questions revealed how they came into being, and what their being-in-the-world looked

like when the disaster occurred. The seven themes in response to the four research questions are summarised in Table 5.1:

Table 5. 1 Summary of themes

	Number	Theme Title
RQ 1	1	Strong desire to help
	2	Overcoming gaps in emergency management
RQ2	3	Autonomy
	4	Developing resilience
RQ3	5	Facilitation of co-creation
RQ4	6	Enhancing engagement with local authorities and official responders
	7	Improving social media platforms

The next four sections describe the themes that emerged from the responses to the four research questions.

5.2 Themes for Research Question One: How do spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases?

This section discusses the two core themes and subthemes that emerged from the analysis of the response to Research Question One as shown in Table 5.2.

Table 5. 2 Theme One and Theme Two with associated subthemes

Themes	Subthemes
Theme One: Strong desire to help	Subtheme one: Helpers, not volunteers Subtheme two: Four types of spontaneous volunteers Subtheme three: Self-help via social media
Theme Two: Overcoming gaps in emergency response management	Subtheme one: Gaps in information Subtheme two: Gaps in communications Subtheme three: Exclusion of spontaneous volunteers

5.2.1 Theme One: Strong desire to help

Theme One centres on spontaneous volunteers' strong desire to help. It was evident from their discussions that spontaneous volunteers were linked dynamically with their community and wanted to help in any way possible.

The disaster impacted the lived world of the spontaneous volunteers in this study. They experienced uncertainty, and disruption in their daily routine and turned to social media for more information. Their shock and stress increased as their awareness grew about the issues they were facing. They developed a sense of urgency to do something, and a sense of duty to respond to the needs of their community. These strong desires led them to act in dynamic and emergent ways that related to the unfolding events of being-in-their-world. Social media assisted them in fulfilling this desire to help and evoked a strong sense of duty to help those in need in whatever capacity they could.

The three subthemes that emerged explain the steps that spontaneous volunteers took to minimise the impact of the disaster on themselves and their community. They uncovered how spontaneous volunteering came to be. Table 5.2 outlines these three subthemes, showing that they did not consider themselves volunteers, that they were not one homogenous group, and that they used social media for self-help and to offer their services.

5.2.1.i Subtheme One: Helpers, not volunteers

Spontaneous volunteers in this study did not identify as volunteers. This is evidenced by spontaneous volunteer comments such as:

“I didn’t consider myself a volunteer, I was just helping my community.” (Iman, local helper, Melbourne Floods)

Iman's comment highlighted the strong desire of spontaneous volunteers to help their community. They considered themselves inseparable from their local community and were surprised to learn that what they did was considered volunteering. Furthermore, the spontaneous volunteers in this study perceived their identity as being separate from the uniformed official emergency responders, as is clearly expressed in this quote from Harry:

"Lots of different uniforms and of course we didn't have a uniform so our access was minimum but that is when the community from the local mosque came and started forming human chains and the vehicle was unloaded quickly. You could tell the community was one body because there was no uniform but almost immediately there was a human connection and a shared identity, 'that's who we were, the chain of helpers'" (Harris, external leader, Grenfell Tower fire).

The comment showed that spontaneous volunteers viewed themselves as one body, that is, as distinctly different from the official responders. As voiced in the following quote, the strong community orientation of spontaneous volunteers enabled them to recognise the local needs and provide effective help:

"There needed to be somebody that would stand up and do this. If there was an opportunity to go and get some fuel, or get a fridge, or something else, then somebody had to volunteer. And it is just that in the absence of anybody else. It was like, 'okay, I'll go and get it, we have a trailer.'" I think we had the

truck at the time as well ...” (AI, local leader, Yarloop Bushfires).

AI described that he belonged to the disaster location, he lived there and had the resources needed to bridge a gap, and therefore took the lead. Not all spontaneous volunteers performed the same kinds of tasks. The next theme discusses the matrix of spontaneous volunteers that emerged as participants were sharing their lived experiences.

5.2.1.ii Subtheme Two: Four categories of spontaneous volunteers

Spontaneous volunteers in this study were requested to reflect to the day the disaster happened and describe their individual, unique worlds, what they experienced, and what they did. Through this reflective awareness, their verbal descriptions uncovered that spontaneous volunteers were not one homogenous group, rather, they differed based on their locations, and the kinds of roles they performed. Spontaneous volunteers fall into four types: local leaders, local helpers, external leaders, and external helpers. Table 5.3 presents this matrix:

Table 5. 3 The matrix of spontaneous volunteers

SV Role	Location of Spontaneous Volunteers	
	Local to the community	External to the community
Leader	<p>The Local Leader</p> <ul style="list-style-type: none"> • Located in the disaster zone • Affected by the disaster (mentally such as stress and trauma), emotionally (emotional instability and anxiety), and physically as a victim (burns, headaches) • Had access to local knowledge, resources, and the needs of the community • Used past skills and experiences <p>Local leaders' pseudonyms: Tia, Al, Anne, Sarah, Chris, Gordon, David</p>	<p>The External Leader</p> <ul style="list-style-type: none"> • Located away from the disaster zone; travelled to the disaster zone • Affected by the disaster (mentally and emotionally) • Brought non-local resources and knowledge with him • Used his networks and connections to gain access to local gatekeepers and to create innovative ways to help those in need <p>External leaders' pseudonyms: Mary, Harris, Steven</p>
Helper	<p>The Local Helper</p> <ul style="list-style-type: none"> • Located in the disaster zone • Affected by the disaster (physically, mentally, and emotionally) • Had access to local knowledge and resources • Needed support and motivation from local leaders to overcome personal grief to participate in recovery and response efforts <p>*Local helpers' pseudonyms: Sally, Aleena, Suleiman, Adrian, Iman, and Malinda</p>	<p>The External Helper</p> <ul style="list-style-type: none"> • Located away from the disaster zone; travelled to the disaster area • Affected by the disaster (mentally and emotionally) • Followed both local and external leaders to understand the needs of the community • Provided non-local resources to help those in need <p>*External helpers' pseudonyms: Clinton and Harry</p>

**Note: Pseudonyms were used to protect the identity of participants*

The majority of spontaneous volunteers were local community members directly impacted by the disaster, and because of this they often were the first responders. Some of the spontaneous volunteers were not local but travelled from outside the disaster area. Based on their location, spontaneous volunteers were classified as local or external.

Several of the spontaneous volunteers took up leadership roles to organise temporary accommodation, transportation, and donations. These spontaneous volunteers were classified as leaders, while others who performed supporting roles were classified as helpers. Combining these

findings together revealed the four types of spontaneous volunteers. The following section records the subtleties and nuances that emerged in relation to the four types of spontaneous volunteers.

a. The local leader spontaneous volunteer

The first group of spontaneous volunteers was identified as the local leaders. They were from the disaster zone, they understood the local needs, had a deep connection with the local community, and shared a strong desire to help.

“I was their local community ... I knew the community. I knew people who live there. I was closely associated with obviously, you know, being a manager for some people who were directly affected by the fire, and my willingness to be involved was [paused]... I felt a sense of duty, it’s just something you have to. You can’t not help.” (Anne, local leader, Grenfell Tower fire).

Anne’s comment suggests that local leader spontaneous volunteers feel a strong sense of duty. Knowing the people who were impacted by the fire forced her to think of ways to assist. Local leaders such as Anne took the initiative to address the perceived gaps using their past skills, experiences, local knowledge, and resources. Here Anne described how she gathered and generated information herself when she was unable to find it:

“... I kind of felt that we need to open the door and my instinct was to log into council’s website to find out any news or any response and I was waiting for the instructions, if we needed, as Council worker, to get involved in any sense, but there was no information ... I was searching both the internet information

news and council website and was trying to find any information that would be useful. So, I printed out everything that was coming out, went to the street, Ladbroke Grove, and sharing it on Facebook. It was very crowded and I asked everybody else giving out the flyers and asking everybody to tweet this information put it on social media. I was putting on social media myself. So, literally I was going up and down the roads like Ladbroke Grove asking local businesses to put this information out because I felt at the time nobody knew what was going on.” (Anne, local leader, Grenfell Tower fire).

Anne recognised the need for information, while trying to make sense of the tragedy. Anne used social media to communicate, process the situation, and share what they witnessed on the ground. She acknowledged her response was emotional, but at the same time, purposeful, as she tried to create awareness about the tragedy she was witnessing.

The local leaders also used social media to locate resources, communicate with his or her community, and network with the outside world to leverage human and non-human resources. Al, Tia, Sarah, and Gordon were also seen as local leaders in their respective communities because of their ability to lead projects. Two of these spontaneous volunteers, Tia and Sarah, used social media to promote various causes and sought to influence others to actively participate in community recovery and response efforts. What stood out about local leaders was that they acted as information disseminators, they were self-driven activists, and they

actively sought reliable information sources to share. Many local leaders used social media to mobilise others around them.

b. The local helper spontaneous volunteers

The second type identified were the local helpers (Sally, Aleena, Suleiman, Adrian, Iman, and Malinda). They needed to overcome their sense of grief and find a sense of safety and trust in others before they realised what needed to be done. Once they comprehended their own needs, they were able to raise their hands to assist local leaders:

“We had our own property burnt and it needed fencing and fixing. So we asked volunteers to help us. So after volunteers came and helped us, we just started to help other people by organising the volunteers to help them.” (Malinda, local helper, Yarloop Bushfires).

Malinda shared her inability to handle the situation alone, and actively sought help from volunteers. The volunteers that responded, through their acts of kindness, enabled Malinda to emulate them for the benefit of others. Malinda’s lived experience highlighted that local helpers who have been personally impacted by the disaster may go through a process of healing. For some spontaneous volunteers, healing was necessary before recovery and response efforts. Through receiving support during this healing process, Malinda was able to bounce back. Once her property was fixed and her immediate concerns were addressed, she was able to offer this support to others.

Among the six local helpers identified in this study, four local helpers said that helping their community was a way for them to process the trauma and make sense of their new reality. Sally, Malinda, Adrian and Aleena found that it fostered personal resilience for them and enabled them to display empathy, and understand their community's needs.

How long local helpers took to bounce back varied. Suleiman (local helper, Grenfell Tower fire) lived very close to the disaster site and was shaken to the core as he personally knew the victims. He noticed people trying to help and within hours he pulled himself together. He started collecting local requests and coordinating with the local leader and other volunteers to match the requests with the resources they had available on their network. Local helpers played an important part in information generation and dissemination. Malinda stated:

“I put the information out into the big wide world and then when friends and people in my network responded, we organised around that.” (Malinda, local helper, Yarloop Bushfires).

Although local helpers had access to local knowledge and resources, a majority of them needed support before they raised their hands to assist. The actions of local leaders motivated them to join hands, form human chains with other volunteers, and help with donations, sandbagging, transportation, and staff information desks.

c. The external leaders spontaneous volunteers

The third type of spontaneous volunteers had relevant experiences and skills but were not local (identified as Mary, Harris, and Steven). They travelled from nearby locations to help with recovery and response efforts. As expressed by Harris, they perceived themselves to be community leaders even though they were not from the disaster location.

“When I reached out to the community, I developed another identity, that of a volunteer and [paused] some also think of me as a community leader. So, I could think okay a-z let's get it going. And you want to get things going as quick as you can because you know in your head you think that people need everything and you need to get there to support it.” (Harris, external leader, Grenfell Tower fire).

That comment records the sense of urgency spontaneous volunteers experienced to provide the support that they perceived was needed by those impacted by the disaster. External leaders activated their networks to access resources that were not local and motivated their contacts to act swiftly and efficiently. Their lived experiences demonstrated how social media platforms and personal connections facilitated access to knowledge and resources that were not local to the disaster zone, as expressed by Mary:

“The main activities that I can remember that were part of my role was collecting on-the-ground information for my networks and pairing them with offers for help. This involved visiting the location and actually listening to community members and ask

them what they needed urgently.” (Mary, external leader, Yarloop Bushfires).

Mary actively engaged with the locals to learn their unique needs so she could assist. Mary believed she had the skills to perform this role successfully.

“I am good at solving problems so I would then use my contacts to get what was needed so prioritise the goals critically and then physically fill up the trailer and drive into town ...” (Mary, external leader, Yarloop Bushfires).

Mary’s comment displayed confidence in her problem-solving skills, she linked the needs of those affected by the disaster to solutions. This self-perception of competence drove the actions of the external leaders. It also enabled them to play a significant role in the crisis response. All external leaders demonstrated a pragmatic, action-oriented approach to help the communities affected by the disaster. They shared a sense of urgency, and prioritised tasks, based on what was most needed.

d. The external helpers spontaneous volunteers

The fourth type of spontaneous volunteer was classified as external helper (identified as Clinton and Harry). External helpers followed the local and external leaders online and travelled to the disaster zone to help those affected. They felt mentally and emotionally affected by the disaster and were motivated to help. Clinton had previously volunteered during a flood and used his past experience and skills to assist:

“I was looking for ways to help. As I mentioned I have been to BlazeAid camp before so looking for ways to help, looking for various posts about people who would like transport to a place I was already going to ... And of course, about camps set up after a disaster.” (Clinton, external helper, Yarloop Bushfire).

Clinton was actively engaged and eager to offer assistance with any existing group of volunteers. His motivation was driven by empathy and a sense of responsibility. His training and past experience with volunteering had positively impacted his decision to volunteer again. Formerly he had actively performed in leadership roles; this time he actively looked for existing structures within which to volunteer.

Clinton’s comment above demonstrated that experienced external helpers expected that recovery and response efforts would be underway, and therefore hoped to assist in a reflexive way, without taking full responsibility for the efforts. This differentiated them from the external leaders who actively coordinated and managed the recovery efforts and the volunteers.

Both external helpers stated that sometimes they were travelling and stopped to help, at other times they had planned to go to the disaster location and offered assistance to existing recovery efforts. Harry shared that he was grateful for this opportunity:

“... social media allowed me to play my part in the community and utilise whatever skills I had to help with the disaster you know” (Harry, external helper, Yarloop Bushfires).

The most common activities of external helpers involved sharing information from local and external leaders, assisting with the collection and distribution of donations, and providing transport and accommodation.

In summary, the matrix of spontaneous volunteers revealed that those that are already present at the disaster zone could be resourceful individuals having access to local knowledge and resources. They also enabled individuals from other locations to help. All four types of spontaneous volunteers shared a strong community focus during their helping endeavours.

5.2.1.iii Subtheme Three: Self-help via social media

This theme records the role of social media in fulfilling spontaneous volunteers' desire to help. Their conversations shared how they perceived social media platforms, and highlighted differences between traditional forms of communication and social media platforms.

The majority of spontaneous volunteers in this study felt there were significant differences in their social media before, during, and after the disaster. Their comments ranged from general to more specific differences and issues they faced. For some, social media use during the disaster mirrored their previous experiences, when they connected with others in their network to achieve certain objectives. For others it was too intense, they had never explored many of the platform's features before the disaster. Collectively, spontaneous volunteers in this study used four social media platforms: Facebook, Twitter, closed forums, and emergency services websites, as described in Table 5.4. Some spontaneous volunteers shared their awareness of other platforms like Instagram and blogs. Table 5.4 includes only the prominent platforms that the

spontaneous volunteers in this study used and spoke about during the Go-Along interviews.

Table 5. 4 Social media platforms used by spontaneous volunteers

Participant	Facebook	Twitter	Closed Forums	Emergency Services Websites
Sally (LH)	Yes	No	Yes	Yes
Tia (LL)	Yes	Yes	Yes	Yes
Al (LL)	Yes	No	Yes	Yes
Aleena (LH)	Yes	No	Yes	Yes
Mary (EL)	Yes	Yes	Yes	Yes
Harris (EL)	Yes	Yes	No	Yes
Anne (LL)	Yes	Yes	Yes	Yes
Suleiman (LH)	Yes	Yes	Yes	Yes
Adrian (LH)	Yes	Yes	Yes	Yes
Sarah (LL)	Yes	Yes	Yes	Yes
Iman (LH)	Yes	Yes	Yes	Yes
Chris (LL)	Yes	No	No	Yes
Malinda (LH)	Yes	No	No	Yes
Gordon (LL)	Yes	Yes	Yes	Yes
Clinton (EH)	Yes	Yes	Yes	Yes
Steven (EL)	Yes	No	No	Yes
Harry (EH)	Yes	Yes	No	Yes
David (LL)	Yes	No	No	Yes

**Note: LL =local leader, LH = local helper, EL = external leader, EH= external helper*

The majority of the spontaneous volunteers felt their choice of platform depended on their previous experience with the platform, their interests, whom they followed, and their needs (such as socialising, educational, and informational needs) as expressed by Harris in the following quote:

“So, before the disaster, I have always been a user of Instagram, Facebook, Snapchat. WhatsApp stories. I like to share my stories, I like my network to know where I am and I follow the news and new stories, new opportunities to volunteer closely...” (Harris, external leader, Grenfell Tower fire).

Harris shared his liking of, and comfort with, various social media platforms. His proficiency with digital technology and desire to stay connected were shared by other spontaneous volunteers classified as leaders as well. The local and external leaders shared their personal experiences regularly before the disaster, that signified a desire for visibility and connectedness that could carry forward during and after the disaster. It underscored trust and openness within their social network, and an extroversion of their personality digitally. It showed that in the digital world Harris continued to seek social interaction. His accounts of his social media use highlighted his active presence on social media. He shared content, engaged with his network, and participated in online discussions. He was eager to share personal experiences and information about himself and was comfortable to connect and interact online. These qualities helped Harris become an external leader.

Local and external leaders in this study also had a strong need to keep themselves informed and aware of the situation at hand. They used social media to actively seek and follow updates on news, stories, and volunteering opportunities. Table 5.4 suggests that while most spontaneous volunteers used multiple platforms, all used Facebook and emergency services websites to look for information.

Other than being comfortable with the platform, the spontaneous volunteers' perceptions of the user demographics of the platform also determined their selection as described here:

“Facebook mainly attracts the older people and a lot of the people 50-60 years of age are on Facebook. But the big

emerging one is Instagram. That's for the 24-35 year olds. And Twitter as well. And that's encouraging the younger people to get involved. Especially in groups. They come and volunteer in big groups!" (Chris, local leader, Yarloop Bushfire).

Similar comments were shared by local leaders, local helpers, and external leaders who used social media to target different demographics for various jobs. For example, they requested mobile- and computer-literate youth to assist the elderly in using computers and mobile applications. They aimed to teach them how to log on to local community Facebook groups to seek situational awareness and information in case another emergency arose as expressed here:

"Someplace you can text information or say I'm concerned about this and get a response, not have to wait for days for the emergency services to get back to you with a standard reply that they are looking into it." (Sally, local helper, Yarloop Bushfires).

Local and external leaders demonstrated a good understanding of the various online platforms. They used Facebook to share videos, images, and detailed information, with Twitter more commonly used for short messages. This distinction was echoed by the other spontaneous volunteers as well:

"Twitter worked well for sharing routes and which roads were blocked or had heavy traffic etc. But Facebook was used more as we put up information for which desk to go to, if you were looking for information on donations or about missing persons." (Suleiman, local helper, Grenfell Tower fire).

Some patterns emerged as well. The majority (14 out of 18) of spontaneous volunteers declared that they had never used social media so intensely before the disaster and that their social media engagement was not constant before, during, or after the disaster.

“You see the social media activity would suddenly peak and then there were moments when there was no activity...” (Anne, local leader, Grenfell Tower fire).

The peaks and troughs occurred even within the disaster phase. Before the disaster, six spontaneous volunteers reported that they had used social media platforms on a daily basis to connect, network, and communicate with friends and family, while 12 reported infrequent usage. During the disaster, 16 spontaneous volunteers reported their social media use was most prolific. This was mostly to seek information and generate information from the ground to address the confusion and chaos they experienced, as expressed here:

“Literally my phone, when I went through my records of my phone usage after the fires. I had roughly 12 hours a day of messaging for nearly two months!” (Sally, local helper, Yarloop Bushfires).

Anne (local leader, Grenfell Tower fire) shared that she faced increased mental pressure to respond to more frequent queries as the disaster unfolded as described here:

“I wasn’t sure what I was doing. It was fairly reactive but people couldn’t get enough, people from outside of the area, people

in London, people in the UK, friends of people who knew me, they were like constantly posting and replying and asking questions!” (Anne, local leader, Grenfell Tower fire).

Anne’s comment highlighted that spontaneous volunteers extended their engagement beyond people in their local disaster area. Social media allowed information sharing by local spontaneous volunteers, and engaged them with the wider world. This extended network allowed them to quickly mobilise individuals with resources and experiences from other locations.

Almost all spontaneous volunteers (16 out of 18) had never reflected on their social media experiences before the interviews. They realised the extent of their contributions, and how social media enabled them to fill the gaps in recovery and response efforts during the interviews. As expected, all spontaneous volunteers shared a decline in their social media activity after the disaster. Local leaders and local helpers shared that social media platforms were also used to acknowledge and thank volunteers and official responders. Social media has preserved their story for years to come. Image 5.1 is an example shared by one spontaneous volunteer to demonstrate this:



Image 5. 1 Social media preserving stories (Anne, Grenfell Tower fire)

The next section discusses Theme Two, how spontaneous volunteers used social media to overcome the gaps they perceived in emergency management. Theme Two explores the world of spontaneous volunteers as the disaster happened and their attempts to bridge the gaps.

5.2.2 Theme Two: Overcoming gaps in emergency response management

The spontaneous volunteers in this study expressed that disasters can stretch emergency services to their limits where they may not be able to respond to the needs of the community in the best possible way. They reported lack of information, lack of two-way communication, and exclusion due to lack of engagement, as examples of gaps they perceived. An important reason for their social media use was to bridge these perceived gaps. A total of 16 spontaneous volunteers shared that these gaps created a perception of a

divide between them and the emergency response authorities. They had experienced isolation, anxiety, and frustration as a result. This section describes each gap and explains how social media was used to navigate through them.

Table 5. 5 Theme Two: Overcoming Gaps in Emergency Management

Theme	Subthemes
Theme Two: Overcoming gaps in emergency management	Subtheme one: Gaps in information Subtheme two: Gaps in communication Subtheme three: Exclusion of spontaneous volunteers

5.2.2.i Subtheme One: Gaps in information

This theme discusses how social media assisted spontaneous volunteers to collect, share, correct, and update information. There was little information available to them as the disaster happened, that led to confusion and chaos. Many also felt vulnerable due to lack of or misguided or false information. For example, Anne observed that:

“It was a big mess. Nobody knew at the time what was going on and it was not organised. It was quite dis-organised mess”
(Anne, local leader, Grenfell Tower fire).

Similar comments were expressed by spontaneous volunteers from other disasters. Mary said,

“It was so chaotic because the command centre was so far away and no one knew about the real situation on ground” (Mary, external leader, Yarloop Bushfire).

Mary actively communicated with local leaders to understand the real situation because the local officials had very little information to share with her. Many spontaneous volunteers perceived this lack of information as a shortcoming within the official emergency response information system. Such perceptions were also discussed on their local Facebook groups, as they expressed disappointment with incomplete information available to them.

The spontaneous volunteers in this study established spontaneous self-organised groups that collected this information from the ground and shared it widely. The paucity of information was seen to be a reason for the limited situational awareness messages shared publicly by the official responders as expressed by Tia:

“Fire at such-and-such’ doesn’t tell them any more than that. So, they don’t know if anyone’s attending it, don’t know if there’s water going on it. They don’t know if it’s been put out...”
(Tia, local leader, Yarloop Bushfires).

During the 2018 Melbourne floods, Iman shared that she constantly checked the official emergency responders’ website, looking for authentic information but found it lacked the information she expected. It was also not updated in real-time:

“The website emergency.vic, but it is often very vague. If you look at it ... this was updated an hour ago, this one three hours ago, this one 21 hours ago. And there is no update after that!”
(Iman, local helper, Melbourne Floods).

The spontaneous volunteers' comments collectively highlighted that spontaneous volunteers expected local authorities to take control, provide information, and give clear directions. When this was not available, their social media engagement aimed to bridge this perceived gap. To illustrate, this is how one local leader bridged the gap:

“I designed the message and sometimes changed the wordings that click with the local audience. That is my skill and I know what my community needs, what the members on my group would consider important and what they would ignore. Important messages should never be ignored. That is what makes graphics and memes so important and that is where I use my talents to spread the word and get the message across.” (Tia, local leader, Yarloop Bushfire).

Local leaders (Tia and Al) and external leaders (Harris and Mary) shared that they sensed that the local authorities as well as the emergency services also benefitted from the information that they generated and shared. *“It felt like they were getting a lot of information of us”* (Tia, local leaders, Yarloop Bushfire). Her comment shows that spontaneous volunteers felt that they could generate important information that may benefit emergency response, such as eyewitness accounts that are generated from the ground.

Spontaneous volunteers spoke about sharing official information widely so emergency services would not be inundated with phone calls:

“I feel I circulated the message and those who listened didn't end up calling out to emergency services for help and rescue

... So Facebook and Twitter were powerful tools that helped in knowledge dissemination and emergency services.” (Iman, local helper, Melbourne Floods).

During the Grenfell Tower fire, the spontaneous volunteers shared real-time locations of help desks, assisted with crowd control, and shared important information (see image 5.2) so emergency services could focus on more important tasks. They also created live maps of the crisis that assisted emergency services in understanding the extent of the traffic congestion and areas most affected.



Image 5. 2 Grenfell Tower fire information sharing (Anne, Grenfell Tower fire) Similarly, during the Melbourne floods, spontaneous volunteers shared their GPS locations and helped emergency services find and rescue stranded individuals, and cars that were disabled in flood areas. They shared live updates from their location and gave emergency services accurate information about where incidents were happening, with live videos.

The spontaneous volunteers from all three disasters reiterated the need that the information they shared on social media to be authentic. ‘Authentic’ information was a phrase used by many spontaneous volunteers to describe

the information they found from reliable sources, such as the Emergency Services websites, official government websites, and news articles:

“Occasionally any information I get from emergency.wa, I will add it with pictures or videos or the news website to the page so people have a good understanding of its source, authenticity and what the common message is. You share that to make life easy” (Tia, local leader, Yarloop Bushfire).

This information was not always up to date. Looking at the same disaster, two perspectives emerged. Anne (local leader, Grenfell Tower fire) actively compared the information from official sources and traditional media with social media data to determine if it matched professional knowledge. She only shared information that was factual and verifiable from official sources. In contrast, Harris, an external helper, said he found that information shared on traditional media (like news channels) did not portray the real condition; he felt that the official responders were not aware of the situation themselves. Therefore, he tried to share information from the ground as expressed here:

“So, what the media portrayed and what we see in here were two opposites, and we were able to tell the people what is really happening” (Harris, external leader, Grenfell Tower fire).

These two perspectives highlight the differences between spontaneous volunteers’ perceptions. Six local and external leaders said that after participating in recovery and response activities, they understood the priorities

of the emergency services, and how it was not always possible to update information regularly. Subsequently, the spontaneous volunteers took it upon themselves to edit and update this information:

“All we were trying to do was, as information came to hand from a reliable source, council, or you know family services or whoever it may have been, we would try to as soon as we could send that information out to as many people as possible and just relaying the facts” (AI, local leader, Yarloop Bushfires).

An important service that spontaneous volunteers provided via social media platforms was to share valuable and sought-after information quickly. Image 5.3 demonstrates that information shared on social media was also official advice or information that was re-shared by spontaneous volunteers during the Grenfell Tower tragedy.

Grenfell fire volunteer/resident update



Image 5. 3 Information shared by local leaders (Harris, Grenfell Tower fire)

Sarah agreed:

“Actually a lot was already there, I just shared and commented and informed.” (Sarah, local leader, Melbourne Floods).

Another action of spontaneous volunteers was to offer information that was easy to understand. Local and external leaders made deliberate efforts to remove jargon and make message content comprehensible by the local community:

“It’s not just the information that is collected, corrected and shared, it’s how people receive that information that you are posting. How it is analysed, and then, am I providing the information in the best possible way for the community members to understand and benefit from it? All this became easier using Facebook.” (Tia, local leader, Yarloop Bushfires).

Tia was aware of the information needs of volunteers and those impacted by the disaster. She further explained that using images and videos was a successful strategy. Tia highlighted two examples of clear communication:

“Most importantly clear information. We shared pictures to request for the size of water cans! I mean that’s so basic. And then we requested sea containers and they arrived. So like nothing is too big or too small!” (Tia, local leader, Yarloop Bushfires).

Tia’s experience using social media to complement information showed the importance of local leaders. She spoke at length about the trust-based relationship with the local community where they relied on her for information.

“But they’ll know that if it’s urgent I’m going to post so I guess it’s a trust thing and I guess they trust the people closer to home -- the locals. And if I can’t, I’m not on the ground myself I can contact someone that is and get information and relay that I’ve been told there’s a team, there’s nothing to worry about, they’re just mopping up now so people get that reassurance from people they trust.” (Tia, local leader, Yarloop Bushfires).

The spontaneous volunteers said that the disaster was a learning experience for them to understand the importance of social media platforms. This was an effective platform to share information:

“That's what that disaster changed. So that realisation to share information, we have a very useful medium...” (Anne, local leader, Grenfell Tower fire).

To summarise, spontaneous volunteers in this study perceived a gap in information that created chaos and confusion. Using social media to bridge this gap, they discussed the many nuances of this experience.

5.2.2.ii Subtheme Two: Gap in communication

Spontaneous volunteers used social media platforms to overcome perceived gaps in communication. Many experienced a disconnect in communication and a majority perceived that the official communication was lacking in certain aspects. One local leader witnessed where the local rangers were being directed incorrectly:

“Now he'd obviously said he was in a different location and the ranger gets here and says this isn't such and such, he was directing the local ranger to the wrong spot! Where's your communication? It's hard isn't it yeah, so I don't know how do you fix that? How do you fix that??” (Tia, local leader, Yarloop Bushfires).

Mary highlighted another aspect of communication that she experienced, offering a comparison between her communication and that offered by the official emergency responders:

“Their messages are more textual, commanding and definitely authoritative. Like it would highlight the procedures or the recommendations for the community and declare the safe

zones and the dangerous zones, that kind of thing, but don't take the time to explain the situation. I think I proved that it was such a useful tool. I used Facebook to provide information with graphics, images and eye-catching phrases. I think my messages were more friendly and had empathy that people could relate to. And they were not directed at only specific users ..." (Mary, external leader, Yarloop Bushfires).

This comment offered insights into what spontaneous volunteers needed in communication. An advantage of using social media was the ability to communicate back and forth. This was not utilised by the official responders and authorities, and impacted on the spontaneous volunteers:

"So, I feel if official source had been better at communicating, especially responding back, like really utilising the features of communication, there really wouldn't be so much of an issue. But I felt it had started affecting how I think, you know. It has an impact on you." (Harry, external helper, Yarloop Bushfire).

All local leaders, helpers, and external leaders said messages were communicated to them by the official emergency responders but they felt that their voices were not heard.

"They were not communicating with the locals so that they could have known what they needed but they didn't, and that made the locals feel very isolated." (Mary, external leader, Yarloop Bushfire).

Some spontaneous volunteers offered reasons for this lack of communication. Compared with the local helpers and external helpers, local leaders were more understanding:

“They’re [emergency services] so caught up in organising their own staff and their own activities that they forget to communicate with the people that have been, that have suffered from the event.” (Al, local leader, Yarloop Bushfire).

While this local leader understood the limitations faced by official responders, other leaders’ comments were not so positive:

“It felt like they viewed communicating with the locals as an additional workload and we can feel that in the way that information is received or dealt with...” (Anne, local leader, Grenfell Tower fire).

Spontaneous volunteers observed official responders closely which impacted their perceptions. A negative impact was more noticeable, if their information was not acknowledged:

“I knew what was going on and I knew where it was going. At some point they needed my help with on-ground information, but they were not ready to listen to me. There was no competition really!” (Gordon, local leader, Yarloop Bushfire).

The spontaneous volunteers’ impression was that the official responders ignored local volunteers’ voices. This created a perception that there was a competition between them. Local spontaneous volunteers expected they would be consulted about the local resources that could be utilised:

“It’s important to do these things because the resources available to the public are not known unless they communicate it to the official responders, and they don’t communicate or ask the locals. They only know the resources known to them...” (AI, local leader, Yarloop Bushfires).

Other reasons for bridging this gap included creating awareness about services available and ensuring that the needs of the locals were identified and addressed quickly, as suggested here:

“I saw that on a number of occasions where you know, a particular service might have been available to the people that had been involved but nobody knew! Particularly the farmers, the opportunities that were available to them, they didn’t know because it was not circulated ... but that’s just it, it was not an emergency services or Department of Housing or the council itself that actually said these are the things that we can provide, these are the things that we can do. It was left to the community to try and organise all of these different things as you’re aware, the council wasn’t even delivering water to the town despite the fact that the water was turned off. Everything was almost privately done, the charities and all, all projects, the fuel vouchers, all private individuals were coordinating themselves and that’s where the social media played a huge part!” (AI, local leader, Yarloop Bushfires).

Al's comment reflected how spontaneous volunteers used social media platforms. Social media facilitates two-way communication, which entails listening to and informing people. *"It was more communication and not just informing people"* (Sarah, local leader, Melbourne Floods). Particularly, their social media communication uncovered that many conversations that happened on the ground were also reflected online during and after the disasters. Social media data also created an awareness of the various tasks that were performed successfully by the spontaneous volunteers. For example, spontaneous volunteers used social media to reach out to the wider world and tap on the various resources available to them.

"Facebook was important to actually contact these volunteers and find out where they were from, when they would be available, would they be ready to do this job as it is hard labour"
(Steven, external leader, Yarloop Bushfires).

The social media data shared by the spontaneous volunteers brought forth details about the context and the type of conversations that occurred during the disaster. Image 5.4 offers a snapshot shared by one spontaneous volunteer from the Yarloop Bushfires

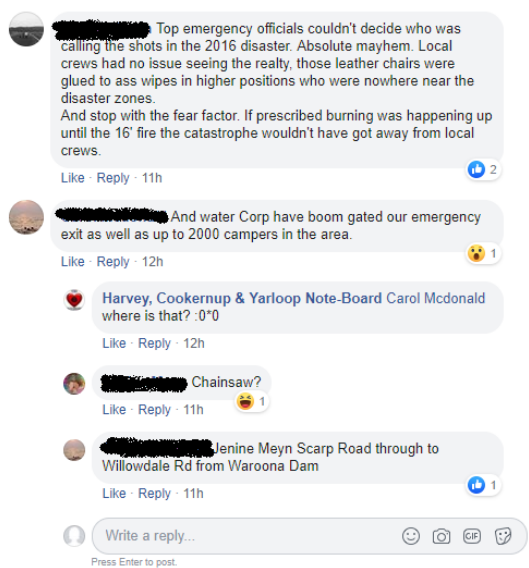


Image 5. 4 Local discussions about road closures (Tia, Yarloop Bushfires)

Social media platforms were used to communicate expectations and orient information as expressed by one of the external leaders:

“Collecting on the ground information for my networks and pairing them with offers for help. This involved visiting the location and actually listening to community members and asking them what they needed urgently etc.” (Mary, external leader, Yarloop Bushfires).

Discussing the impact of their efforts, spontaneous volunteers shared they were able to secure donations of generators, fuel vouchers, and many timely services, as needs were communicated through multiple networks. Furthermore, reflecting on their successes also led to a change in attitude post-disaster:

“I feel after the fire, I had a very different attitude towards communication and especially the development of listening skills. During the fire, I was actively answering questions, and

listening to the community and that helped me absorb what was lacking and convey to other volunteers what they were saying. I feel that was a strong learning skill that Facebook enabled me to develop. It has been really important in communication throughout the disaster” (Mary, external leader, Yarloop Bushfire).

In essence, the spontaneous volunteers in this study used the social media two-way communication feature to listen, understand the local needs, and to leverage their networks to find solutions. Their combined experiences suggest they felt the official responders were not available to listen to them, and social media assisted them in overcoming this gap.

5.2.2.iii Subtheme Three: Exclusion of spontaneous volunteers

The historic exclusion by official responders, that was experienced by spontaneous volunteers led to their use of social media to overcome their feelings of disempowerment. Spontaneous volunteers experienced exclusion when they felt that their offers were ignored, their voices were not heard, information was not shared, and the information they generated was not readily accepted by official emergency responders. Some aspects of this exclusion are related to the involvement/exclusion paradox (discussed in Chapter 2, Section 2.5).

A total of 14 spontaneous volunteers said that they experienced a strong feeling of disconnect and isolation due to the hierarchical emergency response command and control system:

Like a close friend recently described how he was treated during the bushfires, he went to help and was told 'well, we just need you to stay out of the way' and he said 'I'm here, if you need me.' He waited and they rolled their eyes and didn't use him for nothing. That's demoralising, and humiliating and that sort of attitude needs to go (Gordon, local leader, Yarloop Bushfire).

Such experiences led to an altered sense of self-worth for the volunteers, when offers for help went unnoticed, and their attempts to participate in recovery and response efforts were ignored. Spontaneous volunteers that felt disregarded, lost motivation. Tia also felt:

" ... you sort of sit there and you think yeah ... volunteers really are undervalued aren't they?" (Tia, local leader, Yarloop Bushfires).

Another local leader related this disconnect to information being siloed:

"I definitely felt a disconnect, there is a lot of secrecy and not much information is shared. Perhaps that adds to trust issues but I feel as a community member, I have a right and responsibility to ask important information related to my community." (Sarah, local leader, Melbourne Floods).

Gordon and Sarah's stories aligned with what others had shared on Facebook.

Sarah elaborated on this divide:

"The common perception is that mostly the people in the uniforms are uncomfortable with anything anyone else does. They just keep their distance and they don't like to listen to us,

even when we are helping ... It's a complete culture that is not used to the idea of participation and sharing information."

(Sarah, local leader, Melbourne Floods).

Their perception of bureaucracy or top-down command and control fuelled their divide. Some volunteers perceived that the official responders deliberately *"tried to make it as difficult as possible in the early days"* (Tia, local leader, Yarloop Bushfires). Their conversations uncovered many barriers experienced by the volunteers. Uncovering the barriers experienced by external leaders during the interviews served as a testament to the methodology used for the study:

"I guess the biggest question I had for the resource centre was 'who is overseeing the community work and how can we coordinate with them and assist them?' But pretty soon it became apparent that it was all privately done and some of us happened to be in the leadership role at the forefront"

(Mary, external leader, Yarloop Bushfire).

Mary echoed what Harris and Steven said about the uncertainty and confusion they witnessed and not being able to find a structured response or clear guidance from the local authorities on how they could contribute effectively and efficiently. Steven highlighted the issues he faced:

"... organising shifts, clarifying roles, so that is what I meant by getting the job done ... the last thing we need is 50 people waiting to help wash dishes..." (Steven, external leader, Yarloop Bushfires).

Steven's comment demonstrates that he was aware of the importance of coordination and effective communication in volunteer efforts. External leaders' lived experiences showed their role in bringing knowledge and resources to the disaster area as they formed a match between local needs and offers for help. None of the spontaneous volunteers participated in the primary on-ground activities at the actual disaster:

"We were not allowed to actually get involved in that. We were there. I remember we were offering them help if they needed water etc ... but the area was cordoned off obviously, so we didn't have any access there." (Anne, local leader, Grenfell Tower fire).

Social media assisted the spontaneous volunteers to "avoid bureaucratic restrictions" (Mary, external leader, Yarloop Bushfires) by using social media. In contrast to the hierarchical command and control approach, what the volunteers experienced with other volunteers was different, as expressed here:

"There was no power struggle. Everyone helped each other. A lot of positive energy ... Everyone knew about what was going on and contributed whenever they could. I knew if I had anyone helping me at 3 pm or 5 pm in advance. So made it easier to plan..." (Iman, local helper, Melbourne Floods).

They reported that they experienced a flattened hierarchy that enabled participation, setting goals, and managing tasks collectively. All the local and external leaders concurred regarding goal setting. It seemed that social media allowed spontaneous volunteers to flip the involvement/exclusion paradox

(discussed in Chapter 2 section 2.5). Spontaneous volunteers communicated and accepted offers for help, in their parallel emergency response world:

“Using social media, I had the resources they [official responders] didn’t have! The water, they didn’t have clothes in various sizes, they didn’t have sanitary products, toiletries, and that was me, getting those resources for the community.”

(Mary, external leader, Yarloop Bushfires).

Social media platforms speeded up recovery efforts and facilitated involvement to share information. Almost all spontaneous volunteers commented on the networked nature of social media platforms. They could access and communicate restricted information, and share it widely. Four local leaders said they shared warnings, alerts, and other critical updates both locally and more widely to reach their objectives:

“So I did the video within 3 minutes. It was crazy. We went viral like over seconds and the whole of the community, the local Pastor, the Molana from the mosque, you know, the different youngsters, adults all got together and started loading up the van and within 15 minutes it was fully loaded.” (Harris, external leader, Grenfell Tower fire).

The quote describes how using social media accelerated response efforts for this external leader. Local and external leaders said social media enabled them to post images to request donations (Image 5.5), specify quantities needed, and update the group members once sufficient donations were received; local helpers found these posts helpful.

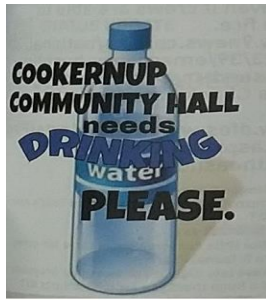


Image 5. 5 Request for donations (Mary, Yarloop Bushfires)

Local and external leaders reached out to networks to help connect them with social media influencers (See 2.7.1) and other influential non-community members. Including such influential people in conversations was an important aspect of using social media. During the 2016 WA Bushfires, these networks proved instrumental in accessing sea containers, vehicles, and community services for the affected area as illustrated in Image 5.6.



Image 5. 6 Donations through connecting with social media influencers and other influential group members (Malinda, Yarloop Bushfires)

Both local and external volunteers talked about including social media influencers to spread their message to a wider audience:

“So, it's great to be in touch with him via Facebook because he shares information around and he's going to reach over 10,000 12,000 likes so you know, your information is getting out there. So, it allows you to connect with people ... especially there are some of the key people um, key people that you can share whatever you are wanting to share. And they help the

information reach so much faster and wider...” (Malinda, local helper, Yarloop Bushfire).

Local leaders also invited community groups to share messages or posts with their communities. This approach was perceived to be successful as one of the Facebook pages reached “140,000 people at the height of the recovery” (Tia, local leader, Yarloop Bushfire). Other spontaneous volunteers also highlighted how they used social media to penetrate different online communities:

“Most communities have what they call informal Facebook groups or informal committee groups. And our information then reaches these committees. So Facebook helps us help each other.” (David, local leader, Yarloop Bushfire).

An important advantage of sharing messages with other groups was to gain access to both local and non-local resources. Image 5.7 depicts how the conversation looked on Facebook:

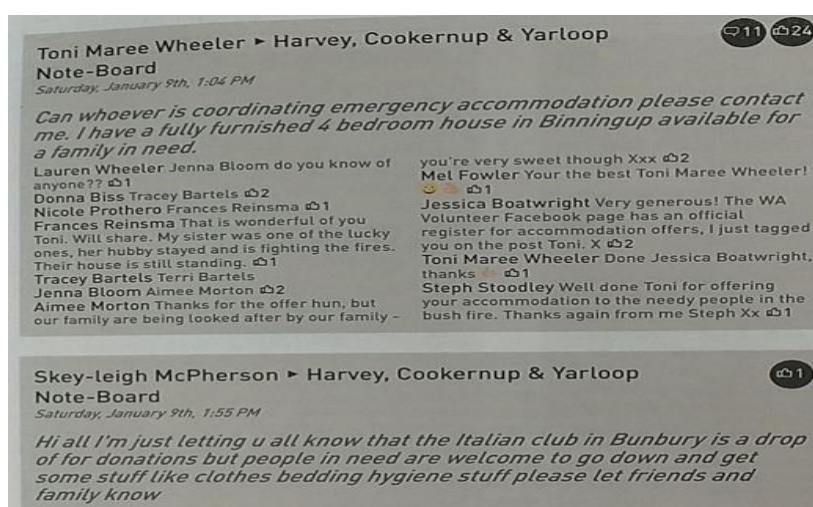


Image 5. 7 Access to resources via Facebook (source Harvey, Cookernup, and Yarloop Noteboard)

Here is how this approach helped spontaneous volunteers overcome exclusion in a small rural town in Western Australia:

“It [Facebook] created the feeling of community beyond the geographic location of Yarloop so we had support from Perth, Cookernup, all over ... we formed special bonds with people who identified with the values that we shared. Friends we made during this experience are still with us today” (Al, local leader, Yarloop Bushfires).

Social media was perceived as:

“... a place where members feel important, as if the community was incomplete without them and they were all part of a jigsaw puzzle, completing the picture” (Tia, local leader, Yarloop Bushfires).

According to the spontaneous volunteers, social media was an inclusive platform that provides emotional support: *“I think social media helped create a sense of calmness and allowed us to connect. I felt I was not alone!”* (Iman, LH, Melbourne Flood). Social media platforms reduced the disconnect and isolation experienced by the spontaneous volunteers. The word ‘support’ (and synonyms such as ‘help’ and ‘assist’) were mentioned 42 times in the interviews by all four types of spontaneous volunteers. Local helpers experienced support through communication, and words of encouragement; local and external leaders mentioned providing support 19 times. Collectively, spontaneous volunteers’ experiences suggest that social media platforms enabled the group members to feel like a family, and no longer alone.

For all spontaneous volunteer leaders, overcoming exclusion was about sharing their voices with all the group members. They felt it nurtured trust and connectedness. It:

“... creates a comfortable and trusting environment where you feel connected and not alone!” (Sarah, local leader, Melbourne Floods).

Local and external spontaneous volunteers said that social media:

“...closes that gap a little bit between communities, between generations, and between organisations even...” (Harry, external helper, Yarloop Bushfire).

In other words, the spontaneous volunteers in this study perceived that social media platforms brought together people from different backgrounds and inculcated a sense of unity among them:

“I have worked here with people from various professions and I feel really good community spirit...” (Harry, external leader, Yarloop Bushfire).

One last experience related to exclusion was the lack of acknowledgement from local authorities for their volunteer efforts: *“I think volunteers often feel isolated and there is a genuine lack of acknowledgment for what the community does, to be honest...”* (David, local leader, Yarloop Bushfire). As did David, many spontaneous volunteers used the word volunteers and community synonymously. All spontaneous volunteers felt it important to thank volunteers for their efforts to make them feel valued, as their social media engagement makes them feel acknowledged and valued:

“Facebook was so important to make sure that all volunteers are valued and kept informed and thanked for the job well done. So that overall support from the Facebook community, appreciating each other and identifying opportunities to help was definitely a huge role of social media” (Mary, external leader, Yarloop Bushfires).

Spontaneous volunteers used various social media to acknowledge volunteer efforts. They celebrated their achievements collectively, and thanked specific individuals or groups, creating an awareness about their efforts as shown in Image 5.8.

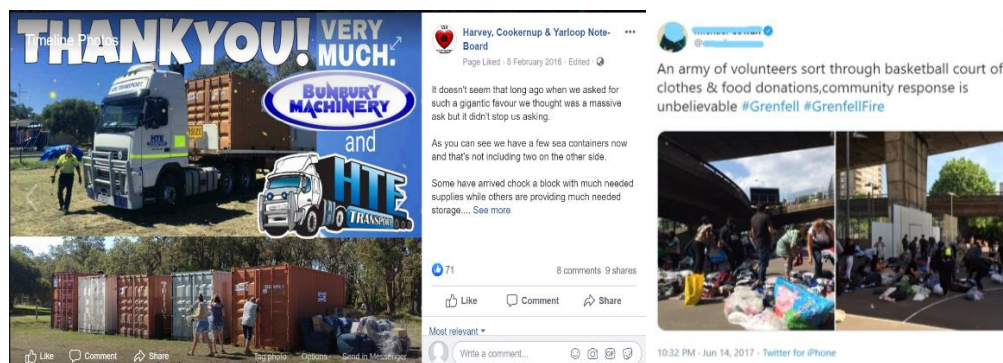


Image 5. 8 Facebook posts to thank donors for their contributions (Tia, Yarloop Bushfires and Anne, Grenfell Tower fire)

In conclusion, Theme Two explored gaps in information, communication, and the exclusion experienced by spontaneous volunteers that forced them to use social media to bridge those gaps. Their descriptions of how and why they used social media revealed how they imagined inclusive emergency disaster management to be. Conversations revealed that social media platforms became a connective tissue when the spontaneous volunteers felt isolation, disconnection, and confusion. It supported two-way communication and

allowed them to share information from the ground up. Their conversations suggest that social media platforms helped spontaneous volunteers combat the negative effects of the involvement/exclusion paradox. The next section discussed themes in relation to Research Question Two.

5.3 Themes for Research Question Two: How does social media impact spontaneous volunteers' agency?

As discussed in Chapter Two, agency has been understood as one's perceived control over one's capacity to define which activities to perform (Bandura, 2018; Emirbayer & Mische, 1998). Several spontaneous volunteers used similar words when responding to Research Question Two which prompted the researcher to investigate their responses in the form of a word cloud. Image 5.9 depicts the words used most frequently by the 18 spontaneous volunteers that highlight their perception of social media platforms.



Image 5. 9 Word cloud from 18 participants' data depicting how they perceived social media platforms

The word cloud highlights the different ways agency was expressed. Having the ability to connect, facilitate, control, help, update, and similar concepts, are all different forms of influence, interaction, and intentionality. They reflect the

diverse ways spontaneous volunteers were able to exert their will and shape the world around them. Some words such as ‘connect’ and ‘inform’ refer to interpersonal agency, such as the ability to establish and maintain relationships with other group members and increase one’s reach to influence others. Others such as ‘help’ relate to supportive roles such as the ability to assist and bring about change -- actions taken to benefit others. There are also expressions such as ‘power’ and the capacity to ‘control’ situations, processes, and people that highlight their personal sense of agency.

In response to Research Question Two, two core themes emerged, each with subthemes that explored further the different aspects of spontaneous volunteer experience of agency when using social media as shown in Table 5.6:

Table 5. 6 Theme Three and Theme Four with Subthemes

Theme	Subthemes
Theme Three: Autonomy	Subtheme One: Ownership Subtheme Two: Control and power Subtheme Three: Excluding other volunteers Subtheme Four: Freedom
Theme Four: Developing resilience	Subtheme One: Coping Subtheme Two: Hope

5.3.1 Theme Three: Autonomy

This theme explains how social media facilitated autonomy for the spontaneous volunteers in this study. Autonomy is the ability to set goals, make decisions independently, and also select the method to achieve those goals. All the spontaneous volunteers in this study spoke extensively about both personal and interpersonal autonomy in its various forms, including control, power, and

freedom. The image 5.10 was shared as an example by a local leader from Yarloop to demonstrate what autonomous volunteer effort meant to them. The image depicts the independent actions of the individuals from the town of Toodyay (WA) who wanted to repay their neighbouring town for their past generosity to them when they had been impacted by the fire. The post reveals how acts of kindness create a virtuous cycle that comes into existence through the community's volunteer efforts.



Image 5. 10 Autonomous volunteer efforts (Aleena, Yarloop Bushfires)

Collectively, spontaneous volunteers' conversations about autonomy concerned ownership, control of information from networks, freedom to decide on social media posts, and an ability to monitor and set rules for participation in common spaces, and to exclude voices and members that did not abide by these rules. This was summarised by a local leader:

"The structure of social media allows this. I realised it, I am sure many of your participants would too. It was not something we knew before. So, it gave the ability to perform activities that are easier for communities to follow. It allows community

leaders to moderate those activities and make use of local talents and knowledge. And also gives flexibility that is needed during disasters to respond to various issues quickly. I am sure your study will be extremely beneficial for that. It's creating a window of opportunity for emergency services to see more clearly the various situations social media can be used in and the various activities the community is able to perform so as to use their resources wisely.” (Al, local leader, Yarloop Bushfire).

This local leader recognised certain aspects of social media platforms, such as autonomy, flexibility, ease, and speed, inherent in its structure. Other spontaneous volunteers focused on interpersonal autonomy, expressed as the ability to include/exclude others (described in section 5.3.1.iii), cooperate with others, and provide access to information and tasks to perform:

“So, they came to trust me and I was able to have, I suppose, classified information, maps, and things that normal people wouldn't get...” (Mary, external leader, Yarloop Bushfires).

By using social media, Mary appeared in a unique and privileged position with access to inaccessible classified information. She distinguished herself from others of lesser status unable to access privileged or classified information. Mary (EL) differed from the norm because she earned the trust, clearance, and authority to access such information. She used that information to assist the local people, feeling a sense of purpose and responsibility for it.

The four themes of autonomy that emerged shown in table 5.6 are discussed in the next four subsections.

5.3.1.i Subtheme One: Ownership

Autonomy describes how social media assists spontaneous volunteers' ownership of their issues, resources, skills, and their activities in recovery and response efforts. Spontaneous volunteers did not await emergency responders. Instead, upon receipt of information, their actions claimed ownership to solve the local issues:

“People would contact through the Facebook page to be able to say ok well how do we get it there? Where are we taking it? How many do you need?” (Tia, local leader, Yarloop Bushfires).

Al stressed that feeling part of the local community created a strong sense of duty among the spontaneous volunteers. Stepping up, taking ownership of local issues, and taking action to solve them were motivating factors for other spontaneous volunteers to join such efforts as well, as elaborated here:

“Ownership of the job is extremely important, let the people own the job and if you can keep that in mind, you're actually giving them the optimum opportunity” (David, local leader, Yarloop Bushfire).

5.3.1.ii Subtheme Two: Control and power

There is an internal locus of control autonomy experienced by the spontaneous volunteers when they perform various tasks using social media. First, the control over one's decisions to perform a task, or to schedule those tasks independently; second, having control over the tasks to be performed, i.e., to plan and perform tasks without external constraints.

Spontaneous volunteers perceived an imbalance in the amount of control that they were able to exercise. For instance, local leaders and local helpers

considered control and capacity to make decisions were related to recovery and response efforts, and lay solely with emergency services:

“Whereas these days, and it was particularly noticeable at the Kelmscott fires and then here as well, that it is emergency services sort of people. If they let you know what's going on, they say “Evacuate! go away!” and half of the people do ... that puts the onus on them, all the responsibility is on the fire brigade and the emergency services in general. Nobody really seems to take any personal responsibility. Maybe I'm old school or what? I don't know but for the life of me I could not, with all conscience leave the total responsibility of looking after my property to someone else and I don't really understand why that attitude is promoted” (AI, local leader, Yarloop Bushfires).

Similar comments were echoed from spontaneous volunteers from the other two disasters (Harris, Anne, Iman, Suleiman) stating that their access was limited, and much of the activities were controlled by the official emergency services or the local authorities. Volunteers felt stuck, helpless, and unable to act or proceed, experiencing a sort of paralysis when their offers of help were ignored or rejected. Spontaneous volunteers discussed how social media enhanced their feeling of control, experiencing the cusp of transformation, predominantly in relation to fulfilling the perceived needs of their local community.

Individual empowerment was another way to experience autonomy. The volunteers felt empowered when they could provide situational updates, or share messages to motivate others to help. Their observed autonomy changed

their demeanour as they discussed their social media use. There was a change in their mindsets:

“I felt in charge and I felt good I could help the people” (Adrian, local helper, Melbourne Floods).

This demonstrated both empowerment and control. Similarly, Tia said:

“I was in the position to satisfy the community needs and that gave me strength and also a bit of authority” (Tia, local leader, Yarloop Bushfires).

Their experiences became more elaborate, sharing ways they could purposefully engage and assist their community. Sharing these experiences allowed acknowledgement of their capabilities.

Empowerment and strength were also discussed in relation to autonomy and control. Spontaneous volunteers felt empowered when capable of performing activities to meet community needs. This sense of control and influence over the resources at their disposal compared to their group members and the wider community. Tia felt in control when she experienced authority with her Facebook group. She monitored conversations and told people if something was not acceptable. Anne also elaborated on how the ability to share their stories was powerful for her:

“I felt the power. Since the first day of the disaster, this whole story unfolding in front of my eyes and I was able to share it with the larger world. I happened to be there. It was my neighbourhood. But the story was for all to see and help came from everywhere” (Anne, local leader, Grenfell Tower fire).

Anne’s comment uncovers a deep sense of empowerment, derived from her unique position during a critical situation. Being able to share their stories was

a powerful experience. Anne narrated her story to a larger world to influence them. She corrected misinformation, shared messages to warn about the roadblocks, and responded to queries to bridge the information gap. Her story highlights the sense of significance and relevance when able to use social media for her community.

Local leaders and local helpers stated that it should be the local residents who have control over their stories. Social media allowed sharing their powerful stories with the wider world. Two external helpers said they felt like newscasters. Harris perceived himself as a:

“... local individual creating the media through the realness of what was happening rather than going on Sky News or BBC News or whatever news channel they are and to see in a generic situation...” (Harris, external leader, Grenfell Tower fire).

Empowerment was derived from the knowledge and experience to use social media platforms to create and share content:

“I knew the power of it. I'm always able to sell things quickly when I want to, using Facebook. And so I knew I could talk and reach people very quickly ... I started getting lists of what people needed, I would just put up a post and say I need this, this, and this, and then I have sometimes hundreds of responses. So I suppose I knew that it was an effective tool”
(Mary, external leader, Grenfell Tower fire).

Mary shared the impact of her efforts (see image 5.11) to highlight the power and speed of social media. The image on the left shows the request that was

made on Facebook; on the right, it shows the acknowledgement of an immediate response and getting the desired results:



Image 5. 11 Requests and speedy response on Facebook (Mary, Yarloop Bushfires)

Local leaders from all three disasters attributed many of their successes to their social media use. While keeping their stories alive, sharing and re-sharing local voices ensured they were not forgotten. Tia's comment below further demonstrated the immense impact (she perceived) social media use had on the overall rebuilding of the town:

"I still think today had we not had such a huge social media carry on at the time -- if I didn't have such a big mouth -- and the information being given to me from different areas so that I could get angry about and express it, I don't think Yarloop would have been rebuilt!" (Tia, local leader, Yarloop Bushfires).

5.3.1.iii Subtheme Three: Excluding other volunteers

The involvement/exclusion paradox manifests in the digital world of social media platforms, where local and external leaders addressed both content and members and their inclusion in their group. Group administrators set rules for group members, and monitored conversations within the group. They could exclude content not in line with the group ethos, and exclude non-conforming members. Both local and external helpers shared an expectation that the groups would be monitored actively. Group administrators remained aware of the tasks being performed and completed by the volunteers in the group. The group functioned in an orderly manner, no misinformation was shared, and they could assign incomplete tasks to other volunteers.

The autonomy of local and external leaders to include content and group members had drawbacks. They had to correct misinformation that was shared by group members. Conversations were hijacked by individuals who were not the locals. They became aware that the open, boundary-less, and inclusive nature of social media is prone to this. They learned that conversations could be deleted or restricted to certain group members, enabling local and external leaders to exclude information generated by non-conformist volunteers. Local and external leaders said they became both *“gatekeepers and facilitators”* (Sarah, local leaders, Melbourne Flood) of information and response efforts for the community.

In some cases, they excluded some group members, too. This created a new paradox where platforms that facilitate inclusivity can also be used to limit or exclude other group members. There existed a duality of social media platforms. Three local leaders (Tia, Al, and Anne) noted that such exclusions from the group created a newfound understanding of why the official

emergency responders excluded the general public from official communications. Local helpers Sally and Aleena, in support of their local leaders, felt exclusion was necessary to avoid distractions and maintain focus on their goals.

Facebook was used to exclude voices and members that misaligned with the group ethos. Exclusions occurred by limiting group membership, removing content shared by members that was negatively affecting the group, and removing those members who had repeatedly ignored group norms.

Restricting membership entailed tagging the concerned individual or group members, carefully selecting words that would connect with certain individuals, so that the audience for the message remained limited. One local leader described his experience using words that ‘targeted’ the right emotions in order to attract the right volunteers:

“It has helped filter certain people, it has helped reach or tap at certain emotions, it has helped bring a certain amount of rules and regulation, which were not possible in such an informal setting” (David, local leaders, Yarloop Bushfires).

David elaborated on how he used calculated words in his messages to connect only with community members who shared similar feelings of empathy and a similar purpose. Applauding local empowerment, he also emphasised that careful consideration needed to be made regarding the voices that he allowed to be amplified on social media platforms.

The autonomy to monitor or censor content could be stating simply, *“you know this doesn’t belong here”* (Tia, local leader, Yarloop Bushfires), or deleting the

comment. Noncompliance allowed the group administrator to delete the comment, as mentioned by this local leader:

“And if we saw any comments or activity that threatened the friendly environment of the group, we called them out and informed them what was acceptable behaviour ... I did end up deleting a few comments but generally the group functioned well as a team and guided each other” (Sarah, local leader, Melbourne Flood).

Tia and Anne (local leaders) and Mary (external leader) admitted to having requested group members to conform to the group norms more than once during and after a disaster. In extreme cases, a group member would be removed from the group. Expulsion of members was not very common, only two cases were highlighted where the group leaders did end up excluding a group member (or two) who refused to adhere to the group expectations. Interestingly, the spontaneous volunteers in this study believed that the excluded group members were outside the community and did not belong to the disaster location.

“The kind of local issues that were being raised, like the Lord Mayor’s Fund and then the different solutions that were being suggested from across the borders, were not getting anyone anywhere. So that needed someone with time on their hands to be moderated and we didn’t have that then” (Al, local leader, Yarloop Bushfires).

One method by which to exclude members was through the formation of an invite-only group. Two local leaders said that following their experience, they

opted for a closed group to ensure group participants were local, and could assist with local needs. Further exclusions also occurred due to members' misappropriation of equipment and donations. They were perceived as opportunists looking for personal gains and were immediately excluded. One local leader also recalled excluding a person who believed in conspiracy theories and was believed to have joined the group to incite the local community against the local authorities. Such incidents highlight the potential for negative aspects of social media use during disasters.

Unusually, eight spontaneous volunteers self-excluded themselves from volunteering with the official emergency services and local authorities. This was most commonly due to avoidance of authority, lengthy registration processes, lack of support, and burnout. The power to exclude unpacks the flip side of the involvement/exclusion paradox and its effect on the spontaneous volunteers. Social media both facilitates autonomy for spontaneous volunteers to include their voices and local and external talents and also empowers group administrators to exclude voices and remove autonomy from other spontaneous volunteers.

A more dominant form of exclusion across all three disasters emerged as a direct result of social media access. All of the spontaneous volunteers from this study had access to social media, and local and external leaders highlighted that only those members of the public who had access to social media were able to respond to their calls for help. The next section discusses the fourth and final autonomy subtheme, freedom, which emerged from this study.

5.3.1.iv Subtheme Four: Freedom

Freedom eliminates constraints that limit individuals' ability to act, pursue their goals, take advantage of opportunities, and overcome obstacles. Freedom was often mentioned by the spontaneous volunteers in this study, in relation to their ability to perform activities independently, and to be flexible. This subtheme of autonomy discusses how freedom was experienced by spontaneous volunteers who used social media. The importance of freedom to spontaneous volunteers is evident from this quote:

“This is why social media was so important. It gave the freedom to perform independently...” (Sarah, local leader, Melbourne Floods).

All spontaneous volunteers expressed the freedom experienced when using social media. They shared their own stories, re-shared other posts, and amplified local voices. Local and external leaders experienced freedom when they collaborated with diverse players and arranged donations (see 5.4.1).

Local and external leaders sensed freedom in political agency, which referred to the ability to act politically. Spontaneous volunteers using social media platforms in a safe space created awareness about local issues and demanded attention from local authorities such as shown in the post below (Image 5.12).

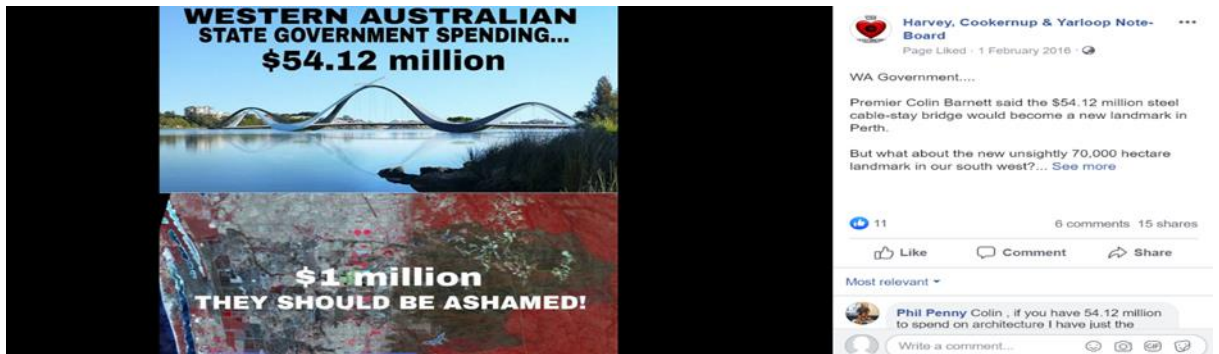


Image 5. 12 Local Facebook page demanding political accountability (Tia, Yarloop Bushfires)

Local leaders shared similar posts from other disasters. Image 5.13 shows how social media kept stories alive while expressing concerns about the current state of affairs.

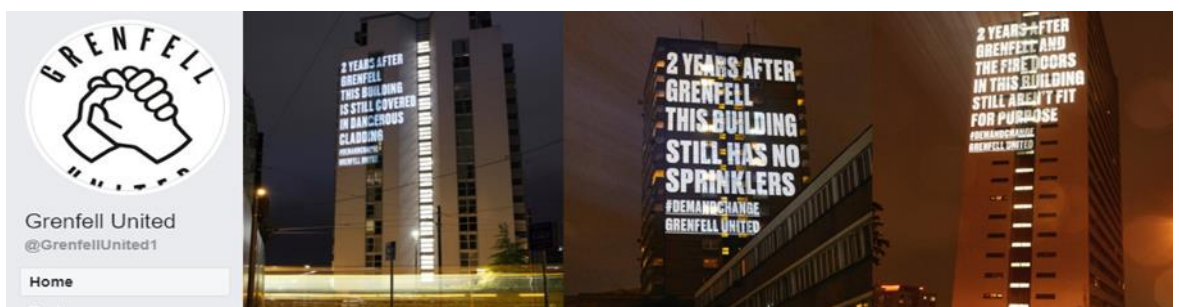


Image 5. 13 Grenfell United creating awareness (Suleiman, Grenfell Tower fire)

When discussing the results of these efforts, Tia expressed:

“... had there not been Facebook and so much attention, it would have quite easily been let slip let slide” (Tia, local leader, Bushfire).

The following section discusses Theme Four: developing resilience along with its two subthemes coping and hope.

5.3.2 Theme Four: Developing resilience

Chapter Two discussed that resilience relates to the ability to bounce back to a state of normalcy. This theme covers how social media facilitated spontaneous volunteers to develop resilience by coping and spreading hope.

5.3.2.i Subtheme One: Coping

Coping refers to the strategies and techniques used to manage and deal with stressful situations. These include dealing with difficult emotions, situations, or challenges. Spontaneous volunteers found that social media platforms facilitated the different aspects of coping: problem-solving, seeking support from others, and sharing coping skills with group members. Spontaneous volunteers highlighted that it helped them feel that they were not alone and that community members were concerned about their welfare. For example, Iman stated:

“I think social media helped create a sense of calmness and allowed us to connect. I felt I was not alone,” (Iman, local helper, Melbourne Flood).

This aided them to eventually accept the new reality. One external leader found Facebook useful:

“It takes months for people to realise that things will never be the same. The pressure is not just to clean up, but to bring life and hope back for those who have lost their homes, their livelihoods. A lot of work needs to be done and fast. I find Facebook to be extremely helpful in all kinds of situations, especially for communication” (Steven, external leader, Yarloop Bushfires).

Local leaders spoke about coping and rebuilding. Their existing relationships with the local community helped them cope. They used images and tagged individuals to try to make members feel engaged, and created messages that were positive and empathetic. Local leaders had a better understanding of how to engage with the locals, and used the language that was understood by the locals.

“My aim was to make sure the message was not too forceful ... I felt more can be done by being sympathetic and providing a way out to build networks, conversations, and help people connect at that time. I reminded community to send love and happy thoughts to those hurting” (Tia, local leader, Yarloop Bushfires).

The spontaneous volunteers from all three disasters shared posts reminding others to check on other volunteers and stay connected. Social media enabled them to express solidarity, discuss what they needed most, and conduct conversations. One local helper commented:

“I was on the opposite end the first few days ... [crying] I was the one receiving help not giving it. But it was this community spirit that brought me back. I was able to give back immediately to the people who needed whatever I could. So then, I started helping with information, with donations, with the kitchen. That’s all I could do. Bake and serve. And that is what I did. I busied myself...” (Sally, local helper, Yarloop Bushfire).

Group administrators were often local or external leaders. They did not have the capacity to provide counselling services, but used social media to post and re-post the inevitable need for counselling. Eventually, many group members from their online community managed to team up with specialists qualified to offer counselling services. Social media facilitated the community's healing process and recovery journey. It also enabled spontaneous volunteers to deal with with the issues at hand, look for solutions, and assist other group members to cope with the new reality from the disaster.

5.3.2.ii Subtheme Two: Hope

Hope is a psychological and emotional state characterised by an optimistic outlook and expectation of positive outcomes in adversity. Human strength inspires individuals to overcome challenges and fosters resilience. Spontaneous volunteers used social media to share positive stories, highlight recovery and response efforts being undertaken, share small successes, and combat the uncertainty experienced by the group members: all aspects of bringing back hope. Seeing hope return to a community awash in hopelessness, motivated this local leader to continue to volunteer:

“We are often their first contact with anyone who is actually going to give them any help and that basically takes them from a situation of hopelessness and despair to the other side. Hope, and you cannot believe what that does to a volunteer. The transformation you see in them and the ability to finally see some future or that they do have a reason to get on with it is amazing for your satisfaction and feeling of accomplishment.

That's what made me visit the second camp and the third..."

(David, local leader, Yarloop Bushfire).

To inspire hope and see it develop, transformed the way David viewed volunteering. He shared many stories describing how he used social media to address group members' anxiety. He kept everyone informed about what was being done for them, to assist them:

"When this was over, that first client of ours, the lady came in with a cup and a bottle of wine and she announced to everybody 'Forget the cows, forget the horses, what you did for me is that you gave me hope.' And there wasn't a dry eye in the whole house; everyone cheered, she was laughing and there was such a difference in her attitude between the woman that we first met and the woman now, and she even volunteered." (David, local leader, Yarloop Bushfire).

In sharing these lived experiences, spontaneous volunteers in this study saw how social media assisted to develop hope. Coping and hope together show that resilience is a humanity-focused concept. Spontaneous volunteers' efforts are community based; social media platforms facilitated an environment where coping skills were shared, group members bounced back, in hope of a better future.

In response to Research Question Two, spontaneous volunteers attested that social media facilitated agency through autonomy and resilience. Autonomy appeared as spontaneous volunteers experienced ownership of their stories and tasks, gained confidence in their ability to perform various activities,

learned control of their decisions, and felt power to include or exclude content (and group members). Autonomy gave them the freedom to participate and explore skills and resources. Social media facilitated them to bounce back, and to build resilience, allowing them to cope with new reality, and returning hope to their world and community. The following section discusses the theme for Research Question Three.

5.4 Themes for Research Question Three: What are the ways in which social media enables spontaneous volunteers to co-create knowledge and coordinate offers of help, resources, and skills?

In response to Research Question Three, one core theme emerged. Theme Five shows that there are three ways social media enabled co-creation of knowledge to leverage offers of help, resources, and skills. These are recorded as subthemes.

Table 5. 7 Theme Five: Facilitation of co-creation

Theme	Subthemes
Theme five: Facilitation of co-creation	<ol style="list-style-type: none"> 1. Crowdsourcing 2. Utilising influencers 3. Formation of hybrid collective groups

5.4.1 Theme Five: Facilitation of co-creation

This theme discusses how social media facilitated co-creation of knowledge and activities for spontaneous volunteers in this study. Chapter Two discussed that co-creation is a process through which two or more entities constructively exchange experiences, knowledge and resources to solve shared problems or challenges. The three subthemes illustrate how social media enabled

spontaneous volunteers in this study to engage in mutual production and gathering of knowledge through crowdsourcing, to access resources utilising social media influencers, and create hybrid collective groups where ideas were advanced, goals were set, and local problems were solved through collective decision making.

5.4.1.i Subtheme One: Crowdsourcing

This theme explains how spontaneous volunteers participated in collective intelligence, a subject that is widely discussed in the crowdsourcing literature. The use of social media enabled spontaneous volunteers to capture local information and disseminate tacit knowledge with others on their network. Crowdsourcing often refers to both voluntary (unpaid) and paid activities by the crowd. The purpose of crowdsourcing is to save time and money, and access as much knowledge as possible in order to reach goals. The term is often used to describe tasks that are handed to non-specific solution providers, via an online forum, that were previously provided by full-time employees. Local and external leaders identified that there's one form of crowdsourced knowledge related to local queries. Members of their group posted questions or identified local issues that need attention:

“People could log on to, and post questions, so that when someone else came online, and perhaps had the answer, then they could again write that answer down, so that we were trying to disseminate information that way.” (AI, local leader, Yarloop Bushfire).

As spontaneous volunteers recognised opportunities, they would add this information which allowed them to select tasks to perform, such as donations.

When one spontaneous volunteer enquired if there were a list compiled for donations, another member added that diapers were urgently needed. Image 5.14 demonstrates the impact of crowdsourcing. Crowdsourcing leveraged the power of many people to achieve a common goal. This approach allowed the spontaneous volunteers to tap into a large pool of potential volunteers and donors, increasing the likelihood of finding individuals who are willing and able to contribute their time and resources towards a specific cause. Additionally, many spontaneous volunteers perceived that this approach allowed for greater transparency and accountability, as volunteers and donors could see exactly how their contributions were being used. Additionally, crowdsourcing also helped them reach new audiences and increase their reach, making it easier to raise awareness about important issues and mobilise support for their cause as described in section 5.2.1.iv.



Image 5. 14 Crowdsourcing for donations (Mary, Yarloop Bushfires)

Local leaders like Anne stated that this approach was effective due to the interactive nature of the social media platforms that facilitate grass-roots-driven problem-solving. The experience of volunteers' communal cooperation is a central aspect of this theme. Image 5.15 provides a peak into one such conversation aimed at rebuilding Yarloop. Social media facilitated volunteers and experts to discuss ideas and communicate them to relevant individuals in

order to collaborate. This led to community-driven solutions, making problem-solving more effective and efficient.

As evident from Image 5.15, social media enabled spontaneous volunteers to brainstorm for solutions, which is another aspect of crowdsourcing.



Image 5. 15 Problem solving (Aleena, Yarloop bushfires)

AI (local leader, Yarloop Bushfires) highlighted that during one of the brainstorm sessions, they realised that there were limited opportunities to engage with local authorities. As a result, they organised a lecture for the volunteers to better understand the limitations faced by local authorities and to share their suggestions with them. Spontaneous volunteers shared brainstorming increased their operational efficiency; they explained that they experienced better trusting relationships, as the focus remained on solutions, management, and coordination of tasks in a mutually agreeable way. This is encapsulated in this comment from local leader:

"I constantly asked what all agree on and what changes do we need to make. The community really appreciated being invited

into the problem rather than being told what the solution was”

(Sarah, local leader, Melbourne Floods).

Spontaneous volunteers' crowdsourcing activities often bypassed structures that would otherwise form barriers to knowledge transfer. For example, hierarchical structures often impeded knowledge-sharing which hampers problem solving. What social media platforms allowed the spontaneous volunteers in this study to do instead, was to have conversations at various forums where group members could contribute ideas at the same level. In the following quote, Mary shares how she was able to use information conveyed to her by a contact from the local government, which enabled Mary to donate items at a specific location where the local government was not able to:

“[contact name] shared the information to help the community in a way the local government was not doing, so I would say problem solving was mostly done by collaborating and constantly finding out what they [the local community] need, to address and match with and see what resources are available to us, almost like a supply and demand chain management”

(Mary, EL, Yarloop Bushfires).

Mary's comment suggests that collective intelligence, or the ability of a group or community to solve problems and make decisions through working together was an effective way to help the community. Informal channels such as social media, email, and informal meetings can help facilitate collective problem-solving in a more efficient and effective way.

Crowdsourcing also involved sharing live updates so that all spontaneous volunteers of the group were quick to reach and respond to changing conditions. Images 5.16 and 5.17 are examples of crowdsourced data where live updates of water levels were shared. The spontaneous volunteers were able to keep the community informed so that they could take the necessary precautions. Their efforts also prevented many people from contacting the official emergency services for updates, reducing their burden.

Port Phillip - and it looks like the promised rains of "biblical proportions" are coming down long, slow and steady. Which means that whilst the Elster Creek and the Elwood Canal is high - and there is some minor flooding in streets around the municipality - generally the water is flowing away.

We will be on watch all day. But if you want to report a flooding situation - call for our council staff who have been out and about clearing drains by contacting ASSIST on 9209 6777 or emailing assist@portphillip.vic.gov.au. If your flooding is serious and you need urgent help call the SES Port Phillip Unit on 132 500 straight away.

Friends of Elster Creek



Image 5. 16 Live updates from the ground

Spontaneous volunteers used mobile devices to generate and share these live updates that facilitated sandbagging at various areas.

It is must be top priority to fix this place which every time becomes a victim to **floods**
@VicRoads

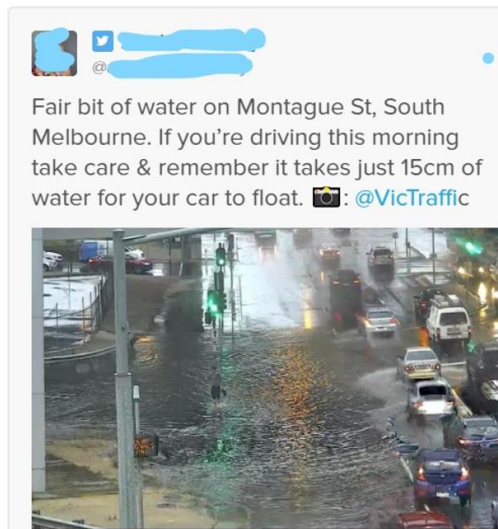


Image 5. 17 Sharing localised information

Another example shared was from the 2017 Grenfell Tower fire, where spontaneous volunteers assisted with locating missing people. They shared photos and details of missing persons on Facebook to quickly spread the message. As mentioned earlier, crowdsourcing refers to the practice of obtaining information or services from a large group of people, typically via the internet. In the case of shared photos and details of missing persons on Facebook, crowdsourcing was used to quickly spread the message and gather information from a large number of people. Since crowdsourced information can go viral, it increased the chances of someone recognising and informing the group. This information was then collated into a list assisting official responders to make the final list of lives lost in the fire.

"I knew some of the families in the building and I could immediately contact friends and family to check if they were ok and sadly even record the names of those who were missing ... So I'm still talking about that very first day. It was just like-

minded people coming together to find solutions for the community. Later, it expanded to much more. Food donations, clothes, blankets, shoes and toiletries. A lot was requested and managed via Facebook..." (Anne, local leader, Grenfell Tower fire).

Perhaps the most important aspect of crowdsourcing was the creation of an online databank during all three disasters. The various community groups preserved stories of what worked well for them. This information assisted those looking for solutions to similar problems, as they could easily filter information they found useful. However, crowdsourcing has its challenges too, such as generating volumes of conflicting information. Local leaders like Anne addressed this issue by contacting local authorities and emergency services to ensure only authentic information was shared and amplified. The subtheme crowdsourcing described the various ways spontaneous volunteers collectively gathered information that assisted them to co-create task-specific knowledge that enabled them to perform tasks effectively. The next subtheme discusses how spontaneous volunteers utilised influencers to co-create recovery and response efforts.

5.4.1.ii Subtheme Two: Utilising influencers

This theme reveals the role of social media influencers in co-creating recovery and response efforts. A local helper described the important role of social media influencer outside of her community:

"So it's great to be in touch with him [the influencer] via Facebook because he shares information around and he's going to reach over 10,000- 12,000 likes so you know, your

information is getting out there. So it allows you to connect with people ... especially there are some of the key people um, key people that you can share whatever you are wanting to share. And they help the information reach so much faster and wider. I think we have benefitted from this” (Malinda, local helper, Yarloop Bushfire).

Social media influencers are important to amplify the voices of spontaneous volunteers. Two other spontaneous volunteers, Anne and Suleiman from the Grenfell Tower fire, partnered with social media influencers after (post-disaster) the fire to keep the conversations alive. Their partnership resulted in various meetings with government officials to request that a diverse panel sit alongside the public enquiry as shown in Image 5.18.



Image 5. 18 Social media influencers enabling meeting with government officials

Amongst the spontaneous volunteers who self-identified as social media influencers were Mary (external leader), Tia (local leader), Anne (local leader), and Sarah (local leader). Clinton (external helper), Harris (external leader), and David (local leader) also fit the definition of social media influencers (provided in Chapter Two section 2.6.1) and therefore were identified as such

by the researcher. Tia was able to use her expansive network to access sea containers and large numbers of donations (see Image 5.6 in this chapter). Spontaneous volunteers who were influencers found themselves leading the way, amplifying the voices of local helpers and reaching out to their established networks to influence action. Mary (external leader) described how she used her large network of followers to co-create activities:

“So I made flyers and when I started getting lists of what people needed I would just put up a post and say I need this, this, and this and then I’ll have sometimes hundreds of responses...” (Mary, external leader, Yarloop Bushfire).

Mary perceived that not being affiliated with an organisation positively impacted her ability to gather resources; perhaps she was seen as more authentic an individual trying to assist, as suggested here:

“I think because I wasn’t a part of any business or organization I could ask for things. I was able to call hire companies and ask for generators just basically based on goodwill. I understand that I just became that unofficial person that in honest truth provided things that anybody needed at that stage.” (Mary, external leader, Yarloop Bushfire).

Similar comments were shared by other influencers, for example Anne said she was able to use her reputation to inform people about authentic information. . Harris (external leader) took advantage of his “interpersonal network” to mobilise other volunteers and obtain donations. Not all social media influencers were leaders, for example,

Clinton (external helper), was an external helper. However, social media influencers were also local leaders (Tia, Anne, Sarah, and David) and external leaders (Mary and Harris).

5.4.1.iii Subtheme Three: Formation of a hybrid collective group

Social media facilitated the formation of teams or groups to co-create recovery and response efforts. Spontaneous volunteer accounts uncovered that local experts volunteered spontaneously and brought their skills and experience to the table; spontaneous volunteers were also helpers. This learned collective group of spontaneous volunteers often worked in close collaboration with the other volunteers. For example, a group may have professionals in business, management and government who, along with university students (see table 3. in Chapter 3), worked together, in what was identified as a 'hybrid collective' group. Hybrid collective groups can be useful in situations where there are diverse needs or resources available, as they allow groups to leverage their strengths and work together towards a common goal.

The spontaneous volunteers in this study worked with other volunteers as well as skilled professionals to complete community projects. The various groups operated as a single unit where all group members contributed their unique skills and resources voluntarily for the good of the community. Sometimes the group would emerge organically, as witnessed when Anne started a Facebook page and like-minded people came together to assist their community. At other times local leaders deliberately created diverse groups as suggested here:

"I tried to mix my volunteers in groups of experienced and inexperienced to balance, so that the inexperienced people would go in and perhaps learn by osmosis and gain this

knowledge without explicitly telling them we would like you to do this, how to do it” (David, local leader, Yarloop Bushfires).

The hybrid collective group offered an environment for spontaneous volunteers to learn without feeling pressured to follow instructions. Local leaders David and Tia, and external leader Mary emphasised the importance of allowing volunteers to observe and follow actions at their own pace. They felt that this would encourage repeat volunteering. Sometimes the hybrid collective group included professionals who were not spontaneous volunteers, but were contacted by local or external spontaneous volunteers to assist with a service that was needed in their community. The Image 5.19 below shows the outcome of such an effort where a local leader organised free counselling services by connecting and collaborating with professionals that offered these services.



Image 5. 19 Collaboration for free counselling

When asked to describe what this hybrid collective group looked like, all four types of spontaneous volunteers (local leader, local helper, external leader, and external helper) highlighted the importance of shared identity and goals at the formation of the group. Identity and goals were often depicted in the group name. All local leaders mentioned the importance of finding the most fitting

name for the group that would uniquely define their goals and social network. For example, the Facebook page 'Rebuild Yarloop' was formed which had a simple, yet effective purpose:

"We landowners, residents and people here in Yarloop are trying to coordinate communication with all those who wish to have a say in rebuilding" (Aleena, local helper, Yarloop Bushfire).

Such statements sought to unify the community, share clear goals, and update information within the community. The formation of the group allowed the community to connect at a human level, based on a common identity.

The group set expectations and specified the goals that facilitated them to communicate. This was done by establishing clear communication channels and working together to determine what was expected of each member. The group also had a clear understanding of the goals they were working towards and how each member contributed towards the achievement of those goals. This facilitated communication and ensured that everyone was on the same page as expressed here:

"It made it easy for them to communicate, learn from each other, and feel a sense of belonging" (Sarah, local leader, Melbourne Flood).

Multiple groups were identified in relation to each disaster. For example, Anne (local leader) and Harris (external leader) were both from 2017 Grenfell Tower Fire but had their separate social media groups. All three disaster groups had more than one group administrator. This is possible because Facebook allows multiple administrators as well as moderators. Often, the local or external

leader was the group administrator because the creator of the group automatically becomes the group administrator by default. However, a group administrator can always name someone in his place and step down. At the time of interview only one group administrator, Mary, had nominated someone else, to allow her to leave the group she started. Without any form of support, and facing increasing public demands, she had experienced burnout, and stopped volunteering with that community.

The hybrid collective group's administrator had knowledge and understanding about the community needs along with the ability to "*connect the dots for them, so to speak*" (Tia, local leader, Yarloop Bushfires). Tia's comment uncovers the proactive nature needed for the formulation of such groups. Similar statements were shared by the other spontaneous volunteers who did not have access to resources, yet had the skills that enabled them to become leaders. Al (local leader,) used his administrative skills to coordinate logistical issues and donations, while Mary (external leader,) used her social media marketing skills to design posts that were eye catching to disseminate requests.

The Rebuild Yarloop Facebook page was a group where members could participate by posting, commenting, sharing resources, or asking and answering questions. A collaborative environment arose between spontaneous volunteers and local community members sharing information and resources among all group participants. Thus, all members perceived that they were on the same level, conducting interactions that were peer-to-peer. The Rebuild Yarloop Facebook page started out by defining a clear purpose as reflected in the name, it had an identity and core values that were shared by the spontaneous volunteers. This group also developed networks based on

community needs. A similar approach was observed for the Facebook group created after the Grenfell Tower fire, but was not evident from the discussions of spontaneous volunteers from the Melbourne floods.

Co-creation was very different during the 2018 Melbourne floods. The spontaneous volunteers interviewed did not share a common Facebook page that involved the entire community. Instead, depending on their location, various chat groups formed temporarily with volunteers from existing community groups. Many of them diversified to other causes after the disaster, a few were not active at the time of the interview. However, one such group called 'Friends of Elster Creek' was still actively advocating for flood awareness. Image 5.20 is an example shared by one spontaneous volunteer to show how the collective group successfully negotiated with the local authorities to support a nature reserve to reduce flooding.



Image 5. 20 Friends of Elster Creek Community Project to reduce flooding

The flood area's spontaneous volunteers' discussions identified several benefits of the hybrid group. For example, Mary (external leader) identified the speed with which the donations were received, while Harris (external leader)

and AI (local leader) mentioned the outsourcing of tasks where volunteers accomplished collection and distribution of donations, transportation, temporary accommodation, while providing continuous information from the ground. Additionally, there were also social, emotional, and psychological benefits derived from the co-creation of knowledge. For example, they experienced a sense of belonging, and a reduction in the feeling of isolation and disconnect. The spontaneous volunteers cited social benefits of sharing activities and information, and the free promotion of the community groups, leading to an increased volunteerism. Psychological benefits of self-efficacy, feeling satisfaction, increased empathy and motivation, and reduced stress were included.

In conclusion, the subthemes of crowdsourcing, utilising influencers, and formation of hybrid collective groups describe how social media facilitates spontaneous volunteers' co-creation of knowledge to leverage skills and resource for the emergency response effort. Crowdsourcing was important to evaluate local needs and information effectively. Utilising influencers assisted with amplification of the message and speedy inflow of donations. Formation of a hybrid collective group facilitated the co-creation of knowledge, services, and activities among spontaneous volunteers with expertise and those with limited skills and knowledge, to fulfil the needs of the community. The last section of the findings chapter presents a synthesises of spontaneous volunteers' suggestions for improvements.

5.5 Themes for Research Question Four: What recommendations do spontaneous volunteers have: i) to enhance the experience of other spontaneous volunteers; ii) to guide those spontaneous volunteers who use social media to respond to and involve themselves in emergencies; and, iii) to encourage their future volunteering?

There were 271 recommendations made that were synthesised into two themes; i) unmet expectations with three subthemes and ii) improving social media platforms for volunteering as shown in Table 5.8

Table 5. 8 Theme Six and Theme Seven with Subthemes

Themes	Subthemes
Theme Six: Enhancing engagement with local authorities and official responders	Subtheme One: User friendly and uniform messaging Subtheme Two: Integrating technology Subtheme Three: Support
Theme Seven: Improving social media platforms for volunteering	(No subthemes)

5.5.1 Theme Six: Enhancing engagement with local authorities and official responders

Spontaneous volunteers in this study recalled that they had emerged with certain expectations in mind on the day of the disaster that were not met. They unanimously agreed that the priorities of official responders and emergency services volunteers were to save lives and protect community assets, such as houses, buildings, animals, and crops. Being part of the community, the spontaneous volunteers in this study made suggestions about how to enhance future engagement with the local authorities and the official responders.

5.5.1.i Subtheme One: User friendly and uniform messaging

Suggestions made by the spontaneous volunteers in this study were in relation to all phases of the disaster (pre-, during, and after). It was vital for local authorities and official emergency providers to ensure that messages shared were uniform across the board, and crafted in a way that their content and form were understandable to all:

“SES had sent warning about not walking in the water, electrocution dangers etc. I just added photos to it and shared that too” (Iman, local helper, Melbourne Floods),

Thus, it was highlighted to make the message more eye-catching and meaningful to serve the purpose. Warnings shared by the local authorities or the emergency services also needed to be updated regularly to inform the community, as expressed by this local helper:

“Don’t just leave warnings or information for us to read and then never update it. People deserve to know what is currently happening and not look it up themselves” (Clinton, external helper, Yarloop Bushfire).

Spontaneous volunteers from all three disasters commented that an understanding of local expectations was missing. This created a perception that the spontaneous volunteers understood these expectations better:

“It’s important for people to understand the expectations the community has, how to meet them, and locals can do that better than someone sitting 150 km away. We need to build

trust quickly and Facebook allowed us to do that” (Tia, local leaders, Yarloop Bushfires).

Understanding expectations and responding to them built trust. The spontaneous volunteers felt this was not the case with the local authorities. They did not hear back from them; their queries were not responded to, and they had no clear goals or expectations identified for the spontaneous volunteers to assist in recovery and response efforts:

“You see there was this crucial gap in official response information. Nobody knew what was happening and what help was available. And as you would find in all emergencies, there is really no way to contact the authorities via phone, chances of them getting back to you are bleak.” (Al, local leader, Yarloop Bushfires)

A direct impact of this lack of bilateral (two-way) communication was on spontaneous volunteers’ experiences and their resulting satisfaction. This is what Mary felt:

“It becomes slightly frustrating because there were certain moments when I really wanted the opportunity to actually communicate with them directly, instead of communicating with the resource centre and then hearing back. That wait time was frustrating.” (Mary, external leader, Yarloop Bushfire).

“Communication is as much about listening as it is about talking. The current emergency communication system is one-way, messages are relayed, and the community is expected to pick up on it. If the community wants clarification or additional

information, it is pretty difficult to get a response from the emergency services” (Mary, external leader, Yarloop Bushfire).

Many spontaneous volunteers emerged at the disaster location expecting to assist in tasks that were meaningful to them. David (local leader) shared that often this is not the reality; they had to face long waiting periods and eventually were being handed mundane jobs that impacted their sense of self-worth. He suggested the following:

“Therefore, setting the expectations right: letting the people know that you might not be able to go on the same job two days in a row because something else comes in, and we have to follow certain procedures and so, yeah, it's ... while it is facilitating the inflow of volunteers, it's also facilitating setting up their expectations...” (David, local leader, Yarloop Bushfire).

Many local and external leaders suggested evaluating every task, regardless of how insignificant, to make the spontaneous volunteer feel productive. David explained why this is important by providing a peek into the minds of spontaneous volunteers, and their thought processes when they raise their hands to help:

“Also, because volunteers, it's not that they have nothing else to do, and they get pissed off that their time is being wasted and there's nothing worth doing, but they're still being held. They have made a commitment to come and to put an effort to

use their time for the benefit of society. See, the word of mouth and experience count..." (David, local leader, Yarloop Bushfire).

Suggestions around managing expectations included creating a schedule of generic tasks based on previous disasters before the disaster so that anyone turning up to help was aware of the kinds of tasks that needed assistance. Tia (local leader), Al (local leader), Mary (external leader) and Harris (external leader) suggested that Facebook worked well for scheduling tasks and adding approximate time durations, so that volunteers could select the activities that best suited their capabilities and schedules.

5.5.1.ii Subtheme Two: Integrating technology

All spontaneous volunteers in this study were social media users (3.2.7). Their suggestion for local authorities and official emergency services to integrate social media platforms

"I do believe it is important for the emergency services to know that social media pages are so important... like the EASE page where everything was listed straightforward...they need to work on something like that to avoid confusion. It's very easy for everyone to go red-green-yellow, the way they set out their site for me was the easiest to follow" (Sally, local helper, Yarloop Bushfires).

Another suggestion was to utilise the location-sharing feature. This approach would reduce confusion about road closures, the location of help desks, and the location of donation collection points. Spontaneous volunteers from all

three disasters had experienced these gaps and agreed that the location-sharing feature could be a viable solution to this pressing issue. Anne (local leader) shared her own example from the 2017 Grenfell Tower fire:

“I was also managing the flow of volunteers like I would, say, direct them to the help desks, sharing the location of the help desks instead of all appearing at the library or the nearby streets.” (Anne, local leader, Grenfell Tower fire).

Anne’s example suggests the utility of such features to streamline the arrival and engagement of volunteers. Other spontaneous volunteers added that social media posts could be used to instruct about opportunities to assist, any rules and regulations to be aware of, health and safety practices, and preventative measures so that these posts would circulate widely.

“If there’s an opportunity to liaise with a government department on any platform, then to be perfectly honest, it would be best if the government department stepped in and said this is what we can do and this is what we would like to do and we need some support, or it would be advantageous if we had some support, whereas we found with Yarloop. I’m not aware that anybody ever did that.” (Al, local leader, Yarloop Bushfires)>

Five spontaneous volunteers (Tia, Al, Mary, Anne, and Harris) also suggested that official emergency responders and local authorities should use social media influencers and community leaders to share authentic information and update information widely. This would require identifying, connecting, and

building a relationship with social media influencers and community leaders before the disaster to streamline the process as explained here:

“Say the situation was to happen again. My page with the standing it has, with the following it has, if it was a local event, if you could notify Facebook [that] I am a central operator for information; please advise me of anything new or please make me a “suggested page” in relation to this issue. You know what I mean? Like your search bar...” (Tia, local leader, Yarloop Bushfire).

Such efforts would increase amplification of voices that present authentic information. All of the spontaneous volunteers were happy to be contacted by their local authorities to collaborate in the future. Having access to local community Facebook groups would also allow the local authorities to record the kinds of skills and resources that are already present in the local community. This was considered to be important since most volunteers were part of the affected community and could complement the official response, making it more efficient:

“I will add one thing. The fire fighters or the emergency services, whoever is there responding to the emergency, they need to really put in effort, and I mean look beyond their system and routines, and put in effort to locate people with the resources in the community that can help them. For instance, anyone with good social media skills can instantly volunteer to monitor his website in case of floods or storms when they are busy at the disaster zone

because communication is the key. It is the key, really.”

(Harris, external leader, Grenfell Tower fire).

In his comment, Harris identified a simple solution to a key issue faced by local authorities and the official responders. It is not easy to keep all lines of communication open within the local community. Involving spontaneous volunteers to respond to queries or share official authentic information, could be a cost-effective solution. Themes Two to Five showed ways spontaneous volunteers used their social media skills and local knowledge to leverage local and external resources. Specifically, they suggested that all local shires and cities could have webpages and Facebook groups that could be used to build sustainable relationships with the local communities.

5.5.1.iii Subtheme Three: Support

All four types of spontaneous volunteers spoke about the importance of supporting spontaneous volunteers. They identified that official emergency responders could use social media platforms to promote volunteering opportunities for specific service providers in the emergency disaster area. Furthermore showing support is seen to positively impact the mental health conditions of the locals:

“I really think it would have been beneficial if some of the emergency services personnel or the local council people were present and were able to communicate with the locals to provide that empathy or build that relationship. And this could be done via online presence...” (Mary, external leader, Yarloop Bushfires).

There was also a common concern related to developing connections, and the challenge of keeping spontaneous volunteers involved after the disaster.

“So these are probably some important issues that your research can highlight. The importance of shared emotional connection, and how to benefit from it in the long run. We formed some friendships that we still enjoy today because of the quality of interaction we had at that time,” (AI, local leader, Yarloop Bushfires).

Local and external leaders experienced a shift in priority once the immediate emergency was over. There was a decline in engagement even though the long recovery process had just begun. One reason identified was burnout related to both physical and emotional fatigue. Burnout was reported by both genders, although females (Tia, Anne, and Iman) related it to their intense social media activity while males (AI, Harris, Suleiman, and Chris) talked about physical exhaustion. Both identified lack of support as one reason for the resulting burnout.

“...taking advantage of the channel is important, but the channel must support the users. Our facebook page was full of questions during the fire, most importantly, how it will affect them. And talking to those in your network was not just for information, it was therapeutic too. It is a human need to communicate, and that increases when there is a disaster or a tragedy.” (Tia, local leader, Yarloop Bushfires).

The spontaneous volunteers from all three disasters mentioned the lack of counsellors to address the effects of stress on the mental health of the community members. Once the immediate emergency had passed, volunteers felt emotionally and physically drained. Offering counselling and debriefing sessions was also suggested.

As time goes on, the emotional impulse to help also wanes. Without clear guidance or roles about opportunities available from the local authorities, the spontaneous volunteers in this study either stopped volunteering entirely or moved to other causes.

“Currently we’re raising awareness about the importance of fire proof building materials. You might be aware that the buildings surrounding the area still don’t have sprinklers.”

(Harris, external leader, Grenfell Tower fire).

The comment above identified the need for a structure that supports their ongoing engagement: that provides clear roles and expectations, and keeps them informed about opportunities that match their skills or interests. Such an approach could also provide ways to collaborate with spontaneous volunteers in the longer-term recovery and rebuilding efforts, and to share suggestions for improvements too:

“I wish there was a way to somehow pair community members with volunteers and keep them informed so they stay engaged. But there wasn’t then and I am not aware of anything either.”

(Mary, external leader, Yarloop Bushfire).

While spontaneous volunteers wanted to create their volunteer role and be in charge of it, they did not want to join the official programs due to various reasons including bureaucracy and training involved. Yet, they wanted to benefit from official support programs such as counselling when it got too hard. Furthermore, it was suggested that acknowledgment of the volunteer efforts was also crucial for future resilience:

“If communities are praised, they become stronger in the future” (Iman, local leader, Melbourne Floods). This acknowledgement was discussed both in relation to formal recognition such as awards and certificates and informal recognition such as thank you notes, words of appreciation, and acknowledgment on the Facebook page.

5.5.2 Theme Seven: Improving social media platforms for volunteering

A common suggestion is that social media platform service providers should take responsibility for the content shared on their platforms. Suggestions included ensuring unacceptable posts that are racist, derogatory, and/or threaten the unity and harmony of the community were deleted immediately, and that old information or emergency-related updates do not get re-shared, to avoid confusion:

“They shouldn't allow people to share old posts. They shouldn't because what it does, like what happens is, if people share stuff two days later, it is three days old!!” (Gordon, local leader, Yarloop Bushfire).

There was a common expectation:

“Anything that is incorrect is immediately removed. That is only when the platform will serve the correct purpose” (Sally, local helper, Yarloop Bushfires).

All spontaneous volunteers agreed that social media are powerful platforms, and service providers must understand the platform’s amplification capabilities. If not monitored, there could be a high chance that misinformation gets disseminated which will have devastating outcomes. There also need to be strategies in place to ensure that the platforms are not misused.

“It is very important to maintain manners and respect, which is one reason why social media was probably not good to use then” (Suleiman, local helper, Grenfell Tower fire).

To conclude, in response to Research Question Four, the spontaneous volunteers’ conversations revealed that they would want to be part of the official response but on their terms. They provided key suggestions for improvements: i) enhancing engagement with local authorities and official responders, and ii) improving social media platforms for volunteering. More specifically, spontaneous volunteers’ expect official responders to: i) provide clear messaging before they arrived, and clear instructions upon arrival on how they could help. ii) integrate technology, and iii) support the spontaneous volunteers who wish to complement the official response. Such an approach could enhance their experience, bring about positive engagement, and increase their commitment to continue volunteering. The spontaneous volunteers also suggested to monitor the platforms, ensure misinformation is deleted, and create strategies that ensure these platforms are not misused.

5.6 Summary

The findings contribute to the evolving understanding of spontaneous volunteers. In response to the four research questions, eight themes emerged.

A summary of the themes are presented in Table 5.9.

Table 5. 9 Summary of Themes and Subthemes

Research Question	Themes	Subthemes
RESEARCH QUESTION ONE How do spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases?	5.2.1 Theme One: Strong desire to help	5.2.1.i Subtheme One: Helpers not volunteers 5.2.1.ii Subtheme Two: Four types of spontaneous volunteers: a. Local Leader b. Local Helper c. External Leader d. External Helper 5.2.1.iii Subtheme Three: Self-help via social media
	5.2.2 Theme Two: Overcoming gaps in emergency response management	5.2.2.i Subtheme One: Gap in information 5.2.2.ii Subtheme Two: Gap in communication 5.2.2.iii Subtheme Three: Exclusion of spontaneous volunteers
RESEARCH QUESTION TWO How does social media facilitate spontaneous volunteer agency?	5.3.1. Theme Three: Autonomy	5.3.1.i Subtheme One: Ownership 5.3.1.ii Subtheme Two: Control and power 5.3.1.iii Subtheme Three: Excluding other volunteers 5.3.1.iv Subtheme Four: Freedom
	5.3.2 Theme Four: Developing resilience	5.3.2.i Subtheme One: Coping 5.3.2.ii Subtheme Two: Hope
RESEARCH QUESTION THREE What are the ways in which social media enables spontaneous volunteers to co-	5.4.1 Theme Five: Facilitating co-creation	5.4.1.i Subtheme One: Crowdsourcing 5.4.1.ii Subtheme Two: Utilising influencers 5.4.1.iii Subtheme Three: Formation of hybrid collective groups

create knowledge to leverage offers of help, resources, and skills?		
RESEARCH QUESTION FOUR What recommendations do spontaneous volunteers have to enhance the experience of spontaneous volunteers who use social media to respond to emergencies, and to encourage their future volunteering?	5.5.1 Theme Six: Enhancing engagement with local authorities and official responders	5.5.1.i Subtheme One: User friendly and uniform messaging 5.5.1.ii Subtheme Two: Integrating technology 5.5.1.iii Subtheme Three: Support
	5.5.2 Theme Seven: Improving social media platforms for volunteering	(no subthemes)

The findings for Research Question One revealed how social media was used by the spontaneous volunteers. The study found that spontaneous volunteers in this study did not identify as volunteers, rather perceived themselves to be helpers. The methodology employed uncovered the four categories of spontaneous volunteers, breaking away from the notion that they are one homogeneous group. There were four types of spontaneous volunteers: local leaders, local helpers, external leaders, and external helpers. In addition, some of the spontaneous volunteers were found to be social media influencers.

Facebook was the most prominent platform utilised by spontaneous volunteers to fulfill individual and community needs. Spontaneous volunteers used social media to bridge the gaps appearing in information and communications, and used social media to exclude other spontaneous volunteers. Spontaneous

volunteers also used social media to monitor tasks and conversations, leverage information collection and sharing, plan, coordinate, and self-organise independent recovery and response efforts during the three cited disasters.

The findings for Research Question Two highlighted that social media enabled spontaneous volunteers to experience agency in two ways: i) by enabling autonomy and ii) by developing resilience. The four subthemes related to autonomy describe how spontaneous volunteers experienced autonomy. The four ways they shared were when they could: own the issues and tasks, experience a sense of control and power, have the ability to include or exclude content (and members), and exercise freedom. The study found that a duality exists even in the digital space. While social media facilitated inclusion into recovery and response efforts for the spontaneous volunteers, paradoxically, they used the same platform to limit or exclude other members and content from their groups. In addition, social media allowed spontaneous volunteers to develop resilience by helping them cope with the new norm, and enabling them to see hope.

The findings for Research Question Three revealed three ways social media facilitated co-creation for spontaneous volunteers. Spontaneous volunteers crowdsourced information, utilised social media influencers, and formed hybrid collective groups to co-create information and activities during the three disasters.

The findings for Research Question Four collated spontaneous volunteers' recommendations. Spontaneous volunteers' recommendations related to their unmet expectations, offering suggestions to improve the messaging system,

integrating technology, and offering support to enhance their experience. Secondly, they offered recommendations for social media platform providers to ensure misinformation and hurtful derogatory content are deleted, and that old information is not re-shared to avoid confusion. The next chapter will now discuss these findings in light of existing literature.

Chapter 6: Discussion

6.1 Introduction

This chapter discusses the key findings of the spontaneous volunteers' lived experience of using social media during disasters in relation to the literature. Spontaneous volunteers often remain invisible in their support role of emergency disaster participation due to their spontaneous nature and lack of registration with volunteer-involving organisations. Much remains to be learned about the internal dynamics of these spontaneous volunteer groups. This phenomenological study revealed new knowledge about spontaneous volunteers, and in doing so highlights the important role they play.

This chapter documents the interpretation of research findings in relation to the research questions and the advancement of extant theory as contributions to literature. It is structured around the four Research Questions this thesis set out to answer.

6.2 Research Question One: How do spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases?

In response to Research Question One, the study uncovered that the disaster created a strong desire to help among the spontaneous volunteers in this study, who perceived themselves as helpers, and not volunteers. The finding that there was little awareness of the term 'volunteering' among the participants is in line with existing literature that states that spontaneous volunteers do not identify as volunteers, but express the need to support their community (Barraket et al., 2013; Whittaker et al., 2015). The general lack of awareness of the definition of volunteering could be due to cultural and societal

norms, and perhaps even the preconceptions about the concept of volunteering (which has traditionally focused on formal volunteering with registered organisations). Spontaneous volunteers in this study perceived themselves as helpers. This new finding points to the need for a more nuanced spontaneous volunteer conceptualisation that seeks to look beyond the tasks undertaken by them in the recovery setting (Dynes, 1994; Schmidt & Albert, 2022) and their management (Ludwig et al., 2017; Paciarott et al., 2018) as done in this thesis. Using the term 'helpers' to address the community in communications campaigns before, during and after a disaster would send a clearer message to those who would like to spontaneously volunteer.

There is no current study in the literature exploring how spontaneous volunteers use social media before, during, and after a disaster for recovery and response efforts. Such knowledge can provide valuable insights into community response and resilience. In line with the existing literature, the most frequently used platforms were Facebook, and Twitter (Reuter et al., 2018) while the spontaneous volunteers in this study also used closed forums, and emergency services websites. The use of these platforms for self-organising is well-established (Brown, 2022; Eriksson & Olsson, 2016; Reuter & Kaufhold, 2018). This study adds evidence for the use of social media platforms in bridging gaps in information and communication for spontaneous volunteers, responding to the call for more information in recent studies (Jayathilaka et al., 2021; Reuter et al., 2020; Sufi & Khalil, 2022).

Theme One found that spontaneous volunteers in this study used social media for self-help, and to include themselves in recovery and response efforts. Their responses show that their experiences are anchored in their community as

they used their existing networks to quickly identify community needs and respond to them while awaiting the arrival of emergency services personnel. New knowledge generated in this thesis highlights that social media platforms were first and foremost used by spontaneous volunteers in this study for self-help and collecting information before being used as a matching tool. They identified the needs of those impacted by the disaster and used social media platforms to match the needs of those volunteers who had the ability and willingness to offer assistance. Additionally, the efficacy of social media platforms for spontaneous efforts was identified across different types of disasters and different phases of disasters.

The thesis also uncovered the role of social media in enabling spontaneous volunteers in this study to learn from each other during disasters. It records the different ways social media could be used to brainstorm and collectively set goals, particularly as the circumstances change. Findings of this thesis supports recent research on the efficacy of social media platforms due to their faster information retrieval and exchange ability (Reuter et al., 2023) and also complement this body of research with how this ability assists spontaneous volunteer efforts.

Understanding how spontaneous volunteers in this study used social media uncovered some reasons why spontaneous volunteers may be the first responders, complementing existing studies (McLennan et al., 2016; Twigg & Mosel, 2017). Most volunteers in this study were already part of the community and impacted by the disaster. Their social media use allowed them to leverage their deep understanding of the challenges faced by the locals, and their proximity to the disaster area to rapidly participate in recovery and response

efforts. This finding supports existing literature that emergency response efforts are not limited to paid and traditional volunteer emergency management organisations (Twigg & Mosel, 2017; Harris et al., 2017; Sperling & Schryen, 2022).

This study's findings differ from existing literature by revealing that spontaneous volunteers, across the three disasters analysed, did not participate in key emergency response tasks such as technical rescue, fire response, or medical assistance, which are frequently documented in prior research (Kaufhold & Reuter, 2016; Majchrzak et al., 2007). Instead, these volunteers focused on peripheral or supportive roles that complemented formal emergency responses, addressing immediate community needs. This contrasts with the established literature, which emphasises volunteer involvement in more direct disaster response activities.

This addition to the literature highlights a gap in how spontaneous volunteerism is understood, suggesting that volunteer roles may be more community-centered and less integrated into formal emergency operations than previously thought. It challenges the assumption that spontaneous volunteers primarily engage in frontline disaster tasks and instead points to their essential role in supporting localised and community-specific needs during disasters.

Spontaneous volunteer efforts in this thesis were focussed on overcoming the gaps they perceived in emergency response management in relation to their community. Theme Two records that spontaneous volunteers in this study were able to retrieve and share information, communicate the needs of their

community with a wider audience, assist with cleaning, provide logistical support, collect and distribute donations, and arrange transportation and accommodation. These tasks were different to those performed by trained emergency services personnel and traditional volunteers.

An important finding relates to their information sharing behaviour. The local networks they harnessed on suggests that spontaneous volunteers can provide access to local information and resources that may assist with situational awareness. This was illustrated by Anne (local leader, Grenfell Tower fire) who shared information from the ground, clarified the situation for thousands and allowed them to see what was happening in the initial phase of the disaster. The lived experiences of spontaneous volunteers in this study also uncover their self-perception, noting that using social media platforms, they considered themselves more flexible and adaptable than the official responders. This adaptability was particularly evident in their ability to compartmentalise tasks, focusing their attention on specific support areas, such as donations or arranging accommodation during the disaster.

Spontaneous volunteers in this study were digitally savvy, their lived experiences challenge current conceptualisations of spontaneous volunteering as unorganised, impulsive, and unskilled, suggesting these views are overly simplistic. This thesis supports existing studies that highlight that such perceptions may contribute to distrust and wariness toward spontaneous volunteers, leading to their exclusion (McLennan et al., 2021; Paret et al., 2021; Sperling & Schryen, 2022).

Sections 6.2.1 and 6.2.2 discuss two unique findings about spontaneous volunteers who used social media platforms before, during, and after a disaster. These are: i) the matrix of spontaneous volunteers; and ii) the impact of the involvement exclusion paradox on spontaneous volunteers, identified in this thesis.

6.2.1 The matrix of spontaneous volunteers

The findings of this study add new knowledge to the perception in the existing literature that spontaneous volunteers are one homogenous group (AIDR, 2017; Barsky et al., 2007; Ludwig et al., 2017; Twigg & Mosel, 2017). A key finding of this study is the identification of the four different types of spontaneous volunteers: i) local leaders; ii) local helpers; iii) external leaders; and iv) external helpers. This nuanced classification contrasts with previous research that often treats spontaneous volunteers as a single, undifferentiated category.

This contribution to the literature adds depth to the understanding of spontaneous volunteerism by highlighting the diversity within the volunteer group, with varying roles and levels of influence depending on whether volunteers are local or external to the disaster-affected area and whether they take on leadership or support roles. This distinction provides a more sophisticated framework for understanding how volunteers engage during disasters and suggests that different types of volunteers may require different forms of management, training, and support. This categorisation also extends the existing understanding of spontaneous volunteers beyond their definition,

their historical, social and even economic significance (McLennan, 2020; Stallings & Quarantelli, 1985; Twigg & Mosel, 2017; Yükseler & Yazgan, 2022).

6.2.1.i Local leaders

The identification of local leaders is a unique finding of this study. Their experiences highlight the struggles of local spontaneous volunteers that use social media platforms to try to bridge information gaps and leverage their skills and the available resources to support their community. The local leaders questioned why was there a disconnect to begin with. They also asked if there was anything the local community could do to help itself, rather than wait for the local authorities to arrive. These questions led them to actively seek solutions through social media. Their experiences underscore the significance of local leaders and their use of social media platforms in disaster management in all phases of disasters.

Tia, Anne, and Al had pre-established relationships within, and an understanding of, their communities that positioned them to address and respond to specific local challenges quickly. Anne's story presented in Chapter 5 demonstrates this. Additionally, the use of social media platforms in remote areas of Western Australia supports the growing trends identified in recent literature where affected individuals turn to these platforms for information gathering and dissemination, resource mobilisation, and emotional support (Cowan, 2017; Huang et al., 2010; Raisio et al., 2022; Saroj & Pal, 2020; Stephens et al., 2020; Yearworth & White, 2018; Zhao et al., 2019).

While the thesis adds new knowledge about spontaneous volunteers classified as local leaders, it also uncovers that these individuals were impacted by the

disaster mentally (such as stress and trauma), emotionally (experiencing emotional instability and anxiety), and sometimes physically (such as burns and headaches) as well. How local leaders used social media platforms to utilise their past skills, experiences, and resources to self-organise and fulfil the most urgent needs immediately complements existing studies that identify an emerging trend about important support roles performed by spontaneous volunteers in recovery and response efforts (Boersma et al., 2018; Daddoust et al., 2021; Dulloo et al., 2020; Kvarnlöf, 2018; Simsa et al., 2018; Yearworth & White, 2018).

In addition to recording the activities performed by the local leaders, this study also uncovers the barriers they face with existing structures and how social media platforms can be used to collaborate with them, given their significant presence on it.

6.2.1.ii Local helpers

The local helpers in this study present a distinctive subset of spontaneous volunteers. These are individuals who transition from being recipients of support and aid to providers of aid in the wake of disasters. The unique lived experiences of local helpers offer insights into the dynamics of spontaneous volunteering during emergencies. They also offer a unique peek into the lives of local leaders, who provide that initial support to the local helpers, which eventually enables them to offer assistance.

The experiences of local helpers add information about the transformative journey (that some of the spontaneous volunteers undergo) to existing literature that discusses spontaneous volunteers as direct witnesses or victims

of disasters (Boersma et al., 2018; Kvarnlöf, 2018; Lodree & Davis, 2016; Nielsen, 2019; Paret, 2020; Rivera & Wood, 2016; Twigg & Mosel, 2017). This is evident from Malinda's lived experience, who transformed into a local helper after her call for help as a victim of the disaster was answered by local leaders and other spontaneous volunteers. Her lived experience supports existing literature on bouncing back and bouncing forward (Manyena et al., 2011).

In recording Malinda's lived experience, this thesis adds spontaneous volunteer perspectives to existing research on post-traumatic growth. Malinda experienced hopelessness before her call for help was answered by other spontaneous volunteers. It was the local leaders that offered her support in the first instance. Their constant dedication to communicate with her, and ensure her well-being, eventually enabled her to raise her hand, bounce back, and be in a position to assist others in her community. Post-traumatic growth has only recently been in conversations related to disaster risk reduction fields but extensively researched in psychology (Brooks et al., 2020; Riffle et al., 2020; Tedeschi & Calhoun, 2004). This is the first study that provides evidence for this body of literature with spontaneous volunteer lived experiences, highlighting the potential for individuals to experience positive psychological growth when trauma is redirected towards volunteering.

6.2.1.iii External leaders

In contrast to the previous two groups of spontaneous volunteers (local leaders and local helpers) who emerged from the disaster-affected community, external leaders in this study became aware of the disaster due to their social media use and emerged from outside the disaster location to assist those

impacted by the disaster. Although previous studies have identified the emergence of leadership from individuals and groups that are not from the disaster location (Drabek & McEntire, 2003; Kvarnlöf, 2018; Strandh & Eklund, 2018; Dynes, 2002; Stallings & Quarantelli, 1985; Whittaker et al., 2015), past literature does not distinguish between local and external spontaneous volunteers. This distinction is important for several reasons.

By understanding the different types of spontaneous volunteers involved, the skills or capabilities they bring with them, and their roles, stakeholders can more effectively manage the recovery and response process. It would help ensure that appropriate resources are allocated for all types of spontaneous volunteers effectively and efficiently. Ultimately it would save precious time and mitigate the impact of disasters on communities.

This thesis brings to light that external leaders, though physically removed, mobilise efforts and resources using social media platforms to support communities impacted by the disaster. It also uncovers the role of social media platforms in connecting external leaders with local leaders. In addition to this new knowledge, this thesis outlines the role of external leaders in amplifying the needs of the impacted community and sharing messages across various networks that might not be accessible to those local to the disaster.

While the spread of false and misinformation has been identified previously in the context of disasters (Huang & Wang, 2022; Starbird et al., 2014), this thesis identified the role of external leaders in creating this awareness as they verified information with local leaders and expressed concern about the accuracy of the information they were helping to disseminate. The

collaborative efforts between local and external spontaneous volunteers using social media platforms is another unique contribution of this thesis. Spontaneous volunteers in this study were aware of the negative aspects of social media platforms adding to existing conceptualisations of spontaneous volunteers. Harris' and Mary's use of social media illustrates this point because they were able to create awareness and leverage their networks, calling individuals to volunteer and assist while also correcting misinformation. This study also uncovers that external leaders' efforts ranged from donations to physical aid, complementing existing literature on episodic and reflexive forms of volunteering (Hustinx & Lammertyn, 2003; McLennan, 2022; Whittaker et al., 2015).

6.2.1.iv External helpers

External helpers also travelled from outside the disaster location to offer assistance to communities impacted by the disaster. Their involvement is: short-term, facilitated by volunteers on the ground, flexible, and aligns with the tenets of episodic volunteering (Hustinx & Lammertyn, 2003; Lorentzen & Hustinx, 2007; Macduff, 2005). Episodic volunteering is recognised as important in disaster-recovery efforts (Atsumi & Goltz, 2014; Carlton & Mills, 2017; Reuter & Kaufhold, 2018; Rodriguez et al., 2006; Stallings & Quarantelli, 1985). This thesis clarifies that external helpers are also the typical spontaneous volunteers that emerge at the disaster area, they are generally planned for by the official emergency management organisations, and referenced in extant literature.

This thesis adds new knowledge about external helpers that assist local and external leaders with resources that are not available locally, using social media platforms. While previous research has acknowledged the role of digital tools in rallying spontaneous volunteers during calamities (Hughes & Shah, 2016; Starbird & Palen, 2011; Vieweg et al., 2010), this study sheds light on the role of social media platforms as a connector for external helpers, enabling them to volunteer. For example, Clinton's lived experience in which he used his flood experience to assist during a bushfire illustrates that external helpers bring past skills and non-local resources to expand the existing capacities of local communities. The uniqueness of external helpers in this study, particularly the fact that they prefer to collaborate with established volunteer networks rather than starting their own groups, adds nuances to the concept of spontaneous volunteering. This finding also suggests their desire to collaborate rather than to conduct recovery and response efforts independently or in isolation.

Figures 6.1 and 6.2 show the complete picture of the matrix of spontaneous volunteers based on their responses to the four Research Questions (see also Appendix I). It serves to highlight the similarities and differences between each type of spontaneous volunteer as they shared their experiences in response to the specific research question. For example, in response to Research Question One, local and external leaders (LL and EL) were experienced and confident in their social media skills and usage, while local helpers and external helpers (LH and EH) shared that their use of social media was initiated after connecting with local or external leaders, and was guided (as well as limited) by their directions.

	RQ1	RQ2
LL	<ol style="list-style-type: none"> 1. Affected by the disaster mentally, physically and emotionally, bounce back and bounce forward 2. Experienced and confident social media users of different platforms 3. Discover new ways to bridge gaps in information and communication 4. Create situational awareness, update information regularly 5. Seek the needs of local community members 6. Increased activity during the disaster, continue with activism after 	<ol style="list-style-type: none"> 1. Own local issues 2. Experience the power and control to use local knowledge and resources 3. Select the type of tasks, the duration, and the location. 4. Monitor social media platforms, include and exclude group members 5. Form relationships 6. Support independent and collaborative decision-making 7. Assist with coping, build relationships, and give hope
LH	<ol style="list-style-type: none"> 1. Affected by the disaster mentally, physically and emotionally, take time to bounce back 2. Need support from local leaders, limited use of social media 3. Join groups created by LL to help community 4. Increased activity during disaster, majority went back to normal use after the disaster 	<ol style="list-style-type: none"> 1. Ownership of their stories 2. Ability to select tasks 3. Learn new skills to assist 4. Assist with information from the ground, correct misinformation 5. Share their experience to motivate further volunteer efforts.
EL	<ol style="list-style-type: none"> 1. Affected mentally and emotionally 2. Travel to respond to their strong desire to help 3. Experienced and confident social media users of different platforms 4. Connect with local leaders to assess the situation, respond to the needs of the community, amplify requests for help within their expanded network 5. Increased activity during the disaster, continue networking with local leaders after the disaster in different ways. 	<ol style="list-style-type: none"> 1. Power to use their networks to respond to local leaders' call for help 2. Control non-local resources and knowledge 3. Include or exclude offers for help, information 4. Amplify message and acknowledge their contributions
EH	<ol style="list-style-type: none"> 1. Affected mentally and emotionally 2. Connect with local and external leaders via social media platform to help 3. Amplifying requests within their network 4. Assist in activities during the disaster, reduce social media use after the disaster 	<ol style="list-style-type: none"> 1. Ability to offer non-local resources to local leaders and external leaders. 2. Use their network to amplify messages 3. Share their experience to motivate further volunteer efforts.

Figure 6.1 The matrix of spontaneous volunteers in relation to the research questions

	RQ3	RQ4	
LL	<ol style="list-style-type: none"> 1. Crowdfund information 2. Generate and update information from the ground 3. Use personal networks to share messages widely and influence action 4. Collective problem solving 5. Identify local resources and skills promptly 6. Create hybrid collective groups consisting of skilled and knowledgeable members and those willing to help 7. Focus on relationships based on trust 	<ol style="list-style-type: none"> 1. Clear and consistent messages 2. Two-way communication; listen to the community 3. Engage with LL and LH to understand the actual needs of the community 4. Establish relationships before disaster to understand local knowledge and resources 5. Integrate social media platforms into their communication channels 6. Support and empower local communities to complement DRR 7. Pair volunteers with skilled helpers to facilitate knowledge transfer 8. Use LL and influencers to amplify authentic information and warning 9. Monitor social media platforms 10. Social media service providers to be accountable for their platforms 	LL
LH	<ol style="list-style-type: none"> 1. Assist local leaders reach the common goals 2. Assist with crowdsourcing information and resources 3. Participate in brainstorming 4. Connect with influencers to amplify local voices 	<ol style="list-style-type: none"> 1. Listen to their voices 2. Reduce barriers to help emergency services 3. Monitor social media platforms 	LH
EL	<ol style="list-style-type: none"> 1. Use extended network to bring non-local knowledge and resources to the community 2. Create and join hybrid collective group 3. Relationships based on mutual trust and respect 	<ol style="list-style-type: none"> 1. Acknowledge EL's ability to complement DRR, build relationships 2. Collaborate to use EL extended network that is non-local 3. Use EL for amplification of information and warning to the community 4. Monitor social media platforms 	EL
EH	<ol style="list-style-type: none"> 1. Collaborate with LL and EL 2. Relationships built on mutual trust and respect 3. Offer non-local resources and skills to the hybrid collective group 	<ol style="list-style-type: none"> 1. Reduce barriers to assist emergency services 2. Use non-local experience and resources 3. Monitor social media platforms 	EH

Figure 6.2 The matrix of spontaneous volunteers in relation to the research questions

Figures 6.1 and 6.2 demonstrate that the motivations, abilities, and actions of the four types of spontaneous volunteers can vary greatly depending on individual circumstances and the specifics of the disaster context. It also identifies that local and external leaders are best suited to partner and collaborate with the official emergency management system since they have the local and external knowledge, networks and access to resources.

Some commonalities among the four groups were: experience with pre-existing networks on Facebook and Twitter, all experienced a strong desire to connect with the official emergency responders before and during the disaster. The most prominent difference, other than their location and the leadership that emerged, was that local helpers first needed to recover from their own sense of shock and grief before stepping forward to help. On the contrary, local leaders started collecting on-the-ground information almost immediately and started sharing that with their networks and the wider world, while external leaders assisted within a few hours of disaster with resources that were not local.

The matrix developed from this study sheds light on the various ways in which spontaneous volunteers could be collaborated with before, during and after a disaster to support a larger plan for disaster management. The lived experiences of the local leaders, local helpers, external leaders, and external helpers offer significant insights into online volunteering, and also highlight where the need for modification in disaster management strategies lies. The arrival time of spontaneous volunteers (when spontaneous volunteers emerge,

for how long and in what capacity) is a pressing issue for official emergency responders identified in the existing literature (McLennan et al., 2016; Paret et al., 2021; Sperling & Schryen, 2022). This thesis adds that the variation in the arrival times of spontaneous volunteers may be attributed to their location. The local leaders and helpers in this study formed the first wave of responders due to their proximity to the disaster area, while external leaders and helpers arrived later.

The type of activities spontaneous volunteers in this study engaged in using social media platforms, reflects their self-perception as either a leader or a helper. Learning that the decision of a spontaneous volunteer in this study to take on the role of a leader or a helper was influenced by their personal situation, experiences, skills, and perceptions, despite all having a strong desire to help, indicates yet another reason for the variation in their arrival times.

In uncovering these intricate nuances of spontaneous volunteerism, this thesis responds to the growing scholarly demand for a deeper understanding of the phenomenon of spontaneous volunteering. It shows how social media facilitated spontaneous volunteers in this study to collaborate, supporting McLennan et al. (2021) call for the need for co-production as they explore the local knowledge and situational awareness that spontaneous volunteers bring to disaster scenarios. This study also supports Yang (2021) that it is important to align spontaneous volunteers' motivations (their psychological and social drivers) with formal emergency response efforts to enhance the overall effectiveness of emergency management.

Spontaneous volunteer use of social media platforms also highlights their liking for flexible strategies, which aligns with Neilson (2019) study that offers insights from Denmark into best practices for the incorporation of spontaneous volunteers into emergency response teams. This thesis contributes to the formation of a solid foundation for developing strategies that accommodate the dynamic nature of spontaneous volunteers.

The various ways spontaneous volunteers in this study participated in recovery and response efforts using social media platforms supports that spontaneous volunteers are no longer 'peripheral' (Strandh & Eklund, 2018), rather, before and during some disasters, the local community can often count on them to offer valuable information and assistance in the first instance. While existing literature suggests that the environment of spontaneous volunteering in social crises differs from that in natural disaster situations (Simsa et al., 2019), the accounts of the spontaneous volunteers from this study suggest that social media platforms enabled them to be highly self-organised, similar to spontaneous volunteers in social crisis. In two of the disasters, spontaneous volunteer efforts partly substituted the official emergency response systems.

Based on the data, the thesis presents a more nuanced definition of spontaneous volunteers compared to what exists in extant literature (see Table 2.1). The definition highlights that the assistance offered by spontaneous volunteers can be before, during, and after an emergency thus extending beyond the immediate situation (Cross, 2010). The lived experiences of spontaneous volunteers in this study uncover that although spontaneous volunteers are not affiliated with an organisation, they do seek their guidance to perform tasks. This is important to note because if this guidance is absent,

or delayed, then spontaneous volunteers would respond to their strong desire to help by operating without the knowledge or direction of official responders as recorded by Cone et al. (2003).

Another important aspect of this definition is identifying that spontaneous volunteers are not always unskilled and inexperienced (Drabek & McEntire, 2003). Spontaneous volunteers who used social media platforms to participate in recovery and response efforts in this study perceived that their skills, resources, and experiences would benefit their community and were able to use their experiences to speed up response efforts. The definition offered in this study does not seek to replace existing definitions that suggest altruism, community spirit, personal affectation by the disaster, and a desire to contribute to relief efforts are strong motivators for spontaneous volunteers (noted in Table 2.1), rather, it aims to complement them with what spontaneous volunteers in this study said about themselves.

This definition also includes the four kinds of spontaneous volunteers identified in this thesis creating an awareness that through proper planning and communication, the skills and resources brought by all types of spontaneous volunteers may be used by the formal emergency response efficiently. Spontaneous volunteers who used social media to participate in recovery and response efforts are defined in this thesis as:

Individuals or groups of people who have a strong desire to help.

They seek to contribute their assistance before, during, and/or after an emergency. They are not affiliated with a volunteer involving organisation or the formal emergency responders, but

seek their guidance to perform tasks. They perceive the immediacy of the situation and believe that their skills, resources, and experiences can help their community recover faster from the disaster. Based on their location and the type of activity they perform, spontaneous volunteers can be categorised into four types: local leaders, local helpers, external leaders, and external helpers. In the digital space, spontaneous volunteers can be social media influencers, or followers.

This definition expands the role of spontaneous volunteers to the digital space. Spontaneous volunteers who were social media influencers had an established credibility online before the disaster, and a large number of followers who engaged with their posts regularly. In comparison, spontaneous volunteers who were social media followers had limited engagement with the posts during the disaster, and most commonly responded to the directions provided in the posts. Chapter 4 of this thesis records that among the spontaneous volunteers in this study, five were found to be social media influencers, while the remaining 13 were followers.

In summary, the matrix adds depth and breadth to the dominant conceptualisation of spontaneous volunteers that takes a top-down approach. It contradicts concerns that all spontaneous volunteers 'lack skills', 'break rules', and 'show up without request' (Daddoust et al., 2021; Twigg & Mosel, 2017). The spontaneous volunteers in this study came together organically through social media to respond to the immediate needs of their community, therefore, most directly corresponds to the fourth category identified by Dynes (1970). This thesis extends and complements Dynes' (1970) four types of

emergent groups, based on their characteristics: i) established, ii) expanding, iii) extending, and iv) emergent) (noted in section 2.2 in Chapter 2). Dynes (1970) explained that established and expanding groups might have more straightforward interactions with formal agencies due to their pre-existing structures or expanded roles. In contrast, extending and especially emergent groups may encounter more challenges in coordinating with official responders.

While Dynes' typology explains that spontaneous volunteers can operate within or alongside different types of emergent groups, each with its unique relationship to official emergency response efforts, the four categories of spontaneous volunteers presented in this thesis unpacks the different types of spontaneous volunteers at an individual level. This knowledge is important when planning engagement with spontaneous volunteers.

The matrix also highlights the different ways the spontaneous volunteer roles in this study were different from traditional volunteers in existing literature (Francis & Jones, 2012). While preparation and training are initiated long before the disaster for traditional volunteers, spontaneous volunteers often begin their efforts in the initial phase, once they are alerted of a disaster (in case of bushfires or floods) or once the disaster happens (for example, during structural fires or earthquakes). Social media platforms facilitated their efforts in all phases of disaster. Lastly, the matrix highlights that the four types of spontaneous volunteers that may emerge at different phases of the disaster may require different orientations or training during engagement.

6.2.2 The impact of the involvement/exclusion paradox

Subtheme Three of Theme Two recorded that in the initial phase of the disaster, the spontaneous volunteers in this study experienced exclusion. This was primarily due to the structure of emergency management, which is in line with existing literature that suggests that spontaneous volunteers are limited in their capacity to participate in official emergency management activities (AIDR, 2017). New knowledge from this study relates to how social media allowed the spontaneous volunteers in this study to navigate many aspects of exclusion by using social media platforms to involve themselves in recovery and response efforts.

While scholars have identified how the involvement/exclusion paradox is experienced from the view of the official responders (Harris et al., 2017; McLennan et al., 2021; Nielsen, 2019), this thesis augments this body of literature with the lived experiences of spontaneous volunteers in this study. All four types of spontaneous volunteers in this study connected their experience of exclusion to the bureaucratic command and control model, which is typically how emergency management operates (Carlton & Mills, 2017; Kaleem et al., 2015; McLennan et al., 2017).

This thesis records spontaneous volunteer voices about the perceived 'divide' that was experienced in many ways and impacted how they behaved. This perception is absent in existing literature. The thesis adds a new dimension by capturing spontaneous volunteers' perceptions. It reveals that volunteers felt a clear sense of exclusion, primarily due to their lack of a uniform and official affiliation with organisations. This exclusion resulted in limited access to critical information, communication channels, and task assignments, impacting their ability to fully engage in the response efforts.

By highlighting this perceived divide, the study provides insight into the social and structural barriers that spontaneous volunteers face, adding a layer of complexity to how their roles are understood. It suggests a need for strategies to recognise and integrate these volunteers into established emergency frameworks to improve their effectiveness and experience.

A common perception was that the official emergency responders did not want to engage with the spontaneous volunteers, which seems to be in line with spontaneous volunteers being considered a disaster within a disaster (Sharon, 2004). However, existing research also suggests that spontaneous volunteers are valuable resources (McLennan et al., 2016; Nielsen, 2019; Paret et al., 2021; Schmidt & Albert, 2022; Sperling & Schryen, 2022), unfortunately, the spontaneous volunteers in this study did not experience being valued, which points to the need for acknowledgement, use of clear verbal and non-verbal communication, and managing spontaneous volunteer expectations.

The lived experiences of the spontaneous volunteers in this study shine light on how the involvement/exclusion paradox impacts them, presenting bottom-up perspectives of this paradox that originally assumed a top-down approach. It may be that spontaneous volunteers use social media to circumvent the involvement/exclusion paradox to participate in recovery and response efforts. The spontaneous volunteers in this study shared that their offers for help were not accepted, and that they were not offered an alternative way to help those in need, which supports existing studies (Auferbauer et al., 2019; Harris et al., 2017; Paret et al., 2021; Sperling & Schryen, 2022). This thesis adds a crucial new perspective to the literature by documenting the negative impact on spontaneous volunteers when they felt excluded or isolated due to the

absence of strategies to engage them. While existing research often focuses on the issues due to the convergence, and the positive contributions of spontaneous volunteers, this study highlights how the lack of structured engagement strategies can lead to feelings of frustration, exclusion, and even isolation among volunteers.

This finding broadens the current understanding of spontaneous volunteerism by emphasising the importance of proper volunteer management and integration into disaster response frameworks. It suggests that failing to engage these volunteers effectively can undermine their potential contributions and negatively affect their morale, adding an important consideration for policymakers and disaster management practitioners in future disaster response planning.

This thesis contributes to the existing literature by detailing the various ways in which spontaneous volunteers experienced exclusion, including when there was a lack of both information and two-way communication from the official responders. Exclusion was experienced when there was lack of clear and consistent messaging, delayed responses or a total lack of replies to their queries about the current situation. It was also experienced when there was no information about actions being taken, and when there was absence of clear direction or lists of tasks outlined for the community to perform. How spontaneous volunteers used social media to bridge these perceived gaps supports existing research (Ogie et al., 2022). This study reveals new knowledge that these gaps also fostered a perception among the spontaneous volunteers in this study that the official responders were un-informed and unaware of the current situation, thereby lacking control over it. This was an

interesting revelation since information and communication is often controlled by local authorities and official responders, who may choose to exclude spontaneous volunteers in the first place.

This study also unveiled a novel phenomenon: the use of social media by spontaneous volunteers to exclude information and other group members. This exploration of power dynamics on social media, as experienced by spontaneous volunteers in this study, represents a significant discovery that ties into the concept of the involvement/exclusion paradox. It reveals a new type of involvement/exclusion paradox, as experienced by the spontaneous volunteers in this study, which poses certain challenges for them. It is a form of tension or stress experienced by them when they are faced with content or group members that do not adhere to the group norms and expectations.

Smith et al. (2021) highlights the importance of critically examining the inclusivity of neighbourhood-based social networks to understand its role in perpetuating community divides, and identifying if some members are excluded from receiving vital information (Smith et al., 2021). Social media use of spontaneous volunteers in this study suggests that both are possible. The duality of social media platforms means that while they facilitate inclusion of all voices, they can also be used to exclude voices that were not in line with the group ethos. This paradoxical nature of social media, experienced by spontaneous volunteers in this study, offer interesting perspectives on autonomy, agency and power (discussed in section 6.3.1) traditionally viewed in hierarchical terms.

While social media represents a shift from traditional, hierarchical structures of communication by facilitating agency for all voices, this thesis reveals that this shift is not without implications for group dynamics, social identity, and collective action. Supporting existing research (Reuter & Kaufhold, 2018; Ogie et al., 2022) social media gave spontaneous volunteers in this study the power to self-select tasks, include themselves in conversations and identify their roles to help their communities. However, new knowledge unveiled in this study shows that group administrators also use social media to exclude voices that do not adhere to group ethos, effectively taking away the agency from other group members to share information and communicate with other group members. This new knowledge offers a unique lens through which to examine the complex interplay of autonomy, agency, and powers in the context of online communities, particularly that of spontaneous volunteers that use social media during disasters.

Spontaneous volunteers faced with these tensions stated that they experienced a new found understanding of why emergency responders excluded spontaneous volunteers in many instances. This new understanding that emerged due to the tensions experienced by the spontaneous volunteers is not found in existing literature. It adds new insight to the literature by uncovering a shift in perception, where volunteers recognise the logistical and operational difficulties responders face, offering a more nuanced view of volunteer exclusion and emergency management during disasters. It also opens up discussions on how mutual understanding between responders and volunteers can improve future disaster response strategies.

In summary, the thesis extends knowledge on the involvement/exclusion paradox (Harris et al., 2017) in three ways. First, by the application of this theory to spontaneous volunteers that used social media to participate in recovery and response efforts. Second, by unpacking the role of spontaneous volunteer leaders that were excluded from official emergency response, but used social media platforms to match the skills, knowledge, experience, or resources required to complete tasks. Third, by uncovering how social media platforms that have the capacity for inclusion, may also be used for exclusion to maintain the credibility and authenticity of the group.

The way spontaneous volunteers used social media platforms, and the new, more nuanced understanding of the reasons for their social media use, and the power it gives both to include and exclude, adds to the broader study of power dynamics in online spaces. This thesis shows that social media platforms have the capacity to constraint human agency for volunteer group members when volunteer group administrators use their power for administrative control in a similar way to online work settings (Curchod et al., 2020).

How spontaneous volunteers exclude other volunteers shows that social phenomena is a product of both structure and agency as outlined by Giddens (1984a). Official responders experience the involvement/exclusion paradox (Harris et al., 2017) due to the hierarchical command and control structure of emergency management that is at odds with the unstructured and uncertain arrival of spontaneous volunteers. The perception among the spontaneous volunteers that there seems to be a lack of trust for their abilities and skills is in line with existing literature (Twigg & Mosel, 2017). While the structure of

social media allowed spontaneous volunteers to navigate through the paradox, the openness of the structure created new tensions in the virtual world. Not all spontaneous volunteers experience trust-based relationships, share a common vision, or feel they are compatible with each other. Those who do not follow the norms of the group are then excluded.

The following section discusses the findings of Research Question Two, how social media platforms facilitate spontaneous volunteers' agency.

6.3 Research Question Two: How does social media impact spontaneous volunteers' agency?

Chapter 5 outlines the role of social media in facilitating autonomous relief and recovery activities, allowing spontaneous volunteers to plan, manage, and respond to their community's needs. In line with existing literature, this thesis found that Facebook and Twitter, played an important role in facilitating agency for spontaneous volunteers in this study. These two platforms made them more efficient, hence more effective, as they facilitated novel ways of volunteering, demonstrating how emergent, reflexive, and non-traditional forms of volunteerism are evolving in the digital age. New knowledge relates to how social media platforms assisted spontaneous volunteers in this study to address anxiety, disconnect, and frustration when the disaster occurred. Theme one for this research question found that social media facilitated spontaneous volunteers' sense of autonomy, it gave them a sense of ownership, control, power, and freedom.

Spontaneous volunteers in this study craved autonomy and independence and did not like being subjected to bureaucratic constraints supporting existing

studies that find autonomy to be a key factor in motivating and engaging volunteers (Gagné, 2003; Musick, 2008). New knowledge relates to their view of hierarchical command and control systems as time consuming and ineffective (e.g., training and registering). Personal autonomy was experienced when spontaneous volunteers had the ability to set goals, make decisions independently, and select the method to achieve those goals. These findings are in line with existing literature (Dworkin, 1988).

This thesis adds new knowledge on how social media facilitated spontaneous volunteers in this study to develop autonomy in three ways: promoting a sense of ownership, enabling control and power, and giving them freedom. This thesis uncovers a relationship between spontaneous volunteer agency and structure they operate in, suggesting they were not separate entities, instead they were intertwined, supporting Giddens (1984a) duality of structure. This is because spontaneous volunteer actions were informed and shaped by the structure of social media platforms.

Social media platforms also facilitated agency by enabling spontaneous volunteers in this study to make decisions. This ability was important and created a perception of empowerment, supporting Bandura's (2018) suggestion that agency is always exercised towards something afforded by the structures surrounding persons, places, and events. Spontaneous volunteer in this study demonstrated that a sense of power and agency motivated them to continue their engagement in volunteering activities, which is also in line with existing studies (Haivas et al., 2012; Hsu et al., 2013). While existing studies present the view point of traditional volunteers, this thesis complements this

body of research with perspectives from spontaneous volunteers, providing a holistic view.

The spontaneous volunteers in this study perceived that their actions brought back order, which bolstered their sense of security. Theme two for Research Question Two shows that social media platforms facilitated spontaneous volunteer resilience, something lacking in existing literature. Spontaneous volunteers were able to build trust in their own abilities and relationships. Being local, they perceived an understanding of the social, cultural, health, and economic issues faced by their community during disasters with which they could assist. The following sections discuss the themes in response to Research Question Two.

6.3.1 Autonomy

Following Bandura (2018) and Emirbayer & Mische (1988), the experiences of spontaneous volunteers in this study regarding agency relate to their sense of freedom, and perceived control over their capacity to perform activities and to complete those tasks. The subsequent sections will discuss the three ways in which social media facilitated autonomy: by promoting a sense of ownership, enabling control and power, and granting freedom

6.3.1.i Ownership

In line with existing research, this study found that social media facilitated a strong sense of ownership among spontaneous volunteers in this study, thereby increasing their commitment and dedication to helping their community (Waldman et al., 2018). This thesis discovered that the sense of ownership was especially pronounced among local leaders and helpers and significantly

bolstered their engagement with community issues. Furthermore, the thesis contributes new insights into how social media empowered these volunteers to take ownership of local issues, control the narrative by sharing their stories, and publicising the tasks they performed.

Social media empowered volunteers to take immediate action using the skills they possessed. While the findings echo previous studies (McLennan et al., 2016; Whittaker et al., 2015), this study offers additional insights into why many spontaneous volunteers often become the first responders. It appears that their proximity to the disaster location, coupled with a strong sense of ownership over their community, plays a crucial role in prompting them to be among the first to respond.

This thesis establishes the critical link between the identity of spontaneous volunteers, their sense of place, and a sense of ownership that drives solidarity and a compelling desire to assist in disaster response efforts, thereby supporting the findings of previous research (Cretney, 2018; Aguirre & Bolton, 2013; Bergami & Bagozzi, 2000). Additionally, it contributes new insights into the literature by identifying challenges that accompany this sense of ownership, including burnout among spontaneous volunteers

6.3.1.ii Control and power

The need to be in control, or regain control, after a disaster is well documented phenomenon in disaster and psychology fields (Brooks et al., 2015; Hugelius et al., 2016). The subtheme control and power reinforce this, but with spontaneous volunteer perspectives. It highlights how social media platforms facilitated spontaneous volunteers in this study to autonomously manage

information dissemination and coordination efforts. While these findings support existing study that highlight the increasing and crucial role played by social media platforms during emergencies (Reuter et al., 2023) they also add how social media platforms empowered spontaneous volunteers of this study to correct misinformation, disseminate local information and coordinate recovery efforts. These findings add to the role of spontaneous volunteers. This study also revealed a contrast between the volunteers' perceived internal control, enhanced by their social media use, and the limitations set by external authorities. Furthermore, the thesis found that control resulted in positive experiences for the spontaneous volunteers, motivating them to repeat volunteering, which is in line with literature that suggests positive experiences are directly related to repeated actions (Handy et al., 2010; Musick, 2008; O'Brien et al., 2010; Rehberg, 2005; Wilson, 2012).

This study offers insights by exploring spontaneous volunteer perspectives on power. New knowledge generated relates to the power spontaneous volunteers in this study derived from their online engagement. Firstly, the platform itself was considered as a powerful tool, supporting existing studies that state that social media are powerful platforms that facilitate power and control (Blum et al., 2014; Lappas et al., 2022). Second, having the ability to circulate messages widely was identified as one way social media platforms have taken away some power from local authorities and official responders.

Power in the hands of spontaneous volunteers also relates to their use of social media influencers to amplify messages. These spontaneous volunteers used their existing networks to share tasks and needs identified by the group members widely, working behind the scenes to ensure information collated

from the ground reached a wider audience. These findings uncover how spontaneous volunteerism is taking shape in the social media era.

This thesis also uncovered that the spontaneous volunteers in this study perceived the registration process for spontaneous volunteers as an attempt by the emergency services to maintain power and control. This is in line with McLennan et al. (2021) who record that power is largely bestowed to the authorities and emergency response organisations. The findings of this thesis highlight a societal shift away from centralised control and reliance on official emergency response services. Recent disasters researchers support this trend, and cite various examples where search and rescue efforts following disasters were primarily conducted by other 'victims' in the areas until emergency personnel arrived (Hazarika et al., 2021; Morse, 2018). Interestingly, the spontaneous volunteers in this study shared that even the emergency personnel often used this locally generated knowledge. Existing research supports this finding, for example to locate the remaining victims (Aguirre et al., 2016; Aguirre et al., 1995).

The sense of being in control is consistent with Giddens (1984b) structuration theory that states that structures enable agency and actions, and these actions in turn determine the structures (Giddens, 1984b). New knowledge relates to how social media presented as a platform where spontaneous volunteers to used their past experiences and knowledge to shape their actions. It facilitated them to connect, request and offer help, and update tasks easily. Furthermore, this thesis uncovered the various groups created by spontaneous volunteers that allowed them to maintain control over their stories. Literature on stories of communities from the disaster zone is scant (Mutch, 2013). Almost all

spontaneous volunteers from this study felt that local residents who were already located within the disaster zone, and have first-hand access to local stories, should have control over these stories.

This thesis also adds new knowledge about spontaneous volunteers' experience of disempowerment, particularly when their stories were shared through different lenses used by traditional media. Literature is largely silent about lived experiences of spontaneous volunteers. In comparison to traditional media, social media were perceived as platforms that gave them the ability to share what was happening in front of their eyes, their real stories, with the world. In essence, they felt empowered to be the content creators, representing what they perceived actually happened on the ground with the wider world, taking back the control from outsiders.

Spontaneous volunteer comments show that sharing their stories through their lens was a powerful experience for them. They could adopt new roles when using social media, such as information brokers, that is consistent with existing research (Huang & Wang, 2022; Kaufhold et al., 2020; Reuter et al., 2018; Reuter & Kaufhold, 2018; Saroj & Pal, 2020; Zhao et al., 2019). The study complements existing knowledge by uncovering how social media allowed spontaneous volunteers in this study to rally their networks to participate in grass-roots level, self-organised recovery and response efforts.

Spontaneous, self-organised efforts have been recorded in the past by Nissen et al., (2021) and Simsa et al., (2019). By investigating spontaneous volunteer perspectives, the study adds how fluid structures such as social media platforms support self-organisation. The findings support existing studies that

record benefits of fluid structures, including agency, and plenty of resources for support, care and coordination (Albahari & Schultz, 2017; Bennett, 2014; Cowan, 2017; Paciarotti et al., 2018). The following section will discuss the freedom experienced by spontaneous volunteers using social media platforms.

6.3.1.iii Freedom

The freedom experienced by spontaneous volunteers in this study encapsulates many aspects, including flexibility to quickly adapt to changing circumstances. Tia's example (image 5.12) in relation to the freedom she experienced to express her views and influence others in her network adds another dimension about political agency and freedom. Four spontaneous volunteers who were classified as local leaders in this study, used social media for political activism and freedom of expression, signifying a growing awareness that a platform exists that can keep these conversations alive, attract immense media attention, and hold authorities accountable. This finding supports the existing literature on the political power of social media and its increasing use by citizens (Alexander, 2019; Gainous & Wagner, 2013; Ginanjar & Mubarrok, 2020; Rebellion, 2019; Seib, 2012; Shirky, 2011).

Spontaneous volunteer experiences of ownership, control, power and freedom contributes to a broader understanding of how social media facilitates autonomy and agency. Spontaneous volunteer lived experiences uncover that autonomy manifests in different ways, for example, self-directed action that was facilitated by social media platforms and the freedom to select the tasks to perform, and when to perform them. Mary's lived experiences where she created campaigns and worked autonomously showed her preference for such

a work climate. The flexibility itself, offered by social media, is a form of freedom, where spontaneous volunteers could adapt to the changing needs of the community. The findings are in with existing study that autonomous work climate motivates volunteer work (Haivas et al., 2012) but add spontaneous volunteers' perspectives.

6.3.2 Facilitating resilience

In contrast to the divide experienced when the disaster happened, spontaneous volunteers experienced a human connection and bonded together when they used Facebook. Human connection is important in disaster response (Dynes, 2002). Spontaneous volunteer lived experiences support existing research that human connection promotes community resilience and sustainable disaster management (Aldrich, 2012; Aldrich & Meyer, 2015; Sadri et al., 2018). The findings also support the role of social media in perceived community resilience (Zhang & Sung, 2023).

This thesis highlights the role of pre-existing relationships on social media platforms in successful self-organised efforts by spontaneous volunteers in this study. These relationships were used to identify needs of the community, the impact of the disaster and to create organic and bottom-up spontaneous efforts to help the community recover and move forward supporting Manyena et al. (2011) study on bouncing forward after a difficulty.

While post-disaster recovery involves saving lives and rebuilding the physical infrastructure, this study shows that it also requires empathy and support to rebuild long after the emergency services have left, supporting existing study (Albahari & Schultz, 2017). This four types of spontaneous volunteers

identified in this thesis show that recovery may involve a diverse pool of actors. Even though a group might be created for the residents of a specific geographical region (e.g., Rebuild Yarloop), people outside of that region join in those groups and contribute to the conversations.

It may be concluded that social media platforms aided resilience for spontaneous volunteers in two ways: helping them cope, and enabling them to experience hope, both are important for a community to bounce back after a disaster. Coping is an existential process of adaptation to a new reality (Pearlin & Schooler, 1978; Skinner & Zimmer-Gembeck, 2007). For the spontaneous volunteers in this study, the new reality was the disaster-induced stress, anxiety and isolation. Social media's interactive environment made them feel less isolated and more connected. The sentiment of being 'not alone' is in line with existing research that identifies it as an essential component of coping (Pearlin & Schooler, 1978; Skinner & Zimmer-Gembeck, 2007).

Spontaneous volunteers in this study used social media for both problem-solving focused coping, and emotion-focused coping, identified in a recent study (Demirtepe-Saygili, 2020). The findings of this thesis offer support for both types of coping from spontaneous volunteer perspectives by uncovering how they used social media for problem-focused coping (where they carried out discussions to solve local problems), and emotional support-focused coping (sharing small victories and their lived experiences).

Using technology to find emotional support is not novel (Park et al., 2016), however, little is known about the role of technology and coping in disaster recovery. This study describes how spontaneous volunteers used social media

for coping but also presents a caveat, that coping may come at the cost of burnout for some volunteers. These negative effects of burnout have been reported in literature (Nichols et al., 2014; Tierney, 2003). The findings of this study extend existing research from other fields on burnout (Andalibi & Garcia, 2021; Ansley et al., 2021; Meder, 2021; Van Ingen et al., 2016), by highlighting that spontaneous volunteers that experience burnout disconnect from volunteering activities. This study points to the urgent need to address the negative effects of burnout on spontaneous volunteers that is not found in extant literature, such as self-exclusion, that may diminish community resilience and impact sustainable disaster management without support.

During all three disasters, sense-making by the volunteers involved intense social media activity searching for information, sharing information, responding to help and performing tasks. Making sense through connecting and having conversations with the community takes place through conversational and social practices (Brown et al., 2021). The thesis found evidence of the different components such as empathic communication and positive engagement among the spontaneous volunteers for building resilience identified previously by Dufty (2012) and Othman and Nasuridin (2011).

New knowledge relates to the notable differences between the different types of spontaneous volunteers when it comes to empathic communication. Local and external leaders conducted both empathetic communication and positive engagement to foster community resilience and unity. They shared a sense of hope with the group members and the community on the ground. External leaders ensured that the community felt supported and stayed focused on rebuilding with a clear future orientation. As such these findings support Arslan

et al., (2021) who found that spontaneous volunteering during COVID-19 using social media promoted a sense of belonging. The thesis also reinforces that a sense of belonging is vital for volunteer wellbeing supporting existing literature (Hustinx & Handy, 2009; Levy et al., 2012; Thoits & Hewitt, 2001).

To summarise, in response to Research Question Two, the thesis found that social media allowed the spontaneous volunteers in this study to engage in a communal 'being'. It gave them the agency to transform their individual existence into a collective one. For David (local leader) social media was a tool for connection, not just communication. It was a tool to inspire and foster hope. His lived experiences support existing research that hope and resilience are positively related to work engagement and also volunteer engagement (Othman & Nasurdin, 2011).

In line with Heidegger's (1927) concept of being-in-the-world, spontaneous volunteer accounts demonstrate that they are influenced by their world. For instance, the accounts of the external leaders and helpers in this study suggest that the media coverage impacted them, and was an important contributing factor in their decision to help, supporting existing study (Albahari & Schultz, 2017). Social media enabled these volunteers to participate in recovery and response efforts, influencing their world in return, demonstrating duality of structure (Giddens, 1984b).

6.4 Research Question Three: What are the ways in which social media enable spontaneous volunteers to co-create knowledge to leverage offers of help, resources, and skills?

In response to Research Question Three, this thesis found that social media is instrumental to spontaneous volunteers for co-creation of knowledge and cooperative action in three ways: crowdsourcing, utilising resources, and the formation of hybrid collective groups. Drawing from Ostrom (1996), Polk (2015), and Norström et al. (2020), this study underscores that such co-creation is tailored to specific disaster contexts and local community challenges. The three subthemes show how social media allows spontaneous volunteers to collaborate, learn, and frequently engage with each other. Through identifying the role of influencers and hybrid collective groups, the thesis demonstrates the intertwining of both individual spontaneous volunteers and collective experiences within a shared 'lifeworld' of spontaneous volunteers. Knowledge co-production is a key theme in this thesis where individual experiences and expert knowledge were combined into a collective comprehension of reality. The following section discusses the first subtheme crowdsourcing.

6.4.1 Crowdsourcing

Social media platforms served as a space to crowdsource information as spontaneous volunteers captured, disseminated, and exchanged knowledge and information at a time when information was lacking (see 5.2.2 in Chapter 5). This shared space on social media symbolises a collective 'lifeworld' (Heidegger & Macquarrie, 1962), where experiences and understandings are shared and collective sense-making occurs. The thesis records examples of

crowdsourcing information and knowledge where spontaneous volunteers logged onto social media platforms to post questions while others provided answers. Spontaneous volunteers in this study were able to obtain information, ideas, or content by soliciting contributions from an online community, which was sometimes quite a large group of people. For instance, during the 2017 Yarloop bushfires, the Facebook page reached 140,000 people at the height of the recovery.

Knowledge co-production and communication among the spontaneous volunteers in this study does not neatly fit into the existing roles of spontaneous volunteers found in the literature. While some aspects of their engagement such as obtaining and sharing content resemble 'retweeters' (Reuter et al., 2013) and 'information brokers' (Hughes & Palen, 2009), the actions of spontaneous volunteers in this study were more dynamic as they pulled information from multiple sources and shared them with their groups, and through various channels. The thesis builds on prior research on digital volunteers (Reuter et al., 2018) but provides a more refined understanding of how spontaneous volunteers were able to leverage the collective knowledge, expertise, and skills of a diverse group of people to solve problems, gather information, and achieve specific tasks.

Therefore, this thesis responds to the call to understand digital volunteerism during emergencies (McLennan et al., 2016; Pyle & Boatwright, 2018), and adds new knowledge about how social media platforms allow both local and external volunteers to converge, establishing a shared experience and understanding of the disaster context, creating a unified 'being-in-the-world' (Heidegger & Macquarrie, 1962).

Crowdsourcing is a recognised practice in the fields of Disaster Risk Reduction (Anson et al., 2017; Shaw et al., 2021), Computer Supported Cooperative Work (Liu, 2014; Sarcevic et al., 2012), and Computer and Human Interaction (Milner & Verity, 2013; Tapia et al., 2013). This thesis adds to existing knowledge that crowdsourcing also emerged as a vital tool for spontaneous volunteering. The social media activity of spontaneous volunteers corroborates that the lessons derived from crowdsourcing can expedite recovery processes, a notion supported by Sadri et al. (2018). The stories of these spontaneous volunteers illuminate their potential to transform urban and rural neighbourhoods into a cohesive community that plays a key role in steering disaster recovery efforts, a finding that supports prior research (Chen et al., 2006; Olivia et al., 2010; Wakuma Abaya et al., 2009).

6.4.2 Utilising influencers

This study adds new knowledge about social media influencers, both to existing literature on spontaneous volunteers, and that of social media use during disaster, by highlighting the critical role of spontaneous volunteers that are social media influencers before, during and after a disaster. This thesis adds new knowledge about spontaneous volunteers who are 'influencers', those with an established online presence and credibility and who create and manage information, and spontaneous volunteers who are 'non-influencers', who mainly disseminate information, thus differentiating between the two.

This thesis also highlights that that spontaneous volunteers that are social media influencers have a unique ability to co-produce knowledge, stimulate community connectivity, prompt actions, and mitigate feelings of helplessness among both spontaneous volunteers and other members of their groups. The

findings support existing research on the role of social media in social crisis (Castillo, 2016; Jurgens & Helsloot, 2018; Kaewkitipong et al., 2016; Simsa et al., 2018) by providing evidence that can play a significant role in shifting users from passive observers to proactive contributors. Social media influencers in this study like Mary (external leader) and Tia (local leader) wielded their online influence to lead response efforts, while non-influencers like Malinda (local helper) were able to engage social media influencers to share their locally generated information widely, primarily acting as information sharer. This dichotomy adds depth to our understanding of different ways spontaneous volunteer leaders and helpers share authentic information with a wider audience, depending on their networks and online following. In uncovering these differences, the thesis offers new ways to understand the impact of social media on disaster volunteerism (Demiroz & Akbas, 2022).

Earlier research, especially studies focused on Twitter, indicate that information disseminated by independent individuals (not linked to any organisation) often received more traction than official channels (Abedin & Babar, 2018; Kongthon et al., 2014). This study further endorses this observation, noting the predominant use of platforms like Facebook and Twitter by spontaneous volunteers. However, it must be noted that the majority of the spontaneous volunteers in this study were information disseminators, rather than creators. They followed local and external leaders who were social media influencers supporting an existing study, which found different message styles for influencers and followers (Zhao et al., 2019).

The spontaneous volunteers also cautioned against amplification of inaccurate information that could be shared just as quickly, especially during the early

stages of a disaster when clear data might be scant. This finding is not in line with existing literature. While prior studies (Huang & Wang, 2022; Kaewkitipong et al., 2016; Luna & Pennock, 2018) have documented the challenges of misinformation and conflicting data during disasters, this thesis reveals a new dimension: spontaneous volunteers' awareness of the issue and their proactive efforts to mitigate it. Unlike the broader focus on misinformation as an uncontrollable by-product of social media use, this study highlights that volunteers themselves recognised the risks of amplifying inaccurate information, especially during the early stages of a disaster.

This adds to the literature that spontaneous volunteers of this study were not passive participants in the spread of information, rather, they acted as gatekeepers, consciously ensuring that only authentic and verifiable information was shared within their networks. This finding suggests that spontaneous volunteers can play a more active and responsible role in maintaining information integrity during crises, providing new insights for strategies in managing online volunteer networks and crisis communication.

6.4.3 Formation of a hybrid spontaneous volunteer collective group

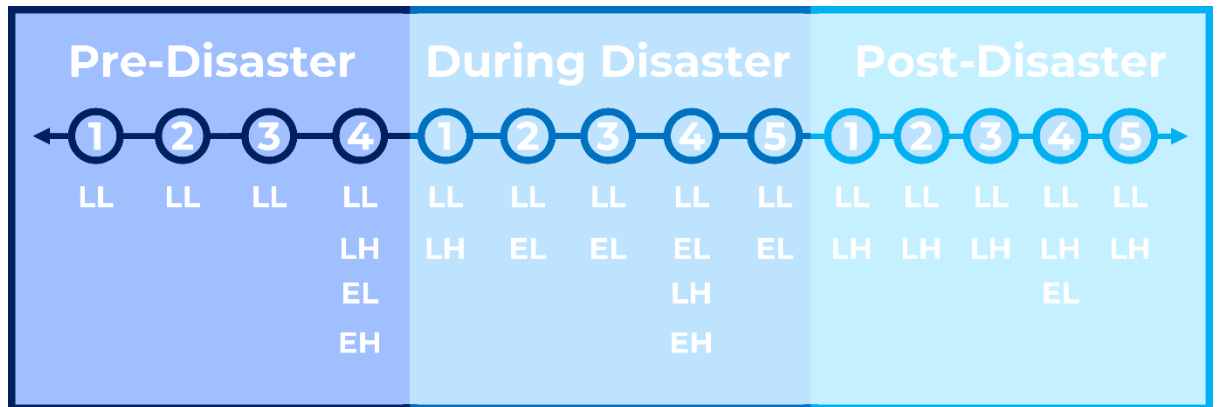
This subtheme is a novel finding of this study. Spontaneous volunteers formed groups of individuals with similar goals and varying degrees of skills and expertise to cooperatively solve community issues. The hybrid spontaneous volunteer collective group was different from the hybrid group discussed in a recent study (Demiroz & Akbas, 2022). In contrast to the hybrid group discussed by Demiroz and Akbas (2022), the hybrid spontaneous volunteer group did not carry out specific functions for a specific community, such as information communication or animal care, rather, these groups addressed

multiple needs of the community as they emerged by involving both professionals and lay people to work together.

Using the lens of the Co-production of Knowledge model (Callon, 1999), these groups identified in this thesis are more closely aligned with a 'hybrid learned collective' group (Callon, 1999). A hybrid learned collective group (see section 2.9.2 of Chapter 2) comprises of groups of individuals with diverse backgrounds, skills, and perspectives. Such groups aim to create new ways of doing things. The thesis adds another dimension to existing knowledge by connecting such collective groups to the concept of human agency. The existence of these groups in spontaneous volunteer world implies that these volunteers' needs, demands, expectations, feelings, capacities of action and cognition are shaped by the socio-technical environment of their collective. The environment is not just about the technology used by the spontaneous volunteers, rather it is also about the social systems, norms and practices that govern how work is done, and how people interact and make decisions. Social media offered a conducive environment for spontaneous volunteers in this study to collectively learn and perform innovative tasks.

The thesis shows that spontaneous volunteer behaviour, actions, and decision-making as a diverse collective group were influenced by the context in which they operated. In doing so, the thesis creates a new understanding of the context-dependent factors that lead to co-production among spontaneous volunteers of this study (such as immediate needs of the community, expectations of their community, and perception of that are necessary to understand the societal change happening through social media use.

Figure 6.3 depicts the activities performed by the hybrid spontaneous volunteer collective group at various phases of the disaster. By plotting out the role of the four types of spontaneous volunteers, it is evident that local leaders are present in all phases of the disaster and their role extends post-disaster into the recovery phase.



ACTIVITIES:

- 1 – Communicate warning and risk
- 2 – Identify needs, establish common goals
- 3 – Plan activities and tasks, set expectations
- 4 – Networking with other volunteers
- 5 – Evaluation

ROLES:

- LL – Local Leader
- LH – Local Helper
- EL – External Leader
- EH – External Helper

Figure 6. 3Hybrid spontaneous volunteer collective group

The prominent role of local helpers post-disaster shows that both local leaders and helpers have a different trajectory compared to external leaders and helpers. Figure 6.3 describes that in the initial phase of the disaster, local leaders were most active, spreading awareness and making sense of the potential risks for the community. During the disaster external leaders' and local leaders' engagement emerges as they communicate warnings, identify needs, establish common goals, plan activities and tasks, and network with both local helpers and external helpers. After the disaster, the bulk of the activities are performed by local leaders and local helpers as external helpers exit and external leaders limit their presence to the online networks only. The hybrid collective group highlights the important roles performed by the four

types of spontaneous volunteers and the areas where local leaders and helpers may need support to avoid burnout.

Aldunate et al. (2005) suggest that the quality of decision-making improves if the right people interact about the right tasks at the right time and with the right information. This study demonstrates that the local leaders understood the norms and needs of their community; they defined clear roles that best addressed the local needs resulting in effective and efficient decisions.

Drawing on the findings of this thesis, Figure 6.4 reveals five stages of spontaneous volunteers' co-production using social media. The stages are described below:

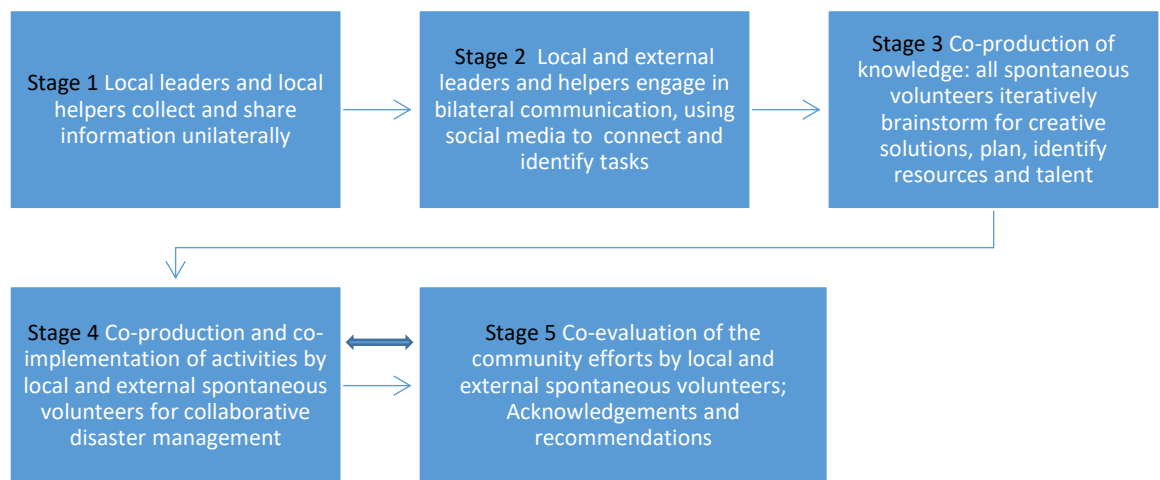


Figure 6. 4 Stages of spontaneous volunteers' co-production using social media

The five stages of spontaneous volunteers' coproduction uncover how each type of spontaneous volunteer functions at different stages of the disaster. It is important for theory and practice because it outlines the stages when bilateral communication takes place on social media platforms to identify tasks to perform. More importantly, it highlights when the co-production of knowledge

starts in online groups to identify resources and talents that can best be utilised for efficient disaster management.

Stage 1: Spontaneous volunteers used social media to seek information, collated it, and unilaterally shared this information with friends, family, and local community. This was done by creating posts for situational awareness, and updating these posts as more information came to hand.

Stage 2: Spontaneous volunteers engage in two-way communication as they respond to queries, correct misinformation, and engage with other group members. They co-produce lists of missing persons, identify various tasks that need to be fulfilled, and task allocations for those who have the resources or skills, supporting previous research by Hawkins and Maurer (2009).

Stage 3: Spontaneous volunteers formed new connections. Communication expanded beyond the immediate community to brainstorm and create innovative ways to solve local issues. Both local and external spontaneous volunteers were actively communicating with each other at this stage to identify resourceful individuals in their networks who could assist with recovery and response efforts. This iterative stage was repeated whenever new tasks and needs were identified.

Stage 4: Spontaneous volunteers' active participation in co-production is most visible as they co-implement activities. Local and external helpers were assisting local and external leaders in fulfilling tasks such as transportation, collection, and distribution of donations, arranging accommodation, retrieving and storing white goods, and collecting and distributing fuel vouchers. An update on the tasks completed was provided to group members and new tasks

identified were added to the group chats. Sometimes multiple group chats existed that focused on a specific task, such as donations or accommodation.

Stage 5: Local and external leaders co-evaluated community efforts with local and external helpers on the same platform. This was also the stage where all spontaneous efforts were acknowledged, lessons learned and personal experiences were shared, and feedback and recommendations were collected.

The stages of co-production outlined above can be juxtaposed with Chen et al.'s model of Integrated Community-Based Disaster Management (ICBMD) (Chen et al., 2006), to guide local governments to build community partnerships and collaborate with spontaneous volunteers in all aspects of recovery. While CBDM provides local governments with a six step process: orientation, collecting disaster vulnerability, evaluating problems, developing solutions, establishing community-based disaster management organisations, and final presentation (Chen et al., 2006), the stages of co-production identified in this thesis outline when brainstorming or evaluation takes place to tap into these valuable resources and collaborate with them in recovery and response efforts.

This thesis found some similarities between the five stages of spontaneous volunteer co-production using social media and the six-step process outlined by Chen et al. (2006). First, both involve a community-centred approach to disaster management and response. The CBDM emphasises the importance of community participation in disaster preparedness, response, and recovery, while the five stages of spontaneous volunteer co-production uncover how grass-roots use social media platforms to create a community-centred

approach to disaster management and response. This thesis records how social media allows real-time communication and collaboration among spontaneous volunteers to set and achieve goals.

Second, both recognise the importance of technology and information in effective disaster response and management. While CBDM highlights the benefits of collaboration between local community members and governments in the management of disasters, the five stages outlined in this thesis highlight how collaboration takes place within the community by engaging volunteers who are both experts and laypeople.

Third, CBDM facilitates communication, information sharing, and decision-making during disasters to address the shortcomings of traditional disaster management approaches. The spontaneous volunteers in this study used social media to bridge the perceived gaps in traditional disaster management. Together, CBDM and the stages of co-production among spontaneous volunteers identified in this thesis, offer a comprehensive and practical approach to disaster management.

Since the spontaneous volunteers in this study did not participate in the actual emergency response, the process outlined in this thesis offers guidance for planning for a participatory process. In doing so, the thesis responds to the call to explore community leadership structures, teamwork, and rethinking volunteering as a natural resource in the emergency space (Lachlan et al., 2014; Li et al., 2018; Nissen et al., 2021; Saputro, 2016; Sarcevic et al., 2012; Smith et al., 2021; Wekke et al., 2019; Yuan et al., 2021; Yuan & Liu, 2018).

How to engage with spontaneous volunteers appears to be largely an unresolved issue for emergency management services (AIDR, 2017; Barsky et al., 2007; Ludwig et al., 2017A. Arslan et al., 2021; McLennan et al., 2021). The five stages of spontaneous volunteer co-production identified provide guidance on how to engage with spontaneous volunteers. It adds to the theory of how spontaneous volunteers establish clear channels for communication to help in disseminating information to other volunteers about where, when, and how they can be most helpful. Furthermore, this thesis shows how spontaneous volunteers used social media platforms to organise and leverage local knowledge, capacities, and resources to identify community needs, respond to, and recover from disasters. This thesis adds new knowledge about the impact of lack of support and burnout on spontaneous volunteers in this study that caused the demise of some online groups.

Through recording the lived experiences of spontaneous volunteers in this study, the thesis highlights that spontaneous volunteers can be valuable resources if engaged in a timely and effective way. Extant literature records that spontaneous volunteers will always emerge (Stallings & Quarantelli, 1985; McLennan et al., 2021). This thesis records how spontaneous volunteers responded during three different disasters to facilitate a better understanding of the phenomenon of spontaneous volunteering via social media platforms and show their place in the response strategy.

Research Question Three explored the ways in which social media enables spontaneous volunteers in this study to co-produce knowledge to leverage offers of help, resources, and skills. It added new knowledge on how spontaneous volunteers used crowdsourcing, social media influencers and

formed hybrid collective groups to participate in recovery and response efforts using social media platforms. It uncovered how social media platforms can be used to transform a potentially chaotic influx of unaffiliated and uninvited helpers into a well-coordinated force in times of need. The following section discusses Research Question Four.

6.5 Research Question Four: What recommendations do spontaneous volunteers have to enhance the experience of spontaneous volunteers who use social media to respond to emergencies and to encourage their future volunteering?

In response to Research Question Four, the spontaneous volunteers offered 271 recommendations that offer groundwork for potential policy development. These recommendations were categorised into i) unmet expectations such as uniform messaging that is user-friendly, integrating technology in emergency management and supporting spontaneous volunteers, and ii) improving social media platforms.

6.5.1 Unmet expectations

Spontaneous volunteer suggestions about uniform messaging and ensuring two-way communication with the local community originated from the issues they experienced before, during, and after the three disasters. These suggestions support existing research calling for messages that are consistent about the hazard event, clearly informing the community about the impact of the disaster, and offer actionable instructions for self-protection (Parsons et al., 2015; Rebmann et al., 2008; Sutton et al., 2015; Vemprala et al., 2021).

In the initial phases of the disaster, spontaneous volunteers used social media platforms to improve disaster communication, however, they also used official emergency services' websites consistently. Their suggestions about having a dedicated staff who engages with spontaneous volunteers, and having a clear communication and engagement strategy designed in the preparation stage, is consistent with existing research that suggests these steps would increase its efficacy and ensure uniform messages are shared across all organisations (Dargin et al., 2021; Huang & Wang, 2022; Lovari & Bowen, 2020).

Williams and Jacobs (2021) recommend effective communication, transparency, and community involvement are key to building trust and restoring normalcy after a disaster. The authors recommend that emergency response organisations and governments should work together to create a coordinated outreach plan that includes clear and timely communication, citizen engagement, and resource allocation to address the needs of affected communities. This thesis adds to the body of literature on emergency volunteering and community-based disaster risk reduction that using social media for such a campaign would facilitate both the speed and reach of these messages. Additionally, this study shows that it would also facilitate problem-solving and collaborative practices that researchers have suggested should be incorporated in planning for future disasters (Cretney, 2018; Hendriks et al., 2023; McLennan, 2018; Villeneuve, 2021).

Furthermore, spontaneous volunteer accounts suggest social media can facilitate engagement between different groups. The recommendations support existing research that suggests involving public participation in planning, seeking their consultation, and developing trusting relationships are

conducive to co-production of knowledge and activities (Wang & Wan Wart, 2007).

A common area for improvement noted by the spontaneous volunteers was to reduce barriers to working with the official responders. This suggestion is in line with existing research that suggests establishing flexible structures that are less hierarchical and more horizontal to reduce barriers (Hunt et al., 2014; Ludwig et al., 2017; Smith et al., 2021). This study demonstrates that social media platforms facilitate such a structure and can increase not just collaborative sense-making but also facilitate tacit learning.

According to the spontaneous volunteers in this study, one reason why they experienced the same issues (across all three disasters), is that the mindset of the local authorities remains unchanged. This suggestion supports existing literature (Arslan et al., 2021; McLennan et al., 2021) that also highlights a need for change. There have been various ways identified by researchers to adopt new approaches to change this mindset. For example, Ludwig et al., (2017) suggested engaging spontaneous volunteers via public displays where they can select the tasks they would like to perform. Similarly, emergency volunteering platforms were identified where spontaneous volunteers can register their interest and highlight relevant skills they possess (McLennan, 2018; McLennan et al., 2017). This thesis adds the use of social media platforms to this body of literature as an important tool to engage with spontaneous volunteers.

While utilising social media for disaster management has been widely discussed (Gray et al., 2016; Houston et al., 2015; Kim & Dutta, 2009; Mardiah et al., 2017; McLennan et al., 2017; Ngamassi et al., 2016) how spontaneous

volunteers use this platform is under-researched. Scholars have suggested best practices for coordinating behaviour of spontaneous volunteers (Gerstmann et al., 2019; Nissen et al., 2021; Sauer et al., 2014; Schmidt & Albert, 2022; Yang, 2021), but a major shortcoming is that many are still based on a hierarchical structure, and top-down approach to emergency management. What worked for spontaneous volunteers of this study was a flattened hierarchy based on co-production. The following sections discuss the suggestion by spontaneous volunteers in this study to improve social media platforms.

6.5.2 Improving social media platforms

The spontaneous volunteers' suggestions about improving social media platforms for disaster response and recovery use, the issues they identified, and the necessity to monitor these platforms, are all in line with existing studies (Anson et al., 2017; Li et al., 2018; Mason & Power, 2015). Furthermore their suggestions about ensuring timely and informed decision-making have also been a topic of discussion among both researchers and practitioners in the field of disaster risk reduction (Aldunate et al., 2005; Sperling & Schryen, 2022; Yates & Paquette, 2011).

A new suggestion provided by multiple spontaneous volunteers in this study, that relates to the role of digital technologies in disaster management and was lacking in existing literature, was to restrict the re-sharing of old posts and to work towards the creation of a central database for reliable information by the service providers. Moreover, all four types of spontaneous volunteers identified the ethical and moral responsibilities of social media platform owners to monitor what is being shared on their platforms. As mentioned, these

suggestions are in line with existing studies and identify the perceived responsibilities of social media service providers. They also add to existing literature that spontaneous volunteers in this study were aware of the added human responsibility as technology improves.

6.6 Discussion chapter summary

The chapter demonstrated how findings of this thesis add to existing literature, conceptualisations, and theories on spontaneous volunteering. Spontaneous volunteers have been under-researched because they are hard to reach. The findings of this thesis are, in many ways, consistent with extant theory and research emerging within the fields of Disaster Risk Reduction (DRR) and Digital Technologies in Emergency Management (DTM) that play a crucial role in mitigating the impact of disasters. New knowledge from this thesis is the matrix of spontaneous volunteering and that the waves in the arrival times of spontaneous volunteers may be due to their location, their personal situation and experiences and their perceptions of themselves. Spontaneous volunteers in this study saw themselves as helpers, they used social media platforms to overcome the barriers they faced in existing recovery and response efforts, and to fulfill their strong desire to help. Spontaneous volunteers in this study preferred structures that support agency and autonomy.

Spontaneous volunteers in this study discussed various ways they were impacted by the involvement/exclusion paradox, uncovering the other side of the paradox. It created a perception of a divide among the official responders. This thesis advanced existing knowledge on how the involvement/exclusion paradox manifests in the digital space. While social media platforms have the

capacity for inclusion, this thesis uncovers their capacity to exclude other members too.

New knowledge that relates to the field of Community Led Disaster management shows the multiplicity of meaning and various facets of autonomy that existed in the minds of spontaneous volunteers in this study; ownership, control and power, and freedom. Additionally, this thesis highlights how social media platforms facilitated resilience for spontaneous volunteers highlighting its important role in community led and community driven recovery and response efforts.

This thesis extends existing knowledge on Co-production of knowledge by identifying the stages of co-production that spontaneous volunteers in this study experienced as they brought crucial local knowledge and expertise to the disaster situation using crowdsourcing and social media influencers. It identifies co-production as a unique approach to using community skills and knowledge to complement official emergency response. These new contributions to knowledge show what emergent, reflexive, and non-traditional forms of volunteering look like in the social media era. The theoretical, methodological and practical implications of the thesis are discussed in the next concluding chapter.

Chapter 7: Conclusions, limitations, and future research

This chapter presents a summary of the thesis followed by the key theoretical and methodological contributions, and the practical implications for emergency management organisations. The chapter concludes by noting the limitations and providing suggestions for future research.

7.1 Introduction

The purpose of this phenomenological study was to explore the lived experiences of spontaneous volunteers who used social media to participate in recovery and response efforts. The intention was to understand the meaning spontaneous volunteers gave to their lived experiences with social media use before, during, and after a disaster. The significant role of spontaneous volunteers during emergencies has been emphasised in both academic research (Cottrell, 2012; Twigg & Mosel, 2017) and practical initiatives to reduce disaster risks (Nielsen, 2019; Paret et al., 2021; Rivera & Wood, 2016).

When this research journey started, spontaneous volunteering was under-researched. With the advent of COVID-19 pandemic, spontaneous, informal volunteerism emerged as an important topic in both academia and practice. The thesis set out to advance the current literature on spontaneous volunteerism, which up until now, has been predominantly quantitative or mixed methods in approach (Daddoust et al., 2021; Martínez et al., 2021; Sperling & Schryen, 2022). The aim of the study was to record spontaneous volunteer perspectives.

This exploratory study used 18 in-depth interviews to investigate how spontaneous volunteers used social media before, during, and after a disaster. The four Research Questions were devised to investigate how social media facilitated spontaneous volunteer agency, and how it enabled them to co-produce knowledge to leverage offers for help, resources, and skills. Chapter 1 introduces the Research Questions, the theoretical lens, and the significance of the study. The four Research Questions addressed in this thesis are,

Research Question One: How do spontaneous volunteers use social media platforms in the pre-, during, and post-disaster phases?

Research Question Two: How does social media impact spontaneous volunteers' agency?

Research Question Three: What are the ways in which social media enable spontaneous volunteers to co-create knowledge to leverage offers of help, resources and skills?

Research Question Four: What recommendations do spontaneous volunteers have to enhance the experience of spontaneous volunteers who use social media to respond to emergencies and to encourage their future volunteering?

To the best of the researcher's knowledge, no study has specifically examined spontaneous volunteers' use of social media before, during, and after a rural bushfire, urban structural fire, or flood disaster. The thesis contributes to current theory on spontaneous volunteers through collection and analysis of in-depth data from a purposive sample population.

7.2 Thesis overview

Governments around the globe are becoming all too familiar with the devastation and disruption that natural hazards such as bushfires, earthquakes, cyclones, and floods can cause. With increasing intensity and frequency, more people and assets are exposed and vulnerable to these natural hazards. Chapter 1 identifies key trends that highlight the need for research on social media-based spontaneous volunteering, including the long-term and complex disaster impacts, and the growing cost of disasters. In addition, the changing landscape of traditional volunteerism has led to a call for community-led initiatives that bolster resilience and enable recovery through strength-based, collaborative systems (Hendriks et al., 2023; Larry, 2023; Osofsky et al., 2018; Sewell et al., 2023). Chapter 1 also records the problem statement, the aim, the four research questions, the rationale, and the significance of the study.

Chapter 2 records that the increase in spontaneous volunteering, and its relevance, particularly as traditional volunteering (that is characterised by structured and long-term roles) experiences a decline. Scholars suggest the changing landscape may be due to shifting demographics, climate change and increased occurrences of disasters, the economic drivers such as the increasing cost of responding to natural hazard events, the different resource constraints, and changing information technologies (Dulloo et al., 2020; McLennan et al., 2016; Nielsen, 2019; Rivera & Wood, 2016). Chapter 2 also combines existing literature on social media use during disasters from multi-disciplinary perspectives, presenting a holistic review of the phenomenon of

social media use by spontaneous volunteers and the recorded challenges affecting existing emergency management.

The chapter also presents the two theoretical frameworks for this study: the Structuration Theory (Giddens, 1984) and the Co-production of Knowledge Model (Callon, 1999). These two theories were selected because they focus on how structures and individuals interact to create social phenomena. Together, they have the ability to explain how structures influence individuals' actions and behaviour, and the ways in which knowledge is produced and disseminated through social and cultural interactions. The two theories collectively emphasise the importance of understanding complex social systems and the social and cultural contexts in which knowledge is created and shared.

Chapter Three details the study's novel research methodology that enabled the researcher to access spontaneous volunteers and extract rich information from them. Since there was limited information or knowledge available, Heidegger's interpretive phenomenological research process (Heidegger & Macquarrie, 1962) was considered as the best research approach to gain more information and answer the research questions. Heidegger's concepts of 'being' and 'being-in-the-world' are central to this study (Heidegger & Macquarrie, 1962). The researcher believes that spontaneous volunteers emerge as in response to an event and therefore cannot be separated from their world as they perceive it. Using Go-Along interviews, the researcher visited the location of spontaneous volunteers, observed their interactions with their community members, and recorded what was most important to them. This enabled the researcher to understand their 'lifeworld', a Heideggerian

term used to demonstrate that the realities of individuals are influenced by their lived world (Horrigan-Kelly et al., 2016). The data were collected from interviews conducted with spontaneous volunteers in Western Australia, London, and Melbourne.

Chapter 4 details the specifics of the inductive approach of data analysis. It describes the transcription, the manual and electronic (NVivo) coding process for the interviews, and the importance of social media data, jottings, and a reflective journal. The researcher gained guidance from Anfara Jr. et al. (2002) on credibility, transferability, dependability, and confirmability as criteria to ensure the trustworthiness and rigour of their research. Although these concepts originate from Lincoln and Guba's (1986) seminal work on establishing rigour in qualitative methodology, Anfara Jr. et al. (2002) clarified these concepts and their application for the researcher.

Chapter 5 presents the findings. Table 5.1 presents the summary of themes in relation to the four research questions that emerged. The chapter used direct quotes from the spontaneous volunteers to support the analysis highlighting how social media helped them to overcome barriers, facilitated their agency, and enabled them to co-produce knowledge, and to co-create recovery and response efforts. The chapter also records spontaneous volunteers' recommendations related to their future engagements and improving social media platforms. A complete list of themes and subthemes is presented in Table 5.9, and summarised in the following paragraphs:

Research Question One had two themes: spontaneous volunteers have a strong desire to help, and they used social media to overcome gaps they observed in emergency management. Research Question Two found that

social media facilitates spontaneous volunteer agency in two ways: by facilitating autonomy and enabling resilience. Research Question Three recorded that social media aids spontaneous volunteers to co-produce knowledge in three ways: crowdsourcing, utilising influencers, and facilitating formation of a hybrid collective group. Lastly, in response to Research Question Four, spontaneous volunteer recommendations were classified under two themes: enhancing engagement with local authorities and official responders, and for service providers to improve social media platforms for volunteering.

Chapter 6 presented the discussion and interpretation of the results in relation to extant theory and the four Research Questions. New knowledge, and advances and modifications to existing knowledge, were reported. In many cases, previous research had not been undertaken in the context of spontaneous volunteering, hence other relevant fields such as computer/human interaction, disaster risk reduction, and social work were cited since findings were contextualised within these literatures.

The thesis added new knowledge by addressing the research questions. In response to Research Question One it identified that spontaneous volunteers see themselves as helpers, not volunteers. It also discovers that spontaneous volunteers are not one homogenous group, presenting the matrix of spontaneous volunteering. The thesis records the various gaps spontaneous volunteers perceived in emergency management and the ways in which social media enabled self-help to overcome those gaps. In doing so, the thesis records the various social media platforms used by spontaneous volunteers, the patterns of their usage, generating new knowledge.

Relevant concepts from Structuration Theory (Giddens, 1984) and Co-production of Knowledge Model (Callon, 1999) were applied to understand the lived experiences of spontaneous volunteers, analyse their social structures and how they engage with social media platforms. The researcher advanced theory by creating a better understanding of how spontaneous volunteers use social media platforms to create, share and use knowledge, how they use social media platforms to co-produce knowledge and activities, and perform recovery and response efforts that are bottom-up and community led.

The framework of Chapter Six centred on the four Research Questions. In each case, relevant examples of data were presented alongside relevant extant literature. For example, new knowledge related to Research Question Two was a deeper understanding of the importance of autonomy and resilience for spontaneous volunteers. The thesis adds to existing theory how social media facilitates ownership, power, control, and resilience for spontaneous volunteers.

Similarly, Research Question Three discovered that within spontaneous volunteers, there are some who act as social media influencers while others are followers. The thesis contributes to the development of the body of knowledge on the importance of social media influencers for emergency management. Research Question Three also discovered the role of social media in the formation of a hybrid spontaneous volunteer collective group (Figure 6.3). The theoretical implications of this finding include insights into how spontaneous collective action and cooperation was facilitated by flexible structure provided by social media platforms. The thesis also contributes to the evolving understanding of the factors that influence collective behaviour and

decision-making during emergencies. New knowledge about the role of leadership and coordination of spontaneous volunteers in emergency response in the social media era uncovers potential for emergence of new forms of organisational structures that spontaneous, organic, and community-led initiatives. Findings from Research Question Three have implications at various levels: ranging from emergency management organisations, local authorities, through to individuals.

The spontaneous volunteers of this study were very confident and knowledgeable in their use of technology and social networking. This adds new perspectives to existing studies (Demiroz & Akbas, 2022; Morse, 2018; Ogie et al., 2022; Raisio et al., 2022; Saputro, 2016). Local and external leaders were proactive: they formed groups independently through social media and personal connections rather than waiting to hear back from local authorities on how they could help. They were more resourceful too; their communication strategy, task allocation, and ability to keep other volunteers engaged has practical implications which are discussed in section 7.5 of this chapter.

The spontaneous volunteers' suggestions recorded in this study in response to Research Question Four also have important theoretical implications. For example, the innovative ways various platforms were used highlight important features that spontaneous volunteers took advantage of during an emergency. Their suggestions show what matters to spontaneous volunteers and addressing the issues, such as privacy and security concerns, can improve the platform's reputation and reduce potential legal risks. In this way the thesis creates an understanding of the approach needed to increase spontaneous volunteer engagement and satisfaction. This theoretical implication may lead

to practical implications such as increased overall use and loyalty to the platform. Additionally, spontaneous volunteer suggestions may also lead to innovative and new features that can help the platform stay ahead of its competition. The following section discusses the theoretical, methodological, and practical contributions of this thesis.

7.3 Theoretical contributions

This thesis offers new observations, interpretations, and insights relating to spontaneous volunteers in general, and their role in emergency management, disaster resilience, and disaster risk reduction in particular. It contributes to the academic field of disaster and emergency management by introducing new knowledge relating to the being of spontaneous volunteering: their conscious experiences and perceptions of the world. It records new ideas/solutions that spontaneous volunteers generated for community problems during emergencies, such as using social media to self-organise, or using images and videos to request for particular kinds of donations. In doing so it uncovered new ways of doing things in a rapidly changing environment during disasters. The theoretical framework aligned well with the study's objectives. The thesis makes nine theoretical contributions to spontaneous volunteering research outlined below.

7.3.1 Conceptualising spontaneous volunteerism

The first theoretical contribution is that the thesis offers evidence to conceptualise spontaneous volunteers more holistically in a dynamic world. It extends past studies simplistic definition and elaborates on the role of spontaneous volunteers (Harris et al., 2017; McLennan, 2020; McLennan et

al., 2021; Reid et al., 2020; Twigg & Mosel, 2017). It identifies that many of the spontaneous volunteers are locals, who may themselves be significantly impacted by the disaster, offering evidence from their lived experience why they are often the first responders (Morse, 2018). It also identifies that the role of spontaneous volunteers is different from that of traditional volunteers. With regards to conceptualising spontaneous volunteers, this section records eight more theoretical contributions.

The second contribution is adding new knowledge about how spontaneous volunteers view themselves, and their being (Heidegger & Macquarrie, 1962). Spontaneous volunteers defined themselves as helpers, supporting existing literature a decade later about the lack of identification as volunteers (Wilson, 2012). Their expectations of themselves reflected their community-based focus:

“If the locals don’t help each other, who will?” (Tia, local leader, Yarloop Bushfire).

This pertinent statement suggests a shared perception among the spontaneous volunteers that the community must stand united and assist in times of need. The statement shows how they view their role compared to how they are viewed by others (Harris et al., 2017; Kvarnlöf, 2018; Sharon, 2004; Twigg & Mosel, 2017; Whittaker et al., 2015).

Third, spontaneous volunteers of this study support that a divide between themselves and the official responders (Malinen & Mankinen, 2018). The thesis adds new understanding about the reasons for why they saw themselves as disconnected from the official responders. It records evidence

that uniforms and bureaucracy created a distinct difference between the spontaneous volunteers of this study and the official responders assisting with recovery and response efforts.

Fourth, the thesis has advanced current understanding of spontaneous volunteers that used social media to participate in recovery and response efforts by presenting data that show they in actuality are informed individuals who are aware of their local needs, they have local knowledge, and access to local resources. The thesis records how they created parallel organisations because they felt excluded by the official responders. These parallel organisations were siloed from the official response. Furthermore, the spontaneous volunteers of this study were also experienced in networking via social media platforms and relied on their trust- based relationships to create a proactive approach to recovery and response efforts, adding to existing understanding (Jukarainen, 2020; Sperling & Schryen, 2022).

Fifth, the thesis augments existing literature on structures that support spontaneous volunteers (McLennan et al., 2017; McLennan et al., 2021). The spontaneous volunteers argued for a flatter, and more networked, organisational structure for emergency management, compared to a hierarchical one. The spontaneous volunteer suggestions provide a strong call for fluid and adaptable structure for their participation in crisis management, which has been hinted in some recent studies (Nissen et al., 2021; Schmidt & Albert, 2022; Yang, 2021).

Sixth, the thesis uncovers that the majority of the barriers faced by the spontaneous volunteers are due to the prevalent perceptions of about the

volunteers in literature and practice. Even when they are part of the local community, these spontaneous volunteers are excluded as 'uninvited personnel wishing to render aid' (Cone et al., 2003). They are viewed as 'unaffiliated with any part of existing official emergency management response and recovery system' clearly, a perception prevails that they 'may or may not have relevant training, skills, or experience' (Cross, 2010). This thesis shows that these excluded spontaneous volunteers find ways to participate in recovery and response efforts that are siloed from official response, meaning the authorities have no control over them (Lockwood et al., 2016; Simsa et al., 2018; Yearworth & White, 2018).

Seventh, the thesis offers new knowledge about spontaneous volunteer engagement. Their engagement before, during, and after the disaster was not constant, and certainly not the same intensity for all spontaneous volunteers as highlighted in Figure 6.3.

Eighth, the thesis presents a starting point for a shift in the narrative with regard to conceptualisation of spontaneous volunteers. It offers an alternative perspective of spontaneous volunteers as community helpers that are already present in the disaster zone. In contrast to the organisation-centric view (Harris et al., 2017; Sharon, 2004), it offers a spontaneous volunteer-centric view highlighting how spontaneous volunteers adapt as environments and communities change. Spontaneous volunteers crave independence and freedom. This study records their voices supporting the evolving phenomenon of spontaneous volunteering that is ongoing and builds resilience.

Lastly, while spontaneous volunteers use social media platforms to include themselves in participation in recovery and response activities, they also used the same platforms to exclude others from participating. Social media platforms are not only tools for inclusion but also exclusion. The thesis records that once exposed to the challenges of unstructured volunteer response, spontaneous volunteers now understood why official responders also exclude them from official information, communication, and recovery and response efforts. This is discussed further in section 7.3.7 of this chapter.

7.3.2 The matrix of spontaneous volunteering

The second contribution to spontaneous volunteering research is the matrix of spontaneous volunteering that emerged from the analysis. It maps out spontaneous volunteers based on where they are located, that is within the disaster zone or outside, and their key role within the disaster management. The thesis reveals that the spontaneous volunteers of this study fall into four types: local leaders, local helpers, external leaders, and external helpers. Table 5.3 in Chapter 5 outlines the categories of roles spontaneous volunteers perform. The matrix illustrates that being-in-the-world (Heidegger & Macquarrie, 1962) of spontaneous volunteers in this study could occur in four different ways. Two types of spontaneous volunteers are embedded within the local community, while the other two see themselves as an extension of the communities experiencing the disaster, and would travel to offer assistance. Two types of spontaneous volunteers demonstrate leadership qualities, while the other two offer supporting roles. Each of the four types of spontaneous volunteers experienced their disasters differently. Therefore, strategies that are uniform across the board may not be suitable for all.

Third, the matrix offers an explanation for the different ‘waves’ of spontaneous volunteers that arrive at the disaster location or may encounter the official responders (Ludwig et al., 2017; Schmidt & Albert, 2022; Steffen & Fothergill, 2009). It shows that the local spontaneous volunteers are often the first responders due to their nearness to the disaster location. How spontaneous volunteers engage with disaster events depends on many factors, including their experience, knowledge, access to resources, and location.

Each of the four types of spontaneous volunteers offers a different perspective. Local leaders offer a chance to learn from the local wisdom (Hutagalung & Indrajat, 2020). Local helpers highlight the importance of support for local-based initiatives that work towards recovery. Without this support, the local leaders’ role would be ineffective. Similarly, external leaders bring resources that both extend local efforts and also expand their horizon. External helpers highlight the episodic surge in capacity that is short lived but manages to fulfil targets set by local and external leaders. All four types of spontaneous volunteers add uniquely to existing theory on spontaneous volunteers.

The matrix also brings forth knowledge about spontaneous volunteers’ dual experiences. Many of the local helpers were first receivers of help. Witnessing the support offered by local leaders and even external leaders motivated them to bounce back and bounce forward (Manyena et al., 2011). The dual experiences of some local helpers offer a rich context for understanding the dynamics of spontaneous volunteering and its impact on the local communities’ resilience. It uncovers the subtle nuances of the changing landscape of emergency management identified in other studies (Blanchi et al., 2018; McLennan, Whittaker, et al., 2016; Reid et al., 2020). The matrix

offers a deeper understanding of spontaneous volunteering via their social media use.

7.3.3 Impact of perceived gaps on spontaneous volunteers

For the spontaneous volunteers of this study, their spontaneous volunteerism was triggered by an emergency, by the gaps they perceive in emergency management and by their strong desire to assist. An important theoretical contribution of this thesis relates to the impact of information disruption and break in communication channels has on spontaneous volunteers. When faced with this gap, technologically savvy spontaneous volunteers are able to actively engage to create and share content and information, often assisting emergency responders as the disaster unfolds. All four types of spontaneous volunteers of this study undertook information seeking and sharing behaviours independently. Sharing news from the ground independently through Facebook or Twitter as first responders and responding to queries in real time was possible through social media use. The thesis records new knowledge related to how trust-based relationships and the hybrid networks assisted spontaneous volunteers to overcome many issues.

7.3.4 Spontaneous volunteers' social media use

This thesis contributes new knowledge on how spontaneous volunteers use social media before, during, and after a disaster. Callon's (1999b) Co-production of Knowledge model and Giddens (1984a) Structuration Theory were used to understand how spontaneous volunteers of this study used social media, and how they co-created knowledge. Social media platforms facilitated access to information, information generation, information sharing as well as

collaboration and interaction between individuals and groups. The thesis records how the spontaneous volunteers engaged with social media and how they contributed to online communities.

The spontaneous volunteers of this study acted as valuable resources that were able to identify needs and generate more and new resources to fulfil those needs. For example, they could connect with other volunteers who were interested to provide aid, they could bring non-local resources to their local community, linking social media to perceived community resilience. It adds how the spontaneous volunteer network, relationships, and norms facilitate collective action and cooperation for mutual benefit. In the realm of social media, spontaneous volunteering manifests through online communities, networks, and relationships. Social media platforms provide spaces where spontaneous volunteers can connect, share information, and mobilise resources. No previous published research material was available on how spontaneous volunteers may act as (or utilise) social media influencers. The thesis shows how these platforms assisted spontaneous volunteers to strengthen existing social ties and foster new ones, contributing to sense of collective efficacy.

7.3.5 Structural foundations of social media

The theoretical constructs used to frame the thesis were appropriate. The findings add to and extend established theories by exploring the structural aspects of spontaneous volunteering through social media. The thesis delves into how social media platforms facilitate and shape the dynamics of spontaneous volunteerism. It sheds light on the organisational and motivational aspects behind spontaneous volunteering in the digital age. The

thesis offers insights into the evolving landscape of spontaneous community engagement and the opportunities created by technology such as social media platforms for mobilising grass-roots volunteers. Therefore, Structuration Theory was well-suited to the research context and the thesis extends existing literature (Castillo, 2016; Eismann et al., 2016; Elbanna et al., 2019; Griswold, 2013; Kaewkitipong et al., 2016; Plotnick & Hiltz, 2016; Reuter et al., 2020) with new knowledge from spontaneous volunteer perspectives.

The thesis outlines that social media facilitates spontaneous volunteers' access to information to understand their world, plan to respond to the situation they are in, and use the knowledge and resources accessible to them to make decisions and participate in recovery and response efforts. Structuration Theory provided a robust framework for analysing the structure of social media platforms that enabled spontaneous volunteers to be helpful members of their community, add value to their lives and to their recovery journey.

Structural foundation such as accessibility create opportunities for spontaneous volunteers to identify needs, quickly connect and engage with others, and respond to calls for help. Another structural foundation is the power of social networks. The thesis shows that social media platforms enable spontaneous volunteers to create and maintain connections with a large number of people, including friends, family, and others on their network.

How spontaneous volunteers leveraged these networks to spread information about volunteering opportunities, to mobilise other volunteers, manage volunteering activities and create parallel platforms for recovery and response efforts, add to the existing theory of emergent volunteerism and network theory. The thesis highlights the important role of social networks in facilitating

and organising volunteer efforts during disaster response and recovery. It contributes to understanding how informal networks can enhance the effectiveness and reach of volunteer activities, shedding light on the dynamic nature of volunteerism in a complex and rapidly changing environments. For example, external leaders embody the notions of collective action and demonstrate how these networks result in the emergence of new forms of help from surrounding areas that spontaneously organise in response to the event.

7.3.6 Impact of the involvement/exclusion paradox on spontaneous volunteers

The thesis unpacks the involvement/exclusion paradox related to spontaneous volunteers to existing knowledge. In particular, the thesis extends knowledge on the involvement/exclusion paradox (Harris et al., 2017), and how it manifests with spontaneous volunteers. In doing so it complements important previous studies by presenting how the paradox is experienced by spontaneous volunteers. The exclusion experienced was evident both in the UK and Australia. Spontaneous volunteers experienced exclusion when their offers for help were ignored and their voices, in the form of local information or knowledge, was disregarded.

Structuration Theory (Giddens, 1984) emphasises the dual role of structure and agency in shaping social behaviour. In this context, the spontaneous volunteers' experiences of exclusion can be understood as the result of both the social structures that marginalised their voices and ignored their offers for help, and the standard operating procedures that restricted the spontaneous volunteers' agency to participate in recovery and response efforts. Their lived experiences highlight some of the barriers and disempowerment the

spontaneous volunteers of this study experienced due to the structure of emergency management system. These barriers are unique to spontaneous volunteers, and each type of spontaneous volunteer experienced them.

The comments of the spontaneous volunteers of this study show how individuals' actions are shaped by and also contribute to the larger social structures in which they operate. The impact of this exclusion manifested as anxiety, frustration, and helplessness. Their perspectives about the barriers they faced offer new knowledge that can be drawn upon to maintain the wellbeing of these motivated and concerned volunteers.

7.3.7 The flip side of the involvement/exclusion paradox

The thesis reveals the exclusion of spontaneous volunteers that led them to use social media platforms, also led to formation of parallel recovery and response efforts, where control remained with spontaneous volunteers. In this digital space, the local authorities and the emergency services were excluded from the activities that were being performed and the information that was being shared. It seems spontaneous volunteer exclusion led to a spiral of exclusion (see Figure 7.1) that illustrates the interconnected and reinforcing nature of exclusionary factors that perpetuate one another in a continuous cycle. Figure 7.1 shows that exclusion can become self-reinforcing. It shows how the involvement/exclusion paradox manifested for the spontaneous volunteers and how social media enabled spontaneous volunteers to experience their own involvement/exclusion paradox with other group members.

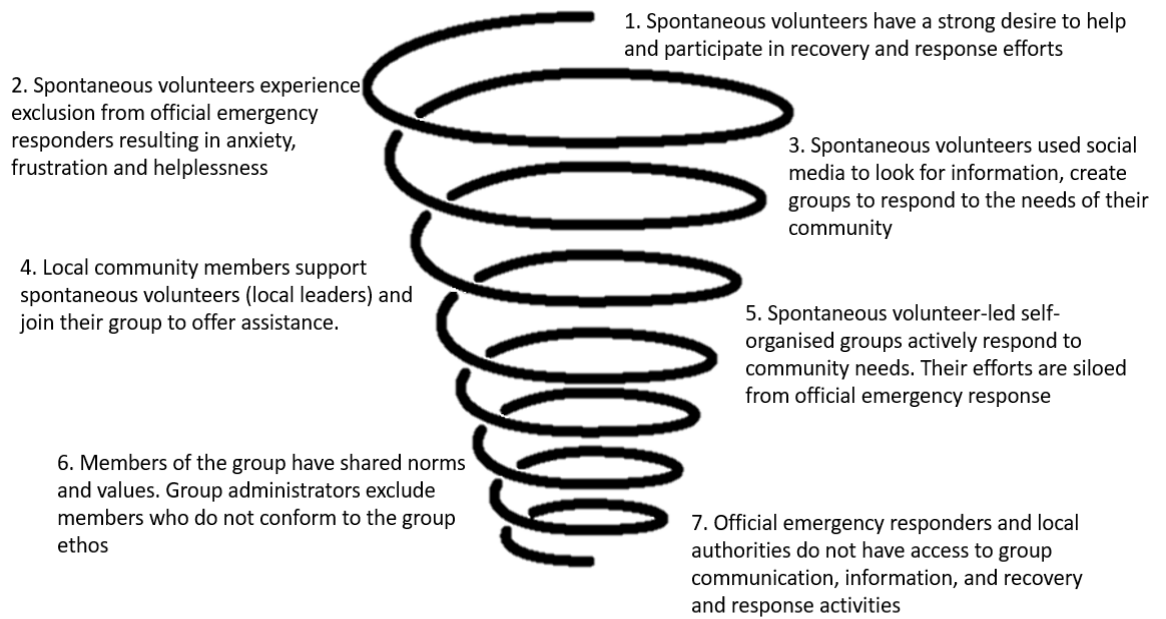


Figure 7. 1The spiral of exclusion

The spontaneous volunteers' exclusion of other volunteers, and the information generated by them, shows that the spiral of exclusion is a dynamic process where the group's majority opinion becomes status quo and the minority becomes excluded. It also shows how social media platforms could perpetuate existing inequalities. For example, while existing literature notes the issues of digital divide and access inequality (Reuter et al., 2018), this thesis highlights the role of group administrators in excluding group members who do not adhere to the group ethos, and therefore limiting their social media-based volunteer activities. The thesis also shows that once spontaneous volunteers were exposed to the challenges of unstructured volunteer response, they understood why official responders excluded them from official information, communication, and recovery and response efforts. These are important theoretical contributions that expands on the different ways involvement/exclusion paradox manifests and is understood.

7.3.8 The aftermath of the spontaneously volunteering

While spontaneous volunteers experienced an increased sense of ownership of their community issues, the thesis adds to existing literature that many of the spontaneous volunteers experienced high levels of burnout and some even excluded themselves from further engagement in community efforts. This shows the risks to unsupported spontaneous volunteers.

7.3.9 Co-production of knowledge

The thesis also adds spontaneous volunteer perspectives, their collective intelligence and knowledge sharing, and co-creation of recovery and response activities, to existing literature on how the co-production of knowledge facilitates community-led and collective emergency management. It provides a better understanding of the process of harnessing collective intelligence and knowledge sharing that is possible due to social media platforms in the emergency management space.

The Co-production of Knowledge model considers the role of non-specialists to be essential in knowledge production (Callon, 1999). It advocates a hybrid forum composed of 'concerned' groups of specialists and lay expertise to work closely together, to cooperate and produce knowledge dynamically. This theoretical lens was particularly fitting given the nature of the research. The hybrid collective group that spontaneous volunteers formed adds to our understanding of how the co-production of knowledge model manifests for spontaneous volunteers. Local and external helpers identified with and reinforced their membership with their local groups that aimed to fulfil needs, such as a need for information. The hybrid collective had people from various

qualifications and background simplifying and clarifying the content when sharing information for other group members to ensure it was understood. For example, local and external leaders jointly created new understanding and solutions through collaboration with local and external helpers. For many spontaneous volunteers, being part of the hybrid collective group resulted in learning new skills and knowledge.

To the best of the researcher's knowledge, the CKM model has not been used, to date, in third sector research, making this the first study to use it in spontaneous volunteer context. The theoretical construct effectively captured the complexities of spontaneous volunteer co-creation via social media platforms and addressed the nuanced and complex aspects of the co-production process. The thesis outlines what co-production of knowledge looks like for spontaneous volunteers that use social media. It highlights the role of social media platforms such as Facebook to identify potential co-producers through trust-based relationships and networks, both in urban and rural settings. It uncovers the process of co-production, and argues for social media as an enabler of new co-production initiatives for spontaneous volunteers, both local and external. The model unpacks how spontaneous volunteers work together but separately from the official responders.

In summary, the theoretical contributions of this thesis are substantial; from conceptualising spontaneous volunteers and their types to uncovering how they co-produce knowledge and leverage their networks and resources to perform recovery activities. The chosen theoretical construct offered valuable insights into why and how spontaneous volunteers used social media during disasters. Using Structuration Theory (Giddens, 1984a) as a theoretical lens,

the thesis explored the types of structures that facilitated and supported grass-roots, self-organised spontaneous volunteering. The thesis also used Co-production of Knowledge model (Callon, 1999b) to uncover spontaneous volunteers' collective intelligence and knowledge sharing as they co-created recovery and response activities. The following section discusses the methodological contributions of this thesis.

7.4 Methodological contributions

Sometimes a new approach is needed to understand a phenomenon. This thesis adopted a qualitative research approach designed to gain an in-depth understanding of the phenomenon of spontaneous volunteering. While previous studies investigating spontaneous volunteering have largely been quantitative, or mixed studies (Daddoust et al., 2021; Martínez et al., 2021; Sperling & Schryen, 2022), this qualitative thesis explored and interpreted the actual words of the spontaneous volunteers, making meaning of the events and experiences they described. In doing so it discovered meaning from the participants' words (Wilson, 2014).

Chapter 2 recorded that researchers from multidisciplinary fields advocated for more in-depth approaches to investigate the phenomenon of spontaneous volunteering (McLennan et al., 2016; Sperling & Schryen, 2022). This thesis has employed such an approach in order to understand spontaneous volunteer experiences with social media before, during, and after a disaster. Phenomenology has been found to be an effective method to gain meaning from the sample population relating to their lived experiences of specific phenomena (Finlay, 1999). The thesis designed a novel approach to access

spontaneous volunteers. The use of a Radian6 Salesforce Social Studio, a social media listening tool to access hard to reach spontaneous volunteers, provides evidence for its efficacy for future researchers.

The phenomenological approach, coupled with using Go-Along interviews to explore the lived experiences of spontaneous volunteers, is another contribution not found in the limited literature investigating spontaneous volunteerism. The story of spontaneous volunteering cannot be told outside of the context of disasters; the event itself is meaningful and cannot be detached from the spontaneous volunteers' experiences. The researcher drew on Heidegger's phenomenological tenets to explore the lived experiences of spontaneous volunteers. The Go-Along interviews were used to visit the world of the spontaneous volunteers, make observations about their posts and tell the story of what it means to be a spontaneous volunteer using social media to participate in recovery and response efforts.

The idea of a reflexive self, a concept that is of great concern to both Giddens (Giddens, 1992) and to Heidegger (Stapleton, 2014), enabled the researcher to question what 'being' (Heidegger & Macquarrie, 1962) a spontaneous volunteer was like when the disaster occurred. Furthermore, in listening to spontaneous volunteer experiences with social media use, as they described why they turned to social media, and how it helped them, assisted the researcher to understand and interpret what being-in-the-world of a spontaneous volunteer meant. To the best of the researcher's knowledge, spontaneous volunteering has not been explored using a Heideggerian phenomenological lens.

To date interviews conducted with spontaneous volunteers have focused on facilitating their management by official responders or volunteer managers, and at other times to improving the quality of various social media applications used by citizens during disasters (Paret et al., 2021; Sperling & Schryen, 2022). This could be in the form of public displays where spontaneous volunteers are able to select tasks to perform, and management systems and tools that support self-organisation (Harris et al., 2017; Ludwig et al., 2017; Nissen et al., 2021; Sauer et al., 2014; Simsa et al., 2018). In contrast, this thesis takes a bottom-up approach to explore the tools that spontaneous volunteers used themselves, to understand their world and how these tools facilitate their activities. Go-Along interviews allowed for the exploration of the spontaneous volunteers' experiences in their context, capturing the complexity and dynamism of their actions, emotions, and interactions. In doing so it also explored what hindered their participation, and why, thus uncovering a way forward for future researchers hoping to investigate similar questions.

Another novel contribution is that the Go-Along interviews allowed the researcher to capture information related to spontaneous volunteer experience before, during, and after the disaster. The spontaneous volunteers' words and social media posts that described how they used social media before the disaster happened, were contrasted with their use during and after the disaster, acknowledging the dynamic nature of disasters and the role of spontaneous volunteerism in each phase of disaster. The methodology and the knowledge produced through it can assist with the development of effective coordination and management mechanisms to better utilise spontaneous offers for help during the three disasters.

7.5 Practical contributions and implications for practitioners

This section presents the practical contributions of this thesis which relate to the phenomenon of spontaneous volunteering, and practical implications for emergency services providers, and for the social media service providers. Using the framework presented in Chapter Six (Figure 6.5), the strategic directions for each type of spontaneous volunteer are presented here. Furthermore, practical implications for emergency services are also presented in relation to the three phases of disaster.

7.5.1 Practical implications for spontaneous volunteering

The gaps experienced by spontaneous volunteers in this study guide the discussion in this section. All four types of spontaneous volunteers experienced lack of information and communication, pointing to the importance of focusing on this gap. The Co-production of Knowledge Model as a theoretical construct facilitated a coherent interpretation of findings. No previous published research material was available on how spontaneous volunteers may act as (or utilise) social media influencers. The role of social media influencers could be revolutionary if formalised and integrated into the formal disaster management strategies in the future. The thesis also identified that many of the spontaneous volunteers are already in the community and not outside the disaster zone. It also identified the platforms most frequently used by the spontaneous volunteers to assist with future engagement. There needs to be a middle ground where spontaneous volunteers can share real-time information and situational awareness with official responders. This could be an opportunity for local authorities and official responders to share messages

with these spontaneous volunteers to speed up information dissemination and immediate volunteering operations.

Local leaders could be approached to collaborate with official channels of communication. Perhaps such a system could be integrated into other systems such as hospital management systems, and traffic control systems, to ensure seamless flow of information and operations. While local leaders and helpers could be part of such collaborative efforts, external leaders and helpers could also be engaged to assist with monitoring and amplifying information. The Co-production of Knowledge Model as a theoretical construct provided a strong foundation to understand the four types of spontaneous volunteers and their role in effective disaster management.

The identification of the four types of spontaneous volunteers can help the official responders engage with them. The thesis uncovers that all four types of spontaneous volunteers have something unique to offer. Local leaders and local helpers could be incorporated into conversations prior to a disaster to understand local needs, plan for those needs and then later, also participate *in* decision making during a disaster. With increasing disasters and emergencies around the world, there is a need for emergency response information systems that can support collaboration and can quickly align strategies and resources which can be encrypted and authenticated to prevent sensitive information from being leaked. Spontaneous volunteers that have assisted in the past could be vetted to ensure they qualify to assist with such systems when official responders are stretched thin.

Being aware of the differences between the four types of spontaneous volunteers is important for local authorities and emergency managers to establish relationships with local leaders and influential spontaneous volunteers (prior to disaster) who can assist them during disaster. This assistance could be in the form of sharing authentic and timely information. By virtue of their wide reach and perceived credibility, influencers can also assist with correcting misinformation. The lived experiences of spontaneous volunteers of this study demonstrate both.

All four types of spontaneous volunteers experienced burnout. The physical and emotional toll of the disaster led some spontaneous volunteers to withdraw from volunteering and even exclude themselves from social media-based community groups. This new knowledge is important to ensure that future spontaneous volunteers are supported and that their negative experiences do not influence community-led recovery and response efforts. In practice, this means creating a support system for those involved in working behind the scenes and tirelessly monitoring social media platforms. This support could be in the form of offering counselling for spontaneous volunteers to ensure their well-being, and assisting them so that they continue to assist the local communities.

Celebrating local leaders' and particularly local helpers' stories of learning, bouncing back and bouncing forward, could create a culture of learning and build resilience. This could be sharing their journey on social media platforms to encourage other volunteers to offer assistance. Local helpers could also be engaged to operate in conjunction with established emergency response

agencies to work on tasks most suitable for them. This would enhance the efficacy of disaster response manifold.

The local communities also benefit from spontaneous volunteer engagement. While local leaders are often the first responders, they also mobilise their networks to access resources. External leaders bring non-local resources and knowledge to the local communities, thus highlighting the role of spontaneous volunteers in supporting local communities' recovery. Spontaneous volunteers are in a strong position to provide continued support to the local community. They are embedded in it and are motivated to assist in every way they can.

7.5.2 Practical implications for emergency services providers

The thesis has strategic policy, as well as practical implications, for emergency response management. The strategic implications include guidance on volunteer integration, building partnerships, and planning and working towards sustainability and resilience. Emergency management organisations could consider developing strong partnerships with community groups, NGOs, and other stakeholders to enhance volunteer mobilisation and deployment. One strategy could be to have pre-established relationships with the community that are available to assist in times of emergency (Fathi et al., 2020). Such strategic alliances would ensure a more cohesive and effective response. Additionally, they could strategically plan for sustainable spontaneous volunteer engagement that would not just assist with attrition in traditional forms of volunteering but also enhance community resilience.

How spontaneous volunteers use social media platforms offers a starting point for local authorities and official emergency responders to access these spaces,

and build relationships. This would allow them to share uniform messages with local communities, and identify the tasks that are most suitable for them to co-create with spontaneous volunteers so that in times of disaster, they can ease the pressure on official responders.

The number of local community Facebook groups that emerged in response to disasters presents a vast resource to tap into by local governments that are faced with the challenge to build a roadmap for inclusive disaster reduction (Villeneuve, 2021). Understanding the role of social media influencers (see 2.6.1) in self-organised recovery and response efforts, also offers new insights for local emergency management planning. The findings of this thesis can be used to define how spontaneous volunteers can support recovery, and design policies to ensure spontaneous volunteers are viewed as capital or resources that can be maintained, increased and drawn upon to support community well-being in the long run.

Ensuring that spontaneous volunteers that raise their hands to assist are supported is another practical implication from this thesis. This would require both acknowledgement of their efforts, and empathy and support for the spontaneous volunteers, so they can continue to perform the tasks. This means having mental health and well-being checks on all stakeholders. Much of the work on collaborating with and integrating spontaneous volunteers needs to be done in the preparation and planning stages by the official emergency services providers and the local authorities. To begin, clear messages need to be circulated, creating an awareness about the kinds of tasks that the community may be able to assist with. It is important to identify the best message form, create templates that are easy to understand for the

local community, and use uniform messaging to define the scope of emergency management to create a shared vision and mission.

The practical implications for emergency management organisations revolve around communication and coordination, community engagement and awareness, resource allocation and investing in educating volunteers on how to respond to their desire to help. Emergency management organisations could create and implement effective communication and coordination mechanisms that would leverage technology such as social media and other specialised software such as the EV CREW (McLennan et al., 2016) to reach, engage with, and manage potential spontaneous volunteers. This means making sure that emergency services' Facebook pages are also updated regularly with uniform messages, along with their websites. This could act as a starting point for transformative change towards facilitating spontaneous volunteers as well as navigating through the uncertainties associated with them. It would also assist with the planning and utilisation of spontaneous volunteers as identified in recent studies (Daddoust et al., 2021; Kvarnlöf, 2018; Twigg & Mosel, 2017).

Such message campaigns could also identify trigger points, and request skilled individuals to register their interest online, clearly identifying the tasks they could potentially perform if activated, and the distance they are willing to travel (for external spontaneous volunteers). This points to the importance of regular community engagement, not just during disasters. Creating a community awareness program, conducting workshops to simulate emergencies that involve volunteers in the planning process, are essential for clarifying the procedures, as well as sustainable disaster management. This means that

practically, there must be investment in educating potential spontaneous volunteers. This includes not just sharing information but identifying possible training sessions for ongoing skill development to enhance their effectiveness in various emergency scenarios, in case their help is needed.

In the planning phase, it is also important to identify all stakeholders for each locality that could be impacted by a disaster, to co-design solutions with them. This would involve identification of the unique needs of the community, the best communication channels, and to start building relationships with key community leaders in the preparation phase. It is also important to communicate expectations and standard operating procedures with the local community before, during, and after a disaster as some of these individuals would make up the spontaneous volunteers, eventually. Furthermore, opportunities for assistance could also be identified and shared in advance at this time.

The above strategies would require a shift in the perception of spontaneous volunteers as well as a positive attitude towards utilisation of platforms that promote collaboration as identified earlier (Eismann et al., 2016; Elbanna et al., 2019; Kaewkitipong et al., 2016; Reuter et al., 2016). It is important also to develop and promote a collaborative mindset, and devise leadership approaches that are conducive to co-production and collaboration (Pilemalm, 2021). In addition, local authorities and official responders may want to consider having a dedicated spontaneous volunteer coordinator/engagement officer, rather than a manager/consultant for local emergency plans. The role of the spontaneous volunteer coordinator would be to look for ways to collaborate, to use informal communication channels like Facebook, to have

presence in local community groups as a concerned collective, to share mutual expectations, to share safety and compliance information, to clarify goals, to determine the channel and frequency of the communication to meet goals, to clarify how spontaneous volunteers will be able to assist if disaster happens, and to utilise community noticeboards.

In summary, the thesis proposes that the effectiveness of the existing emergency management system could be improved by following five steps: i) identify community leaders and influencers pre-disaster, ii) prepare a communication and engagement strategy, iii) review existing decision-making processes, iv) explore local groups, their resources, and talent, v) acknowledge efforts, reflect and engage with locals frequently.

Additionally, the hybrid collective group should ideally be extended to include the emergency services responders and local authorities so that the natural learning that takes place within the group continues to occur in close collaboration with them. Such structures would need to retain their flexibility. This might mean creating an environment where volunteers can learn through observation, in addition to following explicit instructions. Some successful examples of co-production recorded from environmental sciences offer guidance for practitioners in the emergency management field (Meadow et al., 2015). Additionally, drawing on the specific spontaneous volunteer participant experiences, some additional guidelines are presented below:

1. Identify a platform and prospective group members: The spontaneous volunteers of this study primarily used Facebook. Many of the Facebook group members were known to the local leaders (who were also the

group administrators). The local leaders frequently asked for some basic information to learn more about the spontaneous volunteers wishing to join their Facebook group. This included a few short sentences about their location, the kind of knowledge or skill they have, what they aimed to get from the group, and what motivated them to raise their hand to volunteer.

2. Diversity and inclusion: group administrators valued and acknowledged every voice that was in line with the pre-determined group ethos and values. The ideas were generated by all members, which stimulated thinking that promotes creative problem solving. This shows that both diversity and inclusion are important and go hand in hand.
3. Group structure: group administrators ensured collaborative decision-making. There was little hierarchy experienced during the group discussions. Therefore it is important to understand the kinds of structures that support spontaneous volunteering.
4. Monitoring: all group administrators monitored their groups to ensure they conformed to its purpose. They deleted misinformation and comments that were derogatory or against group ethos, and on rare occasions, excluded those group members who did not conform.

These guidelines contribute to the conversations on co-producing recovery and response efforts, highlighting the important role of social media platforms in facilitating inclusive hybrid collective groups. They also highlight the importance of building relationships before disasters to balance self-organised efforts and official coordination of volunteering, which may be complicated (Simsa et al., 2019). The efficacy of these efforts requires a system for

feedback that is continuous. Regular evaluation of engagement with spontaneous volunteers and other community members will also identify areas for improvement and lessons learnt. This system would also need a feedback loop to receive feedback and evaluate how their engagement went, to make improvements in the future.

7.5.3 Practical implications for social media service providers

The thesis has strategic, policy, and practical implications for social media service providers. Strategically, they can develop specialised features that are tailored to disaster response, such as alert systems, and dedicated spaces for volunteer coordination, in addition to the existing real-time information sharing and location sharing features some platforms already have. They could also partner with government agencies and emergency services to share verified information, identify key influencers that can assist with message amplification, and work towards correcting any misinformation to ensure only authentic information is shared during emergencies. They can also prioritise the most critical information and ensure that it is communicated through multiple channels, including social media to be amplified by the spontaneous volunteers.

Much work can be done to make sure the policies are robust for content moderation to prevent the spread of misinformation during disasters. This includes clear guidelines and rapid response mechanisms to address fake news or harmful content. Additionally, policies must ensure the protection of user data, especially when platforms are used for emergency response, where sensitive information might be shared.

Practically, social media service providers need to ensure that the infrastructure can handle surges in traffic during emergencies. This is crucial to maintain uninterrupted service. They can also provide resources and tools to educate users about effectively using social media during emergencies, including how to identify and report misinformation. In the context of spontaneous volunteering, they could create tools to verify information instantly and support volunteer efforts: for example, badges for verified platform users who have some skill or experience.

With increasing multiculturalism, the lived experiences of spontaneous volunteers from both 2017 Grenfell Tower and 2018 Melbourne floods highlighted the importance of developing features that cater to the local language, customs, and specific needs of a region. This would ensure diversity and inclusion as well as inflow of fresh ideas. A feedback mechanism would also continually improve the platform's utility in emergency scenarios. Collectively, these steps would ensure that the power of social media is harnessed to aid efficient and effective emergency management.

7.6 Limitations and future research

As with any empirical study, there are several limitations of the study which need to be taken into account when interpreting the findings of this study. First, being a qualitative study with a small sample, there are limitations in generalising the findings of the thesis. Second, the socio-economic status of the spontaneous volunteers must be noted. All spontaneous volunteers in this study were able to afford technologies such as smartphones and personal computers and had access to social media platforms, they were capable of using social media during the three disasters. This is important, especially in

rural and underdeveloped areas that may not have reliable internet access. These qualifications were specifically targeted to appear in this study as it investigates spontaneous volunteers' social media engagement during disasters.

Third, the study also revealed that the vast majority of spontaneous volunteer efforts and support were performed through existing social networks and, therefore, do not include those individuals who lack social connections. This limitation also raises another important point, that is, the new ways in which inequalities play out in the digital space following a disaster. Those who have reliable access and skill to use social media could request and offer help. The scope of this thesis did not intend to provide information about spontaneous volunteers who had limited access to technology, digital skills, or were hampered by other barriers.

Fourth, while the methodology of this thesis can be replicated for other disasters (such as earthquakes) and different types of crises (such as man-made crises), it must be noted that the data collection took place at a particular time in history. It was post-disaster, therefore that period in the lives of the spontaneous volunteers, when the impact of the disaster on them at that stage of their lives, cannot be replicated.

Additionally, during the course of the research, many notable changes took place in the disaster management and volunteer space. Especially with the Covid-19 pandemic, the importance of social media platforms and their utility for many volunteer-based services gained recognition. While some of these changes are recorded in this thesis (and further strengthen and support the

findings of this thesis), physical distancing and new rules and regulations regarding engagement with spontaneous volunteers may limit the use of Go-Along interviews for some studies.

Nevertheless, the new ways social media platforms were used during the pandemic led to an increase in emerging literature in 2021 and 2022, which mirrors several findings of this study, such as communities' abilities to collaborate for service delivery using Facebook when local authorities were faced with challenges, correcting misinformation, and providing support to community members. Much of the unique findings from this thesis were presented at various conferences in 2019, 2020, and 2021 (see 4.3) and have now been supported by recent studies in crisis management, the medical and health fields, volunteer studies and disaster risk reduction, as recorded in Chapter Two.

Fifth, this research was limited to three geographical locations in two countries (the UK, and Australia), with different volunteer cultures, selected based on access to meeting the spontaneous volunteers in person, and the time available for data collection. If location and financial constraints were not an issue, more cities in these two countries could have been considered to broaden the geographic, cultural, and economic context of the study.

Sixth, the study shows the presence of anxiety, confusion, anger, disconnect, and depression in spontaneous volunteers, but these emotional aspects were not explored since the focus of this study was their social media engagement. This could be followed up with adequate support in the future as the researcher was not qualified to investigate the effects of emotions, although many

spontaneous volunteers identified experiencing these negative emotions (not during the interviews for this study, but during their spontaneous volunteering engagements).

While the theoretical framework was found to be useful for understanding the interactions between spontaneous volunteers and social media platforms, it has its limitations. Structuration Theory (Giddens, 1984) may not fully account for the rapidly evolving nature of social media technologies and may not fully capture the fluid dynamics of social media use during disasters. Social media platforms change frequently, with new features, algorithms, and user behaviours emerging regularly. Future researchers could look into Innovation Diffusion Theory (Rogers, 1962) to explain how changes in technologies impact and facilitate spontaneous volunteering during disasters. Innovation Diffusion Theory (IDT) focuses on how new technologies or innovations spread through social systems over time, highlighting the role of communication channels, social influence, and the characteristics of the adopters. Additionally, Structuration theory may not sufficiently address the deep-seated inequalities that can affect how different groups of spontaneous volunteers use social media, for instance, access to technology or digital literacy.

Similarly, Co-production of Knowledge Model (Callon, 1999b) focuses on the collaborative creation of knowledge between different stakeholders. It assumes a relatively orderly process of knowledge co-production. However, it may not adequately address how quickly misinformation or uncoordinated actions can spread on social media during disasters and may not reflect the chaotic and sometimes contradictory nature of information flow on social media. Future studies could explore the use of Crisis Informatics, as it focuses

on how information is generated, distributed, and managed during crises through both formal (government, media) and informal (citizen-driven) channels, especially on social media. This theory may assist future researchers in investigating misinformation spread, and how to mitigate its effects by improving information vetting and response.

During disasters, knowledge is often produced in a chaotic and ad hoc manner. CKM may not sufficiently account for the fragmented, spontaneous, and sometimes contradictory nature of knowledge creation and dissemination on social media during disasters. Additionally, CKM might oversimplify the power dynamics involved in disaster response. In reality, not all stakeholders (including spontaneous volunteers) have equal power in the decision-making processes, and some may be excluded from key discussions. CKM may not fully capture how these power imbalances can lead to the exclusion of certain volunteer groups or the dominance of more powerful actors in the co-production process.

This thesis records the willingness and desire of spontaneous volunteers to collaborate with emergency response organisations. It does not investigate the opportunities and challenges for organisations that wish to use social media to engage with spontaneous volunteers as a strategy during disasters and beyond. Both opportunities such as creating accessibility, and the challenges such as the required management process are topics for future research.

The thesis also revealed the flipped involvement/exclusion paradox. It also does not investigate how the flipped paradox (due to social media use) affected the local community as this was out of the scope of the study but could be

investigated in the future. The thesis records what successful recovery and response efforts look like from spontaneous volunteer perspectives but does not investigate if it was acknowledged by the official emergency services and the local authorities. Future researchers could collect these perspectives. These points beg for further exploration of the power dynamics between official emergency responders and spontaneous volunteers.

Future researchers can also investigate the different ways recovery and response efforts can be co-designed with a shared vision, and co-produced to promote spontaneous volunteering. This thesis only recorded the experiences of spontaneous volunteers. Future research could bring in the official responders, local authorities, and the local community's lived experiences, and investigate the impact of such partnerships on the autonomy and agency of spontaneous volunteers that use social media to participate in recovery and response efforts.

To achieve cooperation on social media platforms, there needs to be an overarching framework developed that responds to the diversity within spontaneous volunteers and outlines how each of the four types of spontaneous volunteers can be collaborated with at the different phases of disaster management processes according to the different types of disasters. This was out of the scope of this study, but would be beneficial for future researchers to pursue.

Furthermore, the different reasons for spontaneous volunteer self-exclusion could also be investigated. One reason identified in this thesis was burnout. When spontaneous volunteers faced increased expectations and pressure from the community via the social media platform and found no support, they

experienced burnout and thus stopped volunteering. Future studies could also investigate the role of technology in communities coping with the disaster in order to understand the phenomenon better.

The study, while exploratory in nature, provides many insightful revelations that pave the way for future research, especially concerning the synergies between spontaneous volunteers that use social media and formal disaster management organisations. Future researchers could also extend these findings to other locations or disasters.

Additionally, it is important to note that most volunteer recruitment is via online applications. There is a need to explore how their experiences with these applications impact their attraction, retention, and support systems to minimise chances of negative experiences. Whether social media platforms promote or deter prosocial behaviour, depends on a wide range of factors including the personality of members (Jadin et al., 2013), the kind of conversations that take place, and, most important, the expectations held by the group members (Byrne et al., 2021). All of the above are identified as important topics for future research.

7.7 Conclusion

This phenomenological thesis sought to collect the lived experiences of spontaneous volunteers to understand how social media facilitated them to participate in recovery and response efforts. The findings record what 'being' in the world of the spontaneous volunteer is like, the barriers they faced, the impact of the involvement/exclusion paradox, and how social media was used by them. The different categories of spontaneous volunteering is a key

contribution of this thesis. The challenges and opportunities that arise with each type of spontaneous volunteer speak to the diversity of ways in which volunteering takes place.

This thesis sheds light on the pivotal role of social media in disaster response and recovery efforts, showcasing how spontaneous volunteers of this study harnessed these platforms to amplify their voices, pool resources, co-produce knowledge, and engage in collective decision-making. The findings unpack how the structure of social media platforms extends spontaneous volunteers' influence, enabling bilateral communication and empowering them to choose their roles.

This thesis contributes to theory on spontaneous volunteering by unpacking how the structure of social media facilitated their agency and a bottom-up, community-focused approach. It also stimulated their enthusiasm to help, offering a new understanding of Structuration Theory (Giddens, 1984a) in the context of spontaneous volunteers. The Co-production of Knowledge Model (Callon, 1999b) helped uncover how social media platforms facilitated a unique dynamic where experienced spontaneous volunteers co-produced knowledge and fostered learning, almost through osmosis. The formation of hybrid spontaneous volunteer collective groups acted as virtual hubs for resource mobilisation by tapping into their wide networks and reaching a broader audience that enhanced their ability to gather essential resources such as supplies, funds, and other volunteers.

Spontaneous volunteers of this study that faced exclusion were not innocent bystanders, rather, they used social media platforms to create a parallel, self-

organised virtual emergency response system that operated in tandem with official responders. The spontaneous volunteer lived experiences highlighted the transformative impact of agency that they experienced when they used social media platforms that enabled them to assist their local communities. This thesis paves the way for more efficient and collaborative disaster response efforts in the future.

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Appendix A- Recruitment material

Email Subject: Invitation to participate in a Curtin University research project

Dear _____ (name)

You are invited to participate in this study which will investigate how spontaneous volunteers use social media to participate in emergency disaster situations. This PhD research project is conducted by Curtin University to record your experiences as a spontaneous/ unaffiliated volunteer. In order to understand how to improve experiences for spontaneous volunteers, the researchers want to talk to spontaneous volunteers; those who are unaffiliated with any organisation, and explore how social media facilitates them with contributing to disaster recovery and response. Therefore, it aims to recruit those spontaneous volunteers who use social media to volunteer during disasters.

Please see the attached information sheet for more information about the project.

The researchers will be holding individual face to face interviews from 5th to 18th of December at _____(time) at a location convenient to the participant. The interview will run for 40 minutes to an hour over a cup of coffee.

If you are interested in participating and are able to attend the interview, please contact the Curtin University researcher by _____(date) at:

Sumayyah.ahmad @ student.curtin.edu.au.

You can also contact the supervisors

Kirsten Holmes, via email k.holmes@curtin.edu.au by _____(date).
Robyn Ouschan, via email robyn.ouschan@cbs.curtin.edu.au by _____(date)

The full contact details are in the attached information sheet.

Please do not hesitate to contact me for any further information.

Many thanks for your time.

Sumayyah Ahmad
Curtin Business School

Appendix B- Participant information statement



PARTICIPANT INFORMATION STATEMENT

HREC Project Number:	HRE2018-0768-01
Project Title:	<i>An investigation of spontaneous volunteers' social media engagement in emergency disaster management</i>
Chief Investigator:	<i>Professor Kirsten Holmes, School of Marketing, Faculty of Business Administration</i>
Student researcher:	<i>Sumayyah Ahmad</i>

The Project

- Spontaneous volunteers are the local citizens who volunteer during a crisis, but are not registered or affiliated with any voluntary organisation. They help emergency services in crisis situations by providing their knowledge about the local resources, assisting in crisis response and recovery. Social media has enabled spontaneous volunteers to participate in the actual crisis communication during disasters. With governments around the world reducing the services they once provided, the volunteer sector is looking for new ways to attract and retain more volunteers. Research to date has scarcely documented how spontaneous volunteers function.
- This qualitative study seeks to investigate how social media facilitates spontaneous volunteers to communicate, collect information, share knowledge and promote their cause and achieve their objectives before, during and after a disaster.
- It will replicate the experience of social media use for planning, managing, responding and supporting emergency crisis situation and collect suggestions from spontaneous volunteers to provide better communication and integrate them with official responders and traditional volunteer organisations for efficient disaster management.

The Interview Process

- We will recruit up to 20 spontaneous volunteers for face to face interviews. The interviews are expected to last between 45 minutes to one hour and will be conducted at a location that is convenient to the participant.
- The researcher has received ethics clearance from Curtin University's Ethics Department (HRE2018-0768-01).

Who is doing the Research?



- The project is being conducted by Sumayyah Ahmad under the supervision of Prof Kirsten Holmes and Dr Robyn Ouschan as part of the PhD thesis requirement. This project is not funded by any grant. The results are anticipated to guide the social media policies of emergency services organisations and not for profit organisations. There will be no costs to you. however, to show our appreciation for your time, you will be provided with a cup of coffee.

Who can Participate?

- We are looking for spontaneous volunteers or unaffiliated volunteers who have used social media to respond to disaster recovery and response. You have been asked to take part in this study because you have indicated that you fit the selection criteria.
- Your participation will involve being part of a semi structured interview where you will be asked questions about your social media engagement and show how you used social media before, during and after a disaster.
- The study will take place at a mutually convenient location. The interviews are expected to last between 45 min to an hour. They will be audio recorded with your permission. The transcribed interview will be provided to you to for your reference.

The Anticipated Benefits of this Study

- The study is anticipated to highlight the subtleties of spontaneous volunteer's experiences. It aims to clarify the nature and enhance emergency services managers understanding of how social media facilitates disaster management to guide their own social media policies.
- This study therefore, gives spontaneous volunteers an opportunity to express their thoughts, feelings and experiences with social media platforms and allow emergency services to enhance those experiences in order to attract and retain more volunteers. It is therefore anticipated to complement existing knowledge, enable policy development and prevent attrition in the voluntary sector.

The Risks involved

- There are no foreseeable risks from this research project except for the mild inconvenience of time utilised by the interview as well as going back to the social media platforms used and revisiting the posts to show your engagement before, during and after disasters.
- Care has been taken not to ask any questions that could lead to any form of distress. However, in the even that you are exposed to a post that makes you

uncomfortable, the interview will be terminated immediately and you will be given contact details of counsellor.

- During the research project we may find out new information about the risks and benefits of this study. If this happens we will tell you the new information and what it means to you. It may be that this new information means that you can no longer be in the study or you may choose to keep going or to leave the study. You might be asked to sign a new consent form to let us know you understand any new information we have told you.

Access to Information

- The information collected in this research will be re-identifiable (coded). This means that we will collect data that can identify you, but will then remove identifying information on any data or sample and replace it with a code when we analyse the data. Only the research team have access to the code to match your name to the pseudo name, if it is necessary to do so. It is important to clarify that the pseudo names will be used for the purpose of this study, and you are welcome to suggest a pseudo name for yourself. Your information, the audio recording and transcriptions will be kept confidential during the entire study.
- The following people will have access to the information we collect in this research: the research team and, in the event of an audit or investigation, staff from the Curtin University Office of Research and Development.
- All information will be password-protected and hard copy data will be placed in locked storage. The information collected will be kept under secure conditions at Curtin University for 7 years after the research is published and then it will be destroyed.
- The findings of this study may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Results of the research

- A summary of the project's overall results will be sent to you if you are interested in obtaining the results, please leave your future contact details with the researcher. Additionally, you will be provided information if results are available on websites or newsletters.

Your participation in this project

- Your participation in this interview is **crucial** for the success of this study. However, your participation is **completely voluntary**. You are **not required** to participate in this study and you have **the right to terminate** the interview and **withdraw** at any time without any **penalty**. If you wish to withdraw, all information collected from you shall be destroyed and will not form part of the

findings of the study. It is important for you to know that there is no harm or possible risk to you, if you decide to volunteer and become part of this study. Additionally, your participation in this project will be much appreciated as it will add to understanding spontaneous volunteers' experiences with using social media to engage in emergency responses to disasters as well as assist me to complete my PhD research study.

Please feel free to contact me or my supervisors for further information or if you have any further queries.

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Your permission to be part of this interview will be much appreciated. If you agree to be part of this study, please provide your consent to include your answers in the findings as well as for the interview to be recorded by signing the form provided below and returning it to me. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number HRE2018-0768-01). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Appendix C- Recruited participants information sheet

School of Management and Marketing, Curtin University

Interview Participation Consent and Interview Guide

This participant information sheet is being provided to you as part of a PhD study conducted at Curtin University. I am seeking volunteers that are not affiliated with any organisation and have used any social media platform to learn about a disaster and contribute in the disaster recovery and response.

Project Summary

- This qualitative study seeks to investigate how social media facilitates spontaneous volunteers to communicate, collect information, share knowledge and promote their cause and achieve their objectives before, during and after a disaster.
- It will replicate the experience of social media use for planning, managing, responding and supporting emergency crisis situation and collect suggestions from spontaneous volunteers to provide better communication and integrate them with official responders and traditional volunteer organisations for efficient disaster management.

The Interview Process

The interviews that are expected to last between 45 minutes to one hour will be semi-structured, to allow new questions to emerge as the interview progresses and capture as much detail as possible. The interviews will be conducted at a location that is convenient to the participant. The researcher has received ethics clearance from Curtin University's Ethics Department (HRE2018-0768-01). It is important to clarify that the pseudo names will be used for the purpose of this study, and the participants are welcome to suggest a pseudo name for themselves. The participant information, the interview and transcriptions will be kept confidential during the entire study. The information collected will be stored for 7 years and deleted at the completion of the assigned time.

Your participation in this interview is **crucial** for the success of this study. However, your participation is **completely voluntary**. You are **not required** to participate in this study and you have **the right to terminate** the interview and **withdraw** at any time without any **penalty**. If you wish to withdraw, all information collected from you shall be destroyed and will not form part of the findings of the study. It is important for you to know that there is no harm or possible risk to you, if you decide to volunteer and become part of this study. Additionally, your participation in this project will be much appreciated as it will support emergency response to disaster as well as assist me to complete my research and form part of the findings for this research.

Please feel free to contact me or my supervisors for further information or if you have any further queries.

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Your permission to be part of this interview will be much appreciated. If you agree to be part of this study, please provide your consent to include your answers in the findings as well as for the interview to be recorded by signing the form provided below and returning it to me.

Appendix D- Brochure

Are you ready for an Emergency?

Here are a list of websites that inform you how to prepare yourself:

<https://www.redcross.org.au/prepare>

<http://www.health.gov.au/internet/main/publishing.nsf/content/health-pubhlth-strateg-bio-index.htm>

https://www.health.ny.gov/environmental/emergency/people_with_disabilities/preparedness.htm

<https://www.dfes.wa.gov.au/newsandmedia/Pages/NewsHome.aspx>

Facts: Volunteers are the backbone of Western Australian society (Volunteer WA). Research indicates we have VWA has 600,000 volunteers contributing over \$39 billion a year to WA' s economy each year. Without volunteers our state would grind to a halt. *The official definition of volunteering is time willingly given for the common good and without financial gain.*

Spontaneous volunteers

Why do we matter?

Emergency rescue systems in most countries cannot efficiently respond to disasters without volunteer support. We are the community's response to disasters.





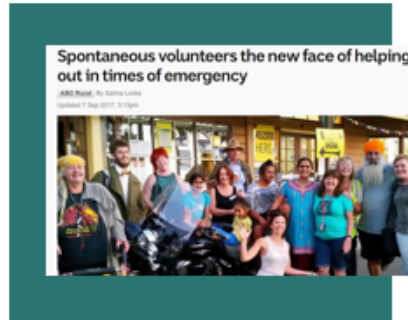
Why social media engagement?

Social media has been identified as the key enabler for spontaneous volunteers to organize, provide physical activities and aid official responders.

Social media has changed the crisis communication framework from a hierarchical decision making one to an informal, emergent framework.

Various social networking applications like Twitter, Facebook, Wikis, Flickr and YouTube have become tools for instant mass-communication, collaboration and coordination during crisis situations

Spontaneous volunteers use it to plan, manage, respond and support disaster recovery and response



Volunteers are the hidden assets of our community

With increasing disasters throughout the world, it is necessary to understand how spontaneous volunteers function, more importantly co-create formal disaster relief efforts in all phases of disaster management.

My Research

An investigation of spontaneous volunteers' social media engagement in emergency disaster management

Significance

This study aims to redefine the role of spontaneous volunteers as a resource and invite emergency response organizations to humanize disaster response management and minister thoughtfulness while engaging with spontaneous volunteers. By improving the understanding of spontaneous volunteers, an essential component of all disasters, it is anticipated to increase their tactfulness practically and enable policy makers to better integrate them in disaster recovery and response.

[For more information](#)

Sumayyah Ahmad

PhD Research Scholar | School of Marketing

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Appendix E- Interview protocol

Interview Guide

Introduction

- It is important to arrange the interview at a quiet location. Although coffee shops are convenient, the noise and distractions should be considered. Ice breaker would involve greeting the participant followed by brief introductions and small talk to make the participant feel comfortable.
- Thank the participant for taking the time out to participate in the interview. Allow enough time for them to read through the consent form and participant information sheet and answer any questions they have. Confirm the submission of the consent form and clarify the need for recording of the interview, emphasise the information collected will stay anonymous and they are free to withdraw at any time to gain trust. Take permission for recording the interview.
- If they decide to withdraw, leave the consent form, participant information sheet with them in case they change their mind at a later date.
- Once participant has agreed to be interviewed, briefly go through the objectives of the study, in simple terms, and the impact of their contribution.
- Inform the participants about the approximate duration of the interview, and keep track of time. The interview should last between 40 min to an hour.
- Before starting the interview, start the recording device with final confirmation and make sure to maintain eye contact, show genuine care and concern by listening to the person and spend little time making notes.
- Think of a strategy to keep the participant on track and avoid detours during discussion.

The interview: Part 1 (10-20 minutes)

Introductory ice breaker as well as small talk about the topic followed by these questions

- What are the social media platforms that you use currently?
- Which platform did you use during the disaster?
- How do you use this platform before, during and after disaster? Please give some examples
- Why did you use social media platforms?

The interview: Part 2 (20 -40 mins)

(Exploratory questions, meaning questions to try to capture the participant's views and listen intently)

- What are the ways in which social media enables you to assist emergency services during disaster?
- What types of activities do perform?
- Can you tell me a little about the factors that influence which social media platform you like and follow?
- Will the platform change with the phase of disaster? (pre, during and post disaster phase)
- Are you aware of any (Facebook/Twitter) social media platforms that emergency organisations are running? If so, which ones and for what causes?

Ending the interview (5mins)

- Start by going over all three parts, and ask if any additional information comes to mind.
- Inform the participant that they will receive a copy of the findings and emphasise about the importance of their contribution.
- Provide information about the procedure from here onwards, what is expected from the interview.
- Thank the participant for their participation and more importantly their time.
- Provide contact details for the future if they would like to add anything that comes to their mind.

Appendix F- List of questions

1. Think back to when the Disaster happened over here and tell me how you became involved with the Disaster management?
2. Did you assist any emergency Services in anyway?
3. Can you identify any social media platforms you have used?
4. How did that compare to how you used social media during the disaster?
5. Is that the only platform you use or do you use any other platform?
6. Why do you use this particular platform- Facebook/Twitter?
7. How does social media compare with traditional forms of communication
8. What kind of information do you look for before the disaster?
9. What kind of information do you look for during and after?
10. Describe how you use social media platforms for situational awareness?
11. So how is your engagement different during the Disaster?
12. Now that the disaster is in the past how important do you think is co-creating with the official responders for locals volunteers who are not registered volunteers?
13. Were there any activities that you co-created using social media engagement?
14. What do you see is the role of social media platforms in assisting you after the disaster and what else do you think would be helpful?
15. What other feature do you like the most?
16. What do you think is missing from efficient disaster management?
17. Can you name new ways in which you used social media platforms during and after the disaster?
18. Have you ever communicated with official responders on social media?
19. So how would you compare of communicating with official responders and communicating on social media?
20. Explain what you mean by hierarchy and your understanding of what is difficult?
21. Do you think social media engagement can fix this?
22. If you had to summarise the ease that you feel when you use social media?
23. How does it facilitate you?
24. Summarise how do you think social media has enabled you as a volunteer to collaborate?
25. What were the activities you performed in collaboration with other volunteers?
26. How does social media platform make you feel?
27. What are the issues you faced when using social media platforms?
28. What changes are needed to address these issues?

Appendix G- Participant notes

The pain was visible on her face, and her sentiments reflected in her words

"Imagine that you packed your bag to go away on a holiday away from your home and you came home and your home was gone everything you knew was gone. You couldn't change your mind. All you had in your suitcase was your life. That's all you had of your life left. You couldn't go back and say I'm going to put that back and repack that. That suitcase was all you had."

The participant was extremely grateful for the ability to use social media platform, particularly facebook, for enabling her to be

1. connected with her family and community
2. engaged - she said she was a helpful member of community, assisting with recovery efforts
3. able to share information
4. a part of the therapeutic network, that aimed at building community resilience
5. a part of a platform where she could improvise, in order to volunteer, since she physical limitations
6. she could be at peace with herself, despite her issues and heart aches.

Issues:-

Wants emergency services to monitor and use social media for recovery and response efforts. Why isnt social media beings used for animal and wild life safety. Her group has explored how effective it is. Being extremely attached to her animals and wild life, her experience with social media enabled her to save some of the animals that used to visit her farm

Why cant we follow Queensland? suggested containers with supplies should be available for community to use during disasters.

Appendix H- Reflexive journal

Reflections – Participant 5

Name of Participant	Harris
Location	London
Date of interview	September 2019
Disaster	2017 Grenfell Tower Fire

What were the main ideas that occurred to me during /after the interview?

Self-organised, external to the community, passionate, self-identified as a community leader,
Motivational, religiously active member, self-organised for various causes,
Passionate, vocal, proficient in social media use, open to learning
Likes the flexibility, autonomy and power he experiences via Facebook and Twitter

Summary of the information I got/failed to get for each of the target questions

Got information on SV efforts, local issues, collaboration issues, and barriers with local authorities,
navigation via social media, kinds of tasks performed and kinds of tasks did not attempt
Should have asked what motivated further action? Strategies to handle burnout,

What struck me as interesting/illuminating or different in this interview?

Ease of networking, speed with which social media facilitated tasks, transparency for platform |
followers, ability to see their donations used properly.

Human connection aspect- support offered for total strangers highlights the psychological assistance
provided by SV

Contacts on the ground- he was already in contact with two different mosques within a few hours

What new questions can be added for the next interview- what to remove or reword?

Too much information about barriers faced due to official emergency responders- out of scope

Too much information on local issues faced- reword to focus on navigation instead

Appendix I- The matrix of spontaneous volunteers in relation to the four Research Questions

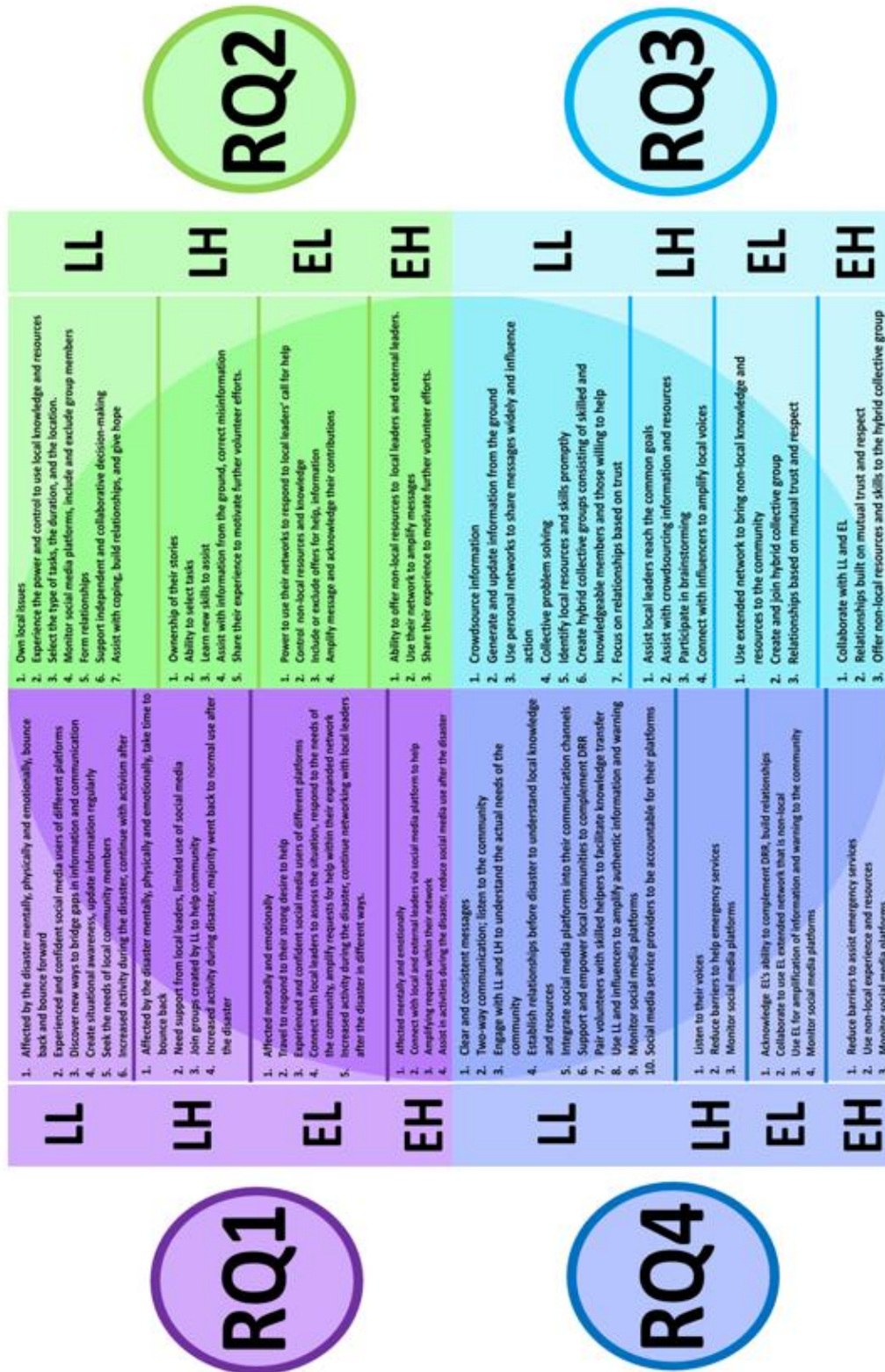


Figure 6.1 The matrix of spontaneous volunteers in relation to the research questions

