Bushfire Safety: 
Examining The Space Between Theory and Practice

by

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I Deborah Humphreys am the author of the thesis entitled

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Dedicated to my father who was a natural community development worker.

Richard Harry Humphreys
23.06.1930 to 4.12.2012
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Abstract

Victoria is one of the most bushfire-prone states in Australia. In response to this annual danger, the Victorian Government urges communities – particularly those close to large volumes of vegetation – to plan thoroughly and prepare carefully for bushfire hazard; however, most people fail to do so adequately in accordance with agency expectations (Emergency Management Victoria [EMV] 2013; Rhodes et al. 2011a). This disjuncture is complex, but understanding its basis and working to better link knowledge of the bushfire risk to effective community action which can mitigate it, is a critical imperative to reducing loss of life and economic damage (Australasian Fire Authority Council [AFAC] 2005; Country Fire Authority [CFA] 2013a; Department of Environment, Land, Water and Planning [DELWP] 2014; Rhodes et al. 2011a, pp. 5-6; Victorian Government 2010, p. 5; Whittaker & Handmer 2010). My research, therefore, examines the reasons for this phenomenon, and analyses the space between the theory and practice in response to bushfire safety. Using mixed methods and action research with participants; I co-created, shared, and examined data on the phenomenon (Dick 2002; Stringer 2007). Further data analysis was undertaken using grounded theory methods (Charmaz 2014). This led to a conceptual model that illustrates the emergent theoretical understanding. Cynefin (Snowden 2010) and community development theories help explain this novel and evolving conceptual framework (Ife 2013; Kenny 2011). What I found is that the space between the theory and practice involves the intersection of three spectrums: 1) community and resilience; 2) bureaucracy and empowerment; 3) environment and place; and this is where complexity, power and compassion reside. Most practices employed by emergency services are in the positivist tradition of good and best practice, suitable in rationalist settings, but these fail to address the realities of people and the environment (Innes & Booher 2010; Snowden 2010). People-centred practices that are creative, inclusive, and empowering such as community development, are better able to respond to people in relation to the phenomenon (United Nations [UN] 2015, p. 21). To respond appropriately to the context, emergent and novel practice founded on powerful compassion provides the potential for change (Milner 2008; Nussbaum 2001; Rosenberg 2003; Snowden 2010, 2013; Snowden & Boone 2007).
Limits and purpose of the research

This knowledge led me to investigate the phenomenon of bushfire safety – a real world problem – in a cultural and social context, so as to answer the following central research question (Creswell 2013, p. 138):

What is the space between the theory and the practice of creating bushfire safe communities?

From the research I have gained greater insight into the phenomenon of bushfire safety with the strong potential to benefit communities and to provide alternative ideas and resolutions to current practices and paradigms. My research will examine the ways in which people who live in high-risk locations in Victoria plan and prepare for bushfire risk. To understand what currently exists, I examined the practices and policies of government agencies that enact emergency bushfire response and that are otherwise the source of technical expertise and advise on what actions communities should take to mitigate bushfire danger. I examined how people from bushfire-prone areas plan and prepare for bushfire. The participants I engaged in the research were people from communities in high bushfire risk locations in Victoria, staff and volunteers in the emergency service agencies, as well as the staff of Local Government and State Government departments.

Thesis structure

This thesis is comprised of eight chapters in which I establish my research methods and offer findings and conclusions in a larger exploration of the phenomenon of bushfire safety. In Chapter 1, I explore the context by outlining my story and motivation for undertaking the research; in Chapter 2, I examine the strategies and policies employed by government to ameliorate bushfire risk and hazard. In Chapter 3, I outline methodologies used to investigate this real world problem and in Chapter 4 I discuss my research design and methods. In Chapter 5, I explore complexity theories and use these to analyse the systems of community, bureaucracy, and environment. In Chapter 6, I provide a synthesis of the themes and quotes from participants that include literature to make scholarly sense of the findings (Creswell 2013, pp. 246-247). In Chapter 7, I explain my emergent
theoretical understanding, illustrated in a conceptual model, and then subsequently provide my conclusions in Chapter 8.

Ethics process

My research was approved by the Deakin ethics department reference number HAE-13-068 for interviewing people who were involved at the plan and prepare stages of bushfire safety, as opposed to the respond and recover stages. People who have been traumatised or impacted by bushfire were excluded from my research and I was able to investigate the topic with participants without risk of emotional trauma as I obtained only people’s ideas, their thoughts and future intentions about how they might plan and prepare for bushfire. As a result of my experiences being a presenter and facilitator after Black Saturday I was aware of the problem of how trauma influenced people’s perceptions and behaviour, therefore I chose not to interview those who had been traumatised by bushfire but to focus on how people plan and prepare for bushfire. To obtain participants consent I emailed or mailed a plain paper ethics consent form prior to the agreed interview time. Before I commenced each interview, I again explained the ethics consent process and ensured that participants understood the conditions of the interview. It was made clear to participants that if at any time they felt uncomfortable with any of the questions or wanted to terminate the taped interview that I would do so. All participants gave formal consent to participate in the research, to be interviewed and recorded.

Terms

I will use the terms agency, bureaucracy, and government interchangeably throughout the thesis. Governments create policy and bureaucracies and agencies form the public service instruments that deliver policy, for example, with respect to bushfire safety, risk, and hazard mitigation. The lead government agencies I will be referring to in this thesis and who are involved in bushfire safety are: the Country Fire Authority (CFA), the Department of Land, Water and Planning (DELWP) which was formerly known as the Department of Sustainability and Environment (DSE), the Department of Environment and Primary Industries (DEPI), as well as Parks Victoria (PV).
Introduction

To protect people from bushfire, the Victorian Government advises that a key requirement is to plan and prepare and to have a written and rehearsed bushfire survival plan (AFAC 2005, p. 9; CFA 2013a, p. 12; Victorian Government 2010, p. 5; Webster 2000, p. 178). Bushfires are defined as ‘unplanned fire primarily in vegetation such as grass, forest and scrub’ (EMV 2014, p. 8). However, research shows that across Victoria, people who live in locations that are prone to bushfire risk do not plan and prepare adequately for the possible hazard (Nous Group 2013, p. 3; Rhodes 2011a, p. 8; Rhodes et al. 2011a, p. 5; Strahan Research 2010; Victorian Government 2010, p. 5; Whittaker & Handmer 2010). Hazard is defined as a potentially damaging event, phenomena, or human activity that can injure and kill; risk is defined as the level of exposure to a hazard (UN 2015, p. 9). Few people plan for bushfire hazard, have written or rehearsed bushfire survival plans, and are commonly aware of bushfire risk (McLennan, Paton & Wright 2015, p. 322; Rhodes 2011d, 2011c, 2011b; Rhodes et al. 2011a). People have also been known to evacuate from a bushfire area at the last moment, despite established expert advice to leave well in advance of the fire threat, especially on high fire danger days rated ‘Extreme and Code Red’ (CFA 2012l; 2013a, p. 13; Webster 2000, p. 217). The consequences of leaving at the last moment was demonstrated in the 2009 Black Saturday bushfires when belated attempts to flee the bushfires resulted in numerous deaths in motor vehicles from crash or incineration (AFAC 2005, p. 7; Haynes et al. 2010, p. 4; Oloruntoba 2013, p. 1696; Whittaker et al. 2013, p. 843).

Fire history

In Australia, the greatest loss from bushfires to people and animal life, infrastructure, land, and forests have occurred in the state of Victoria (Collins 2009; DEPI 2008; DSE 2005b). However, there have also been significant bushfires in Western Australia, South Australia, Tasmania, and New South Wales (Collins 2009). The three most significant bushfire events in Victoria include Black Friday 1939, Ash Wednesday 1983, and Black Saturday 2009 (DELWP 2016). On Black Friday 1939, two million hectares burnt, whole towns were decimated, and 71 people, many of whom were timber millers living in the bush, died (Collins 2009; Department of Sustainability and Environment 2005b; Webster 2000, pp. 7-8). Further bushfires
occurred in 1962 when 8 people died and 450 houses were destroyed on the outskirts of Melbourne in the Dandenong Ranges only 18km from the CBD (Australian Government n.d.). The 1969 fire on the surrounds of Lara caused 23 deaths, 100 people were injured, and 230 homes and 21 other buildings were destroyed. The 1983 Ash Wednesday bushfires burnt 210,000 hectares, 2000 houses were destroyed, and 47 people lost their lives (Beatson & McLennan 2011; Department of Sustainability and Environment 2005b). In summary, with regards to bushfire, Victoria has the highest frequency and associated risk to people and property in the world from bushfire (Beatson & McLennan 2011, p. 171; EMV 2013; McLennan, Paton & Wright 2015, p. 319; Oloruntoba 2013, p. 1679; Victorian Government 2010). The Black Saturday fires are covered later in Chapter 1.

**Bushfire hazard on the increase**

Bushfire most commonly occurs during the Victorian summer often accompanying drought, but can happen at any time of the year if conditions are conducive (Department of Environment and Primary Industries 2008; Mitchell 2015; Saab 2015). In one summer season Victoria can experience over 4000 separate bushfire incidents (CFA 2013c; 2014, p. 4; 2016, p. 3; Victorian Government 2010, p. 2). Additionally, bushfire risk has increased as a result of two factors; more people moving to the interface where the suburbs meet the bush at a rate of 1.8 percent a year on the outskirts of Melbourne (Cottrell 2005; Oloruntoba 2013, p. 1685) and a changing climate according to the Bureau of Meteorology [BOM] (2015b; Gill & Cary 2012, p. 27; Oloruntoba 2013, p. 1685; Taylor & Horstman 2014; UN n.d.; Victorian Government 2010, p. 1). Since the 1960s, drought and climate change have exacerbated bushfire hazard in South Eastern Australia with warmer summers and milder winters, creating longer fire seasons (Bosomworth & Handmer 2008, p. 182; Clarke, Lucas & Smith 2012, p. 398; Gill & Cary 2012, p. 27). In the years since 2001, Victorian summers have broken many previously held records with temperatures in excess of 40° Celsius for days at a time (Australian Government 2015; Oloruntoba 2013, p. 1687). Such high temperatures along with extreme dry conditions create high bushfire risk (Australian Broadcasting Corporation [ABC] 2015; Steffen 2013, p. 7). Storms happen more frequently and there is a trend of more unpredictable and extreme conditions – a change in weather behaviour that
is being experienced globally (BOM 2015b; CFA 2014, p. 4; Clarke, Lucas & Smith
2012; Council of Australian Governments [COAG] 2011, p. 1; Department of
Environment and Primary Industries 2008; DSE 2012; Federal Emergency
Management Agency [FEMA] 2011, p. 1; Steffen 2013, p. 1; Victorian Government
2010, p. 13).
Chapter 1
The context

As an extension of my life and work experiences I arrived to this thesis from several divergent paths. A major catalyst was living and working in Swaziland, located in Southern Africa, for six years from 1989 to 1995. The experience challenged my values, assumptions, and expectations on a daily basis. Observing poverty, power, inclusion, exploitation, civic life, health and education provided me with many opportunities to reflect on the diverse and specific challenges and opportunities certain societies faced and I began to think about how I could contribute to positive change. When I returned to Australia in 1995, I studied community development, which is based on social justice principles including the right to life, liberty, freedom, and recognition. Community development aims to empower people to reach their full potential through ‘participation in the cultural life of community’ and that ‘everyone has duties to the community in which alone the free and full development of his (or her) personality is possible’ without fear of persecution and prejudice (Ife 2013, p. 292; Kenny 2011, p. 436; UN 1948, p. articles 27 & 29). Community development provides frameworks and approaches to speak to the cultural, environmental, physical, economic, and spiritual factors that influence or have an impact upon our wellbeing and our capacity to act and engage fully with the world compassionately (Ife 2013, pp. 212-213; Kenny 2011, p. 30; Kihl 2015, p. 11; Kretzmann & McKnight 1993).

Community

Another major catalyst in my life was when I commenced studying community development theory. I thought community development would be the silver bullet to address broader social problems and more immediately, fix the problems of the intentional community of Jarlanbah in northern New South Wales, where I lived with my family for six years. The term community is often used to describe people in a geographic area or a community of interest or practice (Commonwealth of Australia 2013, p. 2). An intentional community is defined by Love-Brown (2002, p. 3) as ‘a community formed with a specific purpose in mind’ – the specific purpose of the Jarlanbah community was to establish a Bill Mollison-
inspired permaculture hamlet through designing and executing natural systems for human sustainability (Mollison 1988). As in any community, we were diverse individuals with different understandings and ideas about what constituted permaculture and an intentional community (Garden 2006; Ife 2013; Kenny 2011). Community may also be defined by its physical boundaries, by common ideas, shared experiences and through relationships (Love-Brown 2002, p. 4). In practice our experience of Jarlanbah was foremost about forming relationships with strangers and learning to cooperate and participate in common projects (Garden 2006; Ife 2013, p. 293; Kenny 2011, p. 188; Wilson 2012, p. 30).

### Decision-making

As an intentional community we had to make many decisions about how to manage and maintain the twenty-two hectares of land we owned in common. The process became highly politicised and divisive. This was my ‘real community’ experience, as described by Peck (1990, pp. 68, 88) as opposed to ‘pseudo community’ where the veneer of politeness passes for community – a real community being one where people’s ‘masks’ are lowered and where ‘pseudo community’ is conflict-avoiding while real community is ‘conflict resolving’ (Ochre 2013). The Jarlanbah community operated in competitive and conflict modes while trying to develop a sense of Gemeinschaft (Tönnies 1957) – that is familiar relationships based around our family groups, farming, and a local political culture (Ife 2013, p. 312; Lin & Mele 2005, p. 16; Sampson 2008). We had to learn how to live with the other members of the community for peace and companionship and to make collective decisions that concerned us all (Devere 2015, pp. 68, 70). We had to learn how to become both facilitators and collaborators (Ife 2013, p. 314).

### Facilitation

A significant step was employing experienced facilitators to help us through the logjam of disagreements. Facilitation is a process of enabling people to listen to one another to assist with decision-making and ‘helps a group increase its effectiveness by diagnosing and intervening on group process and structure’ (Ife 2013, p. 307; Ochre 2013; Schwarz et al. 2005, p. 28). Ife (2013, p. 307; Ochre 2013) explain that facilitation is required for the effective participation of all when working with groups in decision-making.
The paid facilitators helped us achieve a common vision, which assisted decision-making, and showed us how to communicate in non-violent ways, to be assertive rather than aggressive, and to use ‘I’ messages as opposed to ‘you’ messages which can be interpreted as blaming, judging and demanding (Ochre 2013, p. 63; Rosenberg 2003, p. 79). This provided me with further insight into how to listen well and become more compassionate towards others, how to pay attention to the language I use, and how to listen in a way ‘that leads us to give from the heart, connecting us with ourselves and with each other in a way that allows our natural compassion to flourish’ (Ochre 2013, p. 57; Rosenberg 2003, p. 2). All this becomes non-violent communication where ‘a natural state of compassion’... exists and ...‘when violence has subsided from the heart’ (Rosenberg 2003, p. 2). Compassionate communication is essential to successfully negotiate relationships and engage effectively with people – especially in relation to bushfire safety (Frandsen et al. 2012).

Community development

Studying community development led to the next step of becoming a facilitator and catalyst in my community (Ife 2013, p. 307). The Jarlanbah community was my place of learning where I was able to weave theory and practice together while critically reflecting on my own practice (Ife 2013, p. 316). In Jarlanbah I learnt what it takes to build community that is: finding common ground; helping people to listen to each other; being inclusive; working in strength-based ways; embracing each person’s worth and potential; redistributing political power through inclusive decision-making; learning to collaborate; being an organiser; and working with the ongoing process of peace building (Devere 2015, p. 71; Ife 2013, p. 179; Kenny 2011, p. 283).

Over time I was able to build trust, gain participation from Jarlanbah residents in regular activities such as Landcare (tree planting and weed removal), and organised a daylong children’s festival facilitated by the residents (Ife 2013, p. 317). These activities helped bring people together and created collaborative outputs, which helped break down conflictual practices. We were able to move from ‘forming and storming’ to determine our place in the group and transition to ‘performing’, which is completing tasks cooperatively (Ife 2013, p. 174; Johnson &
Johnson 2000, pp. 30-31). I learnt a lot about myself and others from these experiences and gained a little of what Ife (2013, p. 342) outlines as ‘self-actualisation’ and ‘awareness’, which means acquiring insight into how we are in the world, beginning to understand others’ experiences and acknowledging that we are all challenged in different ways (Devere 2015, p. 71; Peck 1990, 1997). As we lived in a bush environment, we had responsibilities to the natural world around us. This included the care and maintenance of the natural setting and being aware of potential hazards such as bushfire.

The bushfires of 2002–2003

In the summer of 2002-03 the fire season was well underway. The CFA and the DSE (DSE is now known as DELWP) had already attended 375 fires, three times the 20-year average of bushfire incidents (Department of Sustainability and Environment 2005b). With the ongoing drought, the conditions were similar to those precipitating the 1983 Ash Wednesday fires (Department of Sustainability and Environment 2005b). My children were spending the school holidays at my parents’ home in Tawonga, North East Victoria. While playing on the deck, my daughter witnessed multiple lighting strikes to the foothills of the Bogong Range, part of the Australian Alps. By the 7th of January 2003, eighty-seven bushfires had begun in steep and inaccessible terrain across the Alps in Victoria and into New South Wales (Collins 2009; Department of Sustainability and Environment 2005b). The DSE, along with the CFA and PV worked to extinguish the fires, however the bushfires burnt for fifty-nine days destroying 1.19 million hectares of public land (National Parks and State forests), and 90,000 hectares of private land (farms and properties) (Department of Sustainability and Environment 2005b).

As I was living in Queensland at the time, I was able to track the path of the bushfires across the Alps on maps posted daily on the DSE website and calling my parents regularly to check on their welfare. Bushfire disaster impacts people in many different ways. ‘Social disaster’ is the impact felt by people and particularly those who are vulnerable due to age or ability, among other factors (Gill & Cary 2012; Victorian Council of Social Services [VCOSS] 2014; Whittaker, Handmer & Mercer 2012). The fear I felt about the bushfires my parents were experiencing is what Sandman (2007, p. 59) labels as ‘cultural outrage’, that is, people become
angry or upset in response to a hazard (Gill & Cary 2012, p. 24). The actual potential of a hazard to kill people does not necessarily correlate with its potential to upset people. ‘Experts’ look at the hazard technically to assess its potential to kill, while ‘the public are caught up in the outrage’ which is a cultural response determined by how upset or frightened we feel, while ignoring the hazard (Sandman 2007). Sandman (2007, p. 59) debates that people ‘overestimate the risk when the outrage is high and the hazard is low’ and ‘underestimate the risk when the outrage is low and the hazard is high’; the outrage is often low prior to a hazard event because people, it is argued, are ‘apathetic’ about the risk, which is rational, as bushfires often do not eventuate (Sandman 2007, p. 60). The cultural response to bushfire however, falls into the former category as demonstrated by the ‘high outrage’ after a bushfire when the hazard is low (e.g. the bushfire event has occurred) but people are still afraid, shocked, and angry at what has happened and try to lay blame while prior to the event they may be apathetic or unconcerned (Eastley 2013; Fyfe 2010; Gill & Cary 2012, p. 24).

Considering the great number of bushfires that start in Victoria it could be argued that not as many lives are lost as might be expected, and ‘big life threatening fires occur less frequently’ than the many smaller annual bushfires (CFA 2013c; Victorian Government 2010, p. 6). In comparison to population increase, less people on average die per capita from bushfires today than in the 20th century when more people worked in forestry industries situated in Victoria (Collins 2009; Handmer & Hayes 2008, p. 188; Haynes et al. 2010). Furthermore, Middleton (AFAC 2015, p. 13) claims that the chance of a house burning down from bushfire is 1 in 6500 which is 6.5 times less likely than a house burning down from fire not caused by bushfire. Compared to other safety hazards, bushfires injure and kill far less people. Since 2011 to 2016 in Victoria, no one has died as a result of bushfire, whereas the annual five-year average of deaths on Victorian roads is 270 people (which includes pedestrians, cyclists, motorcyclists and motorists) (Transport Accident Commission [TAC] 2015).

**Planning and preparing**

Emergency management agencies in Australia use the ‘Comprehensive Emergency Management’ framework, a framework developed in the USA in 1978
to plan and prepare for emergencies (AFAC 2004; Crondstedt 2002, p. 10). This framework defines the actions required for emergency management as: ‘Prevention, Preparedness, Response and Recovery’ (PPRR) (AFAC 2004; Baird 2010; COAG 2011; Crondstedt 2002, p. 10; Lapsley 2016; UN 2015, p. 13). The framework is communicated by agencies to members of the community as advice to plan and prepare for bushfire. This involves: having multiple written bushfire survival plans (different ones for different options); by packing emergency items in case of evacuation; by deciding to stay and defend or to leave early (AFAC 2005, p. 5); by reducing fuels around the property; modifying houses to make them more fire resistant (installing metal fly screens or metal shutters on widows, blocking all small vents around the house); purchasing equipment to defend the property and maintain their own safety (e.g. protective clothing); installing a water tank with a minimum of 10,000 litre capacity along with a diesel pump to fight bushfire among many other recommended measures (CFA 2012f, 2012e; 2012d, pp. 13, 34).

**How people respond to risk**

Returning to my family’s story, in the summer of 2002-03, my parents were living in a suburban setting adjacent to bushland in a raised weatherboard home, with a slatted space under the house, surrounded by trees and shrubs, some growing right up against the house. By agency standards their property was entirely unsuited to defence from bushfire (AFAC 2005, p. 4; CFA 2012d). They had never rehearsed an emergency bushfire response, did not have a written bushfire survival plan, or evacuation plans as advised by the authorities (CFA 2012c, 2013b; 2013a, p. 12). My parents’ planning and preparation for the bushfire was minimal in comparison to what the authorities advise for protection against bushfire hazard (Bushnell & Cottrell 2007; Nous Group 2013, p. 3; Paton & Tedim 2012; Prior & Eriksen 2012, p. 193; Rhodes et al. 2011a; Whittaker & Handmer 2010). The Victorian government authorities advise that if people plan to stay and defend their property against bushfire, there must be at least two physically and psychologically fit people available to do so (AFAC 2005, p. 6; Mannix 2008), and that the house should be designed and built to withstand Bushfire Attack Levels (BAL) as outlined by CFA in their comprehensive Planning for Bushfires Victoria.
guidelines (AFAC 2005, p. 6; CFA 2012d; DELWP 2016). The reported level of household preparedness is 70-90 percent, but this usually means that people have raked up leaves or cleaned gutters, which they might do anyway as general maintenance on their properties – rather than the more comprehensive preparations as advised (CFA 2012d; Rhodes et al. 2011a, p. 16).

On the worst days of the 2003 bushfire, my father blocked the downpipes on his house, filled the gutters with mains water, watered the garden until it was dripping and attached wet carpet squares to old broom handles to swot out embers should they land. My father would, however, have been defending alone as my mother could barely walk at the time. Many people who live in at risk locations are vulnerable and not fit enough to defend a property safely (AFAC 2005, p. 7; Whittaker, Handmer & Mercer 2012, p. 165). From their analysis of the Black Saturday fires, Whittaker et al. (2013, p. 847) argue that those who are physically fit and who have prepared adequately have a good chance of surviving and saving their homes.

According to the literature, people’s perception of bushfire risk is low because they believe it will not happen to them; this perception is defined as ‘optimism bias’ (Beatson & McLennan 2011, pp. 173, 181; Frandsen 2012, p. 210; McLennan, Paton & Wright 2015, p. 325; Paton 2006, p. 5). Additionally, people imagine that the warnings do not apply to them personally as they expect authorities to provide personalised warnings. Few people take all the steps as advised to prepare their homes to resist bushfire attack and few plan and prepare for safe and timely departure, placing themselves in great danger because roads may become impassable (Beatson & McLennan 2011, p. 172; McLennan, Paton & Wright 2015, p. 325; Nous Group 2013, p. 2; Prior & Eriksen 2012; Rhodes et al. 2011a, p. 18).

My parents had not changed their behaviour from their first bushfire experience when a second bushfire event occurred. In December 2006, bushfires spread from Happy Valley and crossed the Kiewa Valley Highway 10 km from my parents’ home, while, at the same time, a fire burnt a few kilometres behind their house at Tawonga gap (Australian Government 2006). Despite their experiences of 2003 and the fact that my father had many years earlier been a CFA volunteer, my
parents were still under prepared for bushfire. My parents’ level of planning for bushfire was nevertheless consistent with the dangerous patterns of under-preparedness identified in the literature that is, going about their usual routines and adopting a ‘wait and see’ attitude, which effectively means not preparing to stay and defend nor preparing to leave (McLennan & Elliott 2013, p. 60; McLennan, Paton & Wright 2015, p. 323; Whittaker et al. 2013, p. 845). According to Rhodes et al. (2011a, p. 17), 31 percent of people choose to ‘wait and see’ on high fire danger days and usually do not start deciding what to do until bushfires have commenced and smoke or flames can be seen (McLennan & Elliott 2013, p. 60; Whittaker et al. 2013, p. 845).

* * *

**Black Saturday**

In December 2004 my immediate family and I moved again for work, this time from Queensland to Geelong where my husband took up a position with DSE (now DELWP) on their Community Engagement team. We drove through dry empty paddocks and dust storms on our way from Queensland through to Victoria – the vivid effects of more than ten years of drought desiccating South East Australia (BOM 2016; Oloruntoba 2013, p. 1687; Steffen 2013). The winter of 2009 had the sunniest blue skies I can ever recall in a Victorian winter. Then, in the summer of 2009-2010, conditions became extreme. The state sweltered through a heatwave with three days of temperatures above 43° Celsius, resulting in 374 elderly and vulnerable people succumbing to heat stress (Australian Government 2009; Medew 2014; Oloruntoba 2013, p. 1687).

At the time the Premier of Victoria, Steve Bracks, issued dire warnings for Saturday 7th of February, imploring people to be prepared for the worst (ABC 2009b; Victorian Government 2010, p. 1). That day brought Victoria’s worst bushfire event to date, now known as ‘Black Saturday’. Temperatures rose to 46.4° Celsius in Melbourne and humidity was 6 percent (Oloruntoba 2013, p. 1687; Victorian Government 2010, p. 1). These conditions exacerbated the 400 bushfires that eventuated and in which 173 people lost their lives, 414 people were injured, 2029 homes and 61 businesses were destroyed, 363,023 hectares
were burnt impacting 78 communities, resulting in an estimated insurance cost of $1.7 billion (Australian Government 2009; Beatson & McLennan 2011; CFA 2012a; McLennan, Paton & Wright 2015; Sullivan & Gomes Da Cruz 2013; Victorian Government 2010). The bushfires destroyed much of the towns of Kinglake and Marysville and is the worst bushfire event in terms of loss of life. The cultural outrage at this horrific event was experienced around the world (Fyfe 2010; Gill & Cary 2012, p. 15; Sandman 2007). As defined by Gill and Cary (2012, p. 15), Black Saturday was ‘socially disastrous’; that is when more than ‘one hundred dwellings are lost and/or with the death of a score of (20) or more people’.

Connection to CFA

As a result of the Black Saturday bushfires, more facilitators were employed by the CFA, which from Autumn 2009 included myself, trained as a Fire Ready Victoria (FRV) presenter to communities, and charged with raising awareness of fire behaviour and hazard. Later, I was also employed and trained as a Community Fire Guard (CFG) facilitator, delivering a six-part education program in how to plan and prepare for bushfire. The CFG meetings are held in at risk communities, where community volunteer leaders host the sessions, which neighbours attend (CFA 2015a, p. 20). Other work with colleagues included facilitating Bushfire Planning Workshops (BPW) with large groups with the aim of assisting participants to write bushfire survival plans. In addition, I volunteered as a table facilitator at a Kinglake planning and recovery workshop. Many people who attended these activities were still afraid and angry about the events of Black Saturday. Understandably, even though the hazard was long over, people continued to be outraged, were looking for solutions and scapegoats for their unhappiness (Gill & Cary 2012, p. 24; Sandman 2007, p. 62).

The Otways Action Research project (OAR)

In 2011 I took on the role of project officer for the OAR program, a joint venture between CFA and DSE as part of the larger DSE Strategic Conversations project (Campbell, Campbell & Blair 2010). The role involved engaging people and facilitating discussions on bushfire safety across the Otways region in South West Victoria using a community development approach for bushfire safety (Campbell, Campbell & Blair 2010; CFA 2012b). The OAR project engaged people from the
community, brigade volunteers, and agency personnel, who participated in deliberative discussions about their communities’ safety (Campbell, Campbell & Blair 2010). These discussions were called ‘Strategic Conversations’ and known colloquially as ‘Fire Conversations’ (CFA 2012b). They were conducted as facilitated discussions with interested people in the round. Participants were actively involved and asked strategic questions in the context of bushfire safety, in contrast to the usual expert delivery of information by agencies to a largely passive audience (Campbell, Campbell & Blair 2010; CFA 2013d, 2013e, 2013f). The intention of the process was to utilise bottom-up approaches to assist people to learn from each other about bushfire safety, to build networks in their community, to develop relationships and trust for increased community capacity (Campbell, Campbell & Blair 2010; CFA 2012b; Chambers 2012; Gamble 2013; Ife 2013; Kenny 2011).

**The phenomenon**

During the time I worked for CFA, conducting FRV presentations, CFG and other activities, I gained substantial insights into participants’ ideas and concerns about bushfire safety and the social, economic and physical problems they faced in planning and preparing for bushfire. This pointed to possible explanations for the fact that, despite looming bushfire hazard, actions taken by people to plan and prepare and reduce the risk of bushfire are far too commonly inadequate. As Paton and Tedim (2012, p. 4) argue, sustained adoption of adequate mitigation measures remains ‘elusive’ (Gill & Cary 2012, p. 28; Rhodes 2011d, 2011a; Rhodes et al. 2011a, p. 19).

However, the Strategic Conversations program established by the DSE team was an innovative approach that succeeded in building capacity and empowerment among community members in several communities (Blair, Campbell & Campbell 2010; Blair et al. 2010; Campbell, Blair & Wilson 2010a, 2010b; Campbell, Campbell & Blair 2010). A brief outline of the results include the community of Dereel (CFA 2013d) near Ballarat in Western Victoria, where the Strategic Conversation group organised three Safety Expos, the Forrest community in the Otway region of Western Victoria organised regular community get-togethers, which helped develop community and agency networks and relationships, raised
bushfire hazard and risk awareness (Campbell, Campbell & Blair 2010, p. 6; CFA 2013e). In the community of Gellibrand, also based in the Otways, members of the local brigade organised the ‘put yourself on the map’ project with the purpose of checking household bushfire plans, forming networks and clearly establishing locations of bushland residents (Blair et al. 2010, p. 10; CFA 2013f). Individual households visited by the local CFA brigade were invited to share their bushfire survival plans, copies of which were kept with the local brigade.

As a result of the Strategic Conversations process the community became activated and relationships were extended through local networks, businesses and bushfire agency staff. Through their own efforts, people in these communities demonstrated their capacity to learn, build relationships and develop local solutions to planning and preparing for bushfire safety (Blair, Campbell & Campbell 2010; Campbell, Campbell & Blair 2010; Ife 2013). Empowerment is defined as people being ‘able to construct their own knowledge in a process of action and reflection or conscientisation’ (Gaventa & Cornwall 2001, p. 73), enabling people to have agency and capacity to direct their own wellbeing. According to this definition, the Strategic Conversations were successful in acting as a catalyst for empowerment.

**Worldview**

As outlined in this chapter, my diverse experiences of living in Africa, working with others in community and studying community development, then being involved with people to improve safety in the bushfire context, have helped me to learn and reflect on how people respond to challenges arising from societal constructs, negotiate relationships and exercise power (Ife 2013; Kenny 2011). As a result of these experiences a significant part of my evolving personal worldview, is how people relate to one another, as the crux to many problems people experience. What appears to be a contingent element in the context of relationships between people is that of compassion. Compassion, I believe, is a central element that influences how people relate to each other that can often be swept aside in the pursuit of control and order. By compassion I mean the ability for people to walk in others’ shoes and to have a deeper understanding and empathy of others’
experiences, seeing others as human and acknowledging the challenges we all face (Devere 2015, p. 71; Freire 1972; Milner 2008, p. 6; Nussbaum 2001).

Compassion assists us to imagine what is involved in the broader context at the technical, practical, and emotional level of being bushfire safe, which can be achieved through dialogue (Innes & Booher 2010, p. 119). Adopting Nussbaum’s (2001, pp. 300, 302) definition of compassion, which is that compassion motivates people to greater understanding of others’ realities – it is not pity, nor sympathy, but is about being able to push beyond our image and boundary of self, enabling us to encompass others in our circle of concern and love.

Compassion involves exercising the imagination to understand the complexities we all face, rather than taking a reductionist approach or instituting bureaucratic practices where ‘compassion is the hidden and possibly taken-for-granted element, that inspires social justice’ (Milner 2008, p. 6). What I believe is required are creative approaches to challenges that incorporate the whole person and which are mutually beneficial (Higgs & Higgs 2015; Kelly & Sewell 1994, p. 7). I adopt my stance from Nussbaum’s (2001, p. 315) argument that compassion requires being able to understand what people do and why they do it, their motivations and their challenges; compassion requires us to be aware of our own personal vulnerabilities and the power that we hold. Compassion involves the observer being able to feel the situation of the other and the challenges they face (Fritz Cates 2003, p. 334; Schantz 2007, p. 52), and when we do so, we are more able to share our power to enable others’ empowerment.

Compassion can be gained through personal experience, education, or being self-aware, which can be a result of personal development or training (Devere 2015, p. 71; Weng et al. 2012, p. 6). I have learnt that to listen well to another person we have to connect at the heart more than the head (Kelly & Sewell 1994; Kenny 2011, p. 283). This requires quietening the critique that goes on in our heads, where we want to interject and come up with a response or a solution to the other person’s situation. It also means avoiding manipulating the situation to meet our own personal goals (Dick 1991, p. 315; Kenny 2011, p. 283). To listen well we need to actively listen and reflect on what the other has said, check for understanding and acknowledge that the speaker has been heard correctly.
(Rosenberg 2003). This type of reflective listening provides insight for the listener and to those to whom we listen, aids understanding, and leads to empathy of another’s predicament (Rogers 1975). Empathy opens us to compassion and compassion provides the potential to make change (Ochre 2013, 2013 a).

My argument is that compassion is a two-way process that is applicable to all stakeholders involved in bushfire safety. This includes people who live in bushfire-prone communities, also firefighting agencies, businesses, and other instrumentalities involved with assisting people to plan and prepare for bushfire. People do of course care for each other as demonstrated by how the emergency services are supported by many volunteers and staff who go to great lengths to keep the community safe. Additionally, there is great respect and appreciation for the work that emergency services undertake on behalf of the safety and welfare of communities. The compassion I am describing goes beyond caring and a desire to assist people, to imagining and having a more in-depth understanding and appreciation of others’ particular predicaments and experiences. Feeling compassionate towards others can help develop the curiosity and interest that can foster a two-way process that can assist technical experts to appreciate and have compassion for the circumstances, barriers, and hurdles faced by individuals and community members beyond bureaucratic processes. Compassion can help people in communities better comprehend the circumstances and challenges faced by firefighting agencies and support services seeking to keep them safe from bushfire. Furthermore, compassion requires moving from blaming people or agencies in emergencies, and recognising that everyone makes mistakes, that there are many factors that result in people being in situations not necessarily of their own making, and understanding that there are many barriers to people achieving their full human potential (Devere 2015; Fyfe 2010; Gill & Cary 2012, p. 24).

As a driver, compassion can provide the energy required to understand each other better and form deep ‘genuine connection’ and ‘community’ between people (Peck 1990), which requires emotion and not just intellectual understanding (Innes & Booher 2010; Kelly & Sewell 1994). Devere (2015, p. 70) lists the components of peace building as consciousness of others, building
relationships and individual transformation, as additional qualities required for compassion. Compassion requires those with power to include the voices of those who are less powerful in the discourse; to change from ‘power over’ others to power ‘with’ others for synergy and action (Gaventa & Cornwall 2001, pp. 71, 75). When people are able to include others through their compassion, they are more able to genuinely connect for positive change (Ife 2013; Innes & Booher 2010; Johnson & Johnson 2000, p. 159).

**Summary**

In this introduction and first chapter, I have provided an outline of the contents of the eight chapters of this thesis, the limits of my research, my motivation for undertaking the thesis, my link with fire agencies in particular the CFA and the stance I have on compassion which informs my research. I have outlined the central phenomenon, which is that people are unprepared for bushfire risk despite the extensive history of bushfire hazard in Victoria and the exposure to risk that people have. In the next chapter, I will explore the context of bushfire hazard, its history, the policy environment in which agencies and people plan and prepare for fire, and definitions of resilient communities.
Chapter 2
Reducing the risk and hazard

Introduction

In the previous chapter I described the context of bushfire and how I came to research the topic, as well as bushfire history in Victoria and my personal philosophical beliefs. In this chapter I explore the ways in which bushfire has influenced four broad government policies that are applied to mitigate bushfire risk and hazard and how government conceives resilience.

Strategies to reduce risk and hazard

The Victorian Government aims to protect communities from emergencies and ensure that individuals ‘make informed, effective decisions about their response to bushfires in a way that protects life and minimises loss’ (Victorian Government 2010, p. 4). In this instance, I am using the word community to describe individuals who find themselves in geographic locations where they work, live, and pursue their interests and where social interaction occurs (Ife 2013, p. 114; Kenny 2011, p. 45; Wilson 2012, pp. 7-8). I will explore the definition of community in greater detail in Chapter 4 in relation to complexity. The government’s goal is informed by the Australasian Fire Authorities Council position paper on bushfire safety; AFAC is the peak industry authority on bushfire for more resilient communities (AFAC 2016).

Four strategies are employed to promote resilient communities and mitigate bushfire risk: the first strategy is enacted through the policies of ‘prepare, stay and defend, or leave early’ (AFAC 2005, p. 5; Victorian Government 2012), the second strategy involves DELWP conducting fuel reduction burns to reduce risk in the landscape (DELWP 2015c, n.d.); the third is through the introduction of building codes to ensure the construction of more fire resistant houses to respond to Bushfire Attack Levels (BAL) (CFA 2012d; UN 2015); the fourth strategy aims to raise risk awareness and education (CFA 2015b; DELWP 2015c). These policies and understanding of bushfire risk have led to the recommended ‘shared

**Strategy 1: Stay and defend or leave early policy**

The bushfire policy of ‘prepare, stay and defend, or leave early’ is informed by research conducted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) into the 1983 Ash Wednesday bushfires (AFAC 2005). The research revealed that most people died while outside a building because they were exposed to flames; smoke inhalation (asphyxiation) and radiant heat (McLennan, Paton & Wright 2015; Webster 2000). Radiant heat travels out from a fire in all directions and is the ‘intense heat that ... you feel from a campfire, but can be up to 50,000 times stronger’, and is so strong that ‘it can cause surfaces to catch alight, crack or break windows’ and can kill those exposed to it (CFA 2012k, p. 15). CSIRO’s research found that most houses burnt down from embers lodged in small spaces, which smoulder and later cause the house to catch alight, rather than the bushfire burning the house down; the researchers concluded that a well prepared home could be defended (AFAC 2005, p. 6; Beatson & McLennan 2011, p. 171; Webster 2000, pp. 74-75). Furthermore, ‘staying and defending’ was viewed as a viable option if people were adequately prepared, were fit and importantly, psychologically able to defend a house against bushfire (AFAC 2005, p. 6). Defending involves sheltering indoors while actively patrolling for embers that may enter the house while the fire front passes, then moving outside to extinguish embers and spot fires burning in and around the house (Beatson & McLennan 2011; CFA 2012c, n.d.; Rhodes 2012, p. 173; Victorian Government 2010, p. 5; Webster 2000). Those who were not fit or able bodied were advised to ‘leave early’ well ahead of the fire threat (AFAC 2005, p. 6; Webster 2000). This developed into the policy of ‘prepare, stay and defend, or leave early’ known generally as the ‘stay or go’ option, a term coined by the media (Rhodes 2012, p. 170). The understanding is that the only way to be completely safe from radiant heat is be in another location away from the bushfire, and to get to that location safely requires leaving early so as to avoid exposure to radiant heat (CFA 2012k, p. 5). However, in the catastrophe of the Black Saturday bushfires of 2009, people who believed they were adequately prepared were overwhelmed while
defending, or passively sheltering indoors, and others who left late perished on the roads (Beatson & McLennan 2011, p. 172).

The Victorian Bushfires Royal Commission (VBRC) inquiry, critiqued the central policy of ‘prepare, stay and defend, or leave early’ and highlighted the need for people to leave over defending property in recognition that life has primacy, especially on extreme bushfire ‘Severe and Code Red’ rated days (Victorian Government 2010). In order to protect life and in response to the events of Black Saturday, the Victorian government and its agencies advise people to leave early as the safest option. This is because exposure to radiant heat, smoke inhalation and direct flame contact can be avoided, as can road accidents due to haste and poor visibility caused by smoke (AFAC 2005, p. 7; CFA 2012k, p. 5; Rhodes 2012, p. 180; Victorian Government 2010; Webster 2000). In 2016 the policy was communicated as ‘leave and live’ emphasising leaving over staying (CFA 2012l). However, how people understand and apply this policy is a point of contention (McLennan & Elliott 2013; Rhodes 2012, p. 180).

Despite the prepare, stay and defend or leave early policy, individuals have to decide what early means for them, when to leave, and where to go and how to get there, each of which has multiple possibilities (CFA 2012k; Rhodes 2012, p. 5). People may be at even greater risk if they decide to wait and see before making a decision, and for those who plan to leave, rather than try to defend their property (CFA 2012l, 2013a; Cottrell 2011, p. 9; Webster 2000). This is because bushfires may start unexpectedly, before a warning can be issued, when it is too late to leave safely, and when there is insufficient time to prepare adequate defence (CFA 2013a; McLennan & Elliott 2013). This means, therefore, that people who live in high-bushfire-prone areas need to plan and prepare to stay and defend along with planning to leave (McNeill et al. 2013, p. 14; Prior & Eriksen 2012, p. 196). The choices are more nuanced and complex than the policies might suggest on first examination. It is not an either/or option but an either/and option in relation to planning and preparing for bushfire. Prior to bushfire danger, people have to plan and prepare to stay and defend as well as plan and prepare to leave early because of the multiple complicated scenarios that can result (Prior & Eriksen 2012, p. 196). In practice, people often adopt the middle ground, to ‘wait
and see’, which agencies argue does not constitute adequate *planning* and *preparing* for bushfire because it does not involve planning for defending nor leaving early (McLennan & Elliott 2013; Nous Group 2013; Rhodes et al. 2011a). The need to plan and prepare to leave early and staying and defending, was illustrated during the 2016 summer when fire started near houses at Crib Point to the East of Melbourne. The advice broadcast was that it was ‘too late to leave’, which meant that people were forced to stay (Mannix 2016a). A further exploration of choices made by people confronting bushfire threat is summarised in Appendix I.

**Strategies 2 & 3: Housing and fuel management**

As housing developments increase on the fringes of cities where they meet the bush, known as the interface, more people are exposed to bushfire hazard (Handmer & Hayes 2008; McCaffrey et al. 2011). An interface area can be determined to be high-risk through an assessment of local factors including the vegetation types, the history of bushfire in the area, the number and density of people who live there, prospects of their egress and community risk awareness (Beatson & McLennan 2011; Collins 2009; Handmer & Hayes 2008, p. 6; Lowe 2011a, 2011b; McLennan, Wright & Birch 2014; Oloruntoba 2013; Victorian Government 2010, p. 1). Communities at the interface include 52 identified at risk towns across the ‘Otway, Dandenong, and Macedon ranges, and in areas between Bendigo and Ballarat and in far east Gippsland’ (ABC 2009a), towns to the north east of Melbourne, coastal tourist destinations along the Great Ocean Road in south west Victoria, the wine growing Yarra Valley north east of Melbourne. Other at risk towns are in the forests and grasslands of the Grampians in Western Victoria, in small towns north of Geelong such as Dereel which are surrounded by forests, crops or grasslands (CFA 2012k; Cressy and District History Group 2010), in Gippsland to the East of Victoria in more heavily forested areas, and in semi-arid areas in Mildura in north west Victoria (Victorian Government 2010). Most of Victoria is at risk of bushfire to some degree, where approximately 37 percent of Victorians live (Baxter, Hayes & Gray 2011; CFA 2012k).
New building construction codes have been introduced as an outcome of the 2009 VBRC inquiry and are designed to improve the ability of houses to withstand Bushfire Attack Levels (BAL) (CFA 2012d; DELWP 2016; Victorian Government 2010). However, depending on surrounding fuel loads (the trees, shrubs and dead leaves and bark litter on the forest floor and combustible materials around and under a house), even the highest standard house will not always withstand a big bushfire, as was evident on Black Saturday in 2009 and in the recent 2015 Christmas day Wye River bushfire (Leonard et al. 2016; Mannix 2016b; Victorian Government 2010). To reduce hazard, agencies such as DELWP and the CFA implement prescribed burning on an annual basis when the conditions are suitable to reduce fuel in the landscape and to minimise the severity of bushfires (DELWP 2015b, 2015c, n.d.). However, there is controversy on the benefits of planned burning as a strategy and about their management and effectiveness (Kinsella 2016; Moskwa, Ahonen, Santala, Weber, Robinson & Bardsley 2016 citing McCaffrey et al. 2008, McGee 2007, Morton et al. 2010). Some people are against planned burning because it can be detrimental to flora and fauna; it damages the aesthetics of the bush, causes air pollution and reduced visibility, is harmful to people’s health, and because smoke taint impacts negatively on industries such as bee keeping, vineyards and tourism (DELWP 2015g p. 17; Johnston & Bowman 2014). Confidence in agencies using planned burning for risk mitigation has been eroded after the loss of properties in Lancefield in the North of Victoria, when a planned burn escaped and burnt 4000 hectares. This caused extensive property damage, infuriating local residents (Kinsella 2016; Hannam & Millar 2015).

Strategy 4: Education and information

The leading bushfire emergency agencies CFA and DELWP conduct public fire education, raise awareness through the media and conduct educational programs with the aim of advising people on what actions to take to keep safe from bushfire (CFA 2012g, p. 5; 2014, p. 5; Emergency Management Australia [EMA] 2004). The CFA provides warnings and advice through printed, digital, television, radio and social media and on its website (CFA 2012e) to alert the public to the bushfire danger rating for the day, and if bushfires commence. Additionally,
billboards across country towns and roads alert people to the Forest Fire Danger Index (FFDI), a half circle graphic which is intended to ‘trigger’ people’s response to be alert and prepared to put their bushfire survival plans into action on high fire danger days (CFA 2012d, p. 5; 2013a). The graphic displays the fire ratings as Low-Moderate, High, Very High, Severe, Extreme, and Code Red (CFA 2012h). The FFDI indicates the severity of conditions and the likelihood of survival should bushfire commence, under each rating. When the CFA issues advice to communities to leave early, this advice is based on the FFDI rating and the advice by CFA is that people should leave early on days rated High through to Extreme (CFA 2012h, 2012g). How fire and warning information is communicated is investigated further in Chapter 4.

DELWP targets selective stakeholders impacted by their planned burns as part of its wider community engagement program known as ‘safer together’ (DELWP 2015c). These stakeholders include businesses, wineries, beekeepers, and community people in roundtable discussions as their means of engagement with participants (DELWP 2015f, 2015c). The DELWP Strategic Conversations program used community development approaches to involve and empower participants who were encouraged through a facilitated process to develop their own approaches for bushfire safety (Campbell, Campbell & Blair 2010). The Strategic Conversations took the approach known as ‘SALT’, which stands for strength-focussed, accompanying, learning, and transformation (Campbell, Campbell & Blair 2010, p. 9). SALT is a facilitative team process that is supportive, appreciative, listens carefully, takes the time to encourage people with the aim of empowering participants through the process (Campbell, Campbell & Blair 2010, p. 16).

**Risk and hazard cannot be fully eliminated**

Government stresses the need for personal and community ‘resilience’ because the risk from bushfire can never be fully eliminated due to resources and scale (AFAC 2005, p. 12; EMV 2014). Risk is defined as something that can cause harm from the ‘interaction of hazards, the community and environment’ with a hazard defined as a source or situation of potential harm (EMA 2004, p. ix). A clear illustration of risk reduction is demonstrated on the DELWP website explaining
the Phoenix RapidFire simulation process, which shows how fuel reduction minimises bushfire impact under certain conditions (DELWP 2015c; Tolhurst, Shields & Chong 2008). As risk cannot be eliminated entirely, a key component of government policy is that people need to decide what they will do for safety from bushfire and hazard management (AFAC 2005; CFA 2007, 2012j; COAG 2011). The expectation from government is that people share the responsibility: this means that they will take measures to mitigate risk by increasing their knowledge of bushfire, have written bushfire survival plans, heed warnings, and act on advice while government will do its share by coordinating emergency management and planning for bushfire (AFAC 2015; EMV 2014; McLennan, Paton & Wright 2015; Victoria Government 2011; Victorian Government 2010).

Thus, it is anticipated that resilience is achieved by ‘understanding, managing and reducing risks, increasing a community’s ability to withstand and recover from emergencies, thereby strengthening its disaster resilience and by doing so leads to ‘shared responsibility’ (Victoria Government 2011). Furthermore, shared responsibility and resilience includes planning and preparing for bushfire at all levels: the state, municipal councils, household members, and ‘the broader community must accept greater responsibility for bushfire safety in the future’ (CFA 2014; COAG 2011; EMV 2015a; Victorian Government 2010, p. 6; 2012). The expectation of the Victorian government is that communities will share the responsibility because they believe community safety and resilience from bushfire can be achieved. But what does resilience entail?

**Defining a resilient community**

The United Nations Sendai Framework defines resilience as (UN 2015, p. 9):

> The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

The Sendai framework (UN 2015, p. 9) advocates a ‘people-centred’ approach to emergency management to reduce rising global death rates from disasters, and best practice through a multi-hazard, multi-sectoral approach that is inclusive of all stakeholders incorporating (UN 2015, p. 10):
Women, children and youth, persons with disabilities, poor people, migrants, indigenous peoples, volunteers, the community of practitioners and older persons in the design and implementation of policies, plans and standards’ this can be achieved through governments leading and working together collaboratively with stakeholders.

Agencies describe disaster resilient communities as having the ability to ‘bounce back’ after disaster (CFA 2014, p. 4), and ‘that a disaster resilient community works together to understand and manage the risks that it confronts’ (COAG 2011, p. iv). How resilience is to be achieved is through: ‘collective action where individuals will have to help themselves’ as communities ‘strengths and vulnerabilities’ will vary so people ‘must therefore be able to adapt so that they can maintain resilience’ (Victorian Government 2012, p. 4). To do this, communities will need skills to access resources and that ultimately, ‘a disaster-resilient community has the inherent capacity to deal with any shock, no matter how well-anticipated or surprising’ (Victorian Government 2012, p. 4).

Whittaker (et al 2012, p. 163) defines resilience as ‘the capacity to absorb and recover from the impact of a hazardous event’, while Ife (2013, p. 261) claims that building social capital assists communities to cope with disaster. Community development theory defines resilience as community diversity where strengths can be activated by building social capital, which in turn assists people to plan and prepare for disaster (Ganapati 2012; Ife 2013, p. 261 ). Now that I have reviewed different definitions of community resilience I find that these are the same as what I meant by ‘bushfire safe communities’ as per my research question. These definitions and in particular that of community development will inform my approach in this thesis.

**Critique of resilience ideas**

The definition of resilience, just explored, portrays an ideal that requires many factors working in concert for success; nevertheless resilience appears elusive. Wilson (2012, p. 24), defines resilient communities as those that have equal strengths in three sectors; economic, social and environmental capital, but contends that this is only an ideal and highly unlikely to be achieved, as strengths are usually found in one or two sectors, rather than all three. If resilience is almost impossible to achieve then it appears unrealistic that communities will
achieve high levels of resilience and be able to ‘bounce back’ from bushfire disasters on their own (Victorian Government 2010). Governments, on their own can not make a community resilient, however resilience may be able to be increased through government and community collaboration. This critique led me to examine the reasons for the establishment of EMV as a response to the failure of emergency management agencies on Black Saturday as determined by the VBRC (EMV 2013; EMV 2015b; Oloruntoba 2013, p. 1699; Victorian Government 2010, p. 4).

**Policy environment**

The Victorian emergency management agencies share a common vision to protect life and property in line with international approaches, as outlined in the UN Sendai Framework (UN 2015); the Australasian Fire and Emergency Service Authorities Council Position Paper (AFAC 2005); the National Strategy for Disaster Resilience (COAG 2011); The Victorian Emergency Management Reform White paper (Victorian Government 2012); the Emergency Management Act 2013 (DELWP 2015a, 2015b); and the Bushfire Safety Policy Framework (EMV 2013). These agencies, among others, aim to build more bushfire resilient communities and coordinate agencies through the peak body of EMV, whose role is ‘leading emergency management in Victoria by working with communities, government, agencies and business to strengthen their capacity to withstand, plan for, respond to and recover from emergencies’ (EMV 2016).

EMV is the overarching body responsible for achieving a ‘joined-up, seamless interoperability and optimal effectiveness’, in other words creating collaboration between the three lead agencies; CFA, DELWP and PV, as recommended by the 2009 VBRC (Lapsley 2011; Victorian Government 2010) which highlighted systems failure during the 2009 Black Saturday bushfires, where ‘poor decisions were made by people’ in ‘positions of responsibility’ (Victorian Government 2010, p. 4).

In order to learn from the experience and ensure that ‘government, fire and emergency services agencies and individuals make informed, effective decisions about their response to bushfires in a way that protects life and minimises loss’ (EMV 2015b; Lapsley 2011). According to EMV’s website, the goal of the Fire Services Commissioner is to increase the level of public ‘understanding and
preparedness’ for bushfire, by providing information about the bushfire risk and by supporting individual and community action to deal with bushfire risk (EMV 2015a, 2016). This role is undertaken through the Bushfire Safety Framework (EMV 2013).

The challenge of resilience

In the Victorian Government’s Reform White Paper (Victorian Government 2012, p. 4), a resilient community is one where ‘people are fully engaged with resilience-building that is led from within the community’. In the same document, it is asserted that this is not easy to achieve and that ‘the challenge is to understand the approach that is appropriate to lead and develop effective engagement ... across the emergency management sector’ (Victorian Government 2012, p. 4).

Even though it appears that people in communities are not adequately engaged with resilience building for their survival and sustainability, there are indicators of potential approaches to achieve this. This list includes (but is not limited to) situations in which government has partnered with communities in resilience building. In Victoria, these include the Strategic Conversations initiated by DELWP in partnership with communities and the CFA (Campbell, Blair & Wilson 2010b; Campbell, Campbell & Blair 2010; CFA 2012b), the Get Ready Warrandyte project funded by a Fire Communities Grant (Warrandyte Community Association 2016), the Surf Coast Shire Fire Game (Surf Coast Shire 2015), and in Wye River where community members engaged with the local brigade and the Surf Life Saving Club for resilience building to create local protocols and community coordination to address bushfire emergency (for the Wye River Fire Plan see Appendix II).

Need for change

Government and agencies are aware that communities are yet to become self-sufficient and resilient and that agency practices need to change for this to be realised. In CFA’s (2013-2018) strategy ‘Towards Resilience’ notes that (CFA 2014, p. 4):

Traditional approaches to combating and responding to emergencies cannot sufficiently mitigate the impact of major incidents and disasters, nor take
advantage of social and technological changes, which can better empower communities to be safe.

In addition, ‘traditional ways of responding to emergencies cannot cope with severe weather events’ and that ‘better engagement with communities is required to understand collective and individual risk to better prepare and respond to emergencies’ (CFA 2014, p. 4). It adds that to ‘work effectively in the future CFA will need to work with others collaboratively, promote local decision-making, and be innovative in what it does’ (CFA 2014, p. 10). DELWPs safer together website puts forward much the same stance (DELWP 2015b). On paper all the government reports are in agreement on the principles, but there is little detail of how this will be achieved (COAG 2011; EMV 2013, p. 7; EMV 2015b, 2016; Victorian Government 2012). Government recognises the need for engagement and empowerment and incorporates these concepts in its policies, however implementing them is a challenge (Argyris & Schön 1974). Making practice bottom-up does not fit with the way government is structured as a top-down hierarchical decision making entity. Bottom-up decision-making requires empowering all stakeholders in collaborative, networked structures to make decisions about matters that concern them (Ife 2013). Instead, government agencies often make decisions on behalf of others resulting in community outrage (Bang the Table 2015; Sandman 2007).

In the spectre of bushfire danger, this suggests that there will be many challenges ahead to create bushfire resilience (EMV 2013). The policies of stay or go and shared responsibility are not that clear, are driven by government rather than the community and people are not ‘fully engaged with [the] resilience-building process’, nor are processes fully ‘led from within the community’ (Victorian Government 2012, p. 2). To exacerbate the problem, the experts who work in government agencies do not understand the ‘unique features of a community, to determine whom to work with’ (Victorian Government 2012, p. 2). However, ideas and practices have changed in the past and may be able to change in the future.
Summary

In this chapter I have explored the four strategies employed by government to reduce the risk and hazard of bushfire, and the research that influenced these policies. The policies include the stay or go policy, building codes, fuel reduction practices, education, and information on bushfire hazard and measures for safety. I have discussed how it is not possible to completely eliminate bushfire risk and explored definitions of resilient communities. There appear to be many challenges ahead to achieve some of the approaches as identified by government, to improve safety and resilience in the context of bushfire. Finally, I examined what agencies do to reduce the risk, how resilience is theorised as shared responsibility, and ultimately, how there is an accepted need for change in practices by government and communities working collaboratively to achieve bushfire safe communities. In the next chapter I discuss my methodologies to analyse the empirical data.
Chapter 3
Methodologies

Introduction

In Chapter 2, I explained how government policies attempt to address the risk of bushfire hazard. In this chapter I outline my ontology, epistemology, axiological assumptions and the methodologies that underpin my investigation of the phenomenon of bushfire safety. My research design, methods, and processes used are outlined in detail in Chapter 4. My ontological paradigm is interpretive, my epistemology is constructivist, and I used mixed methodologies that included action research and grounded theory (Charmaz 2001, p. 6396; Dick 2011). My ontology – that is the way I see and engage in the world is through an interpretivist lens (Flick 2009; Kant 2014). The way in which I recognise knowledge (e.g. epistemology) is from a constructivist point of view, which is that all knowledge is socially constructed (Creswell 2013; Bryman 2004). These positions informed how I analysed data and why I chose action research as the methodology.

My methods included semi-structured interviews, Delphi technique, and the diverge-converge process. Action research is a participatory cyclical process by which action informs theory (Dick 2011, p. 3), while grounded theory builds theory grounded in the data through a process of theming qualitative data and ‘where data collection and analysis reciprocally inform and shape each other through an emergent iterative process’ (Charmaz 2011, p. 360), and where qualitative data is systematically gathered, synthesized, analyzed, and conceptualized for the purpose of theory construction (Charmaz 2001, p. 6396). As this was a qualitative study its aims were not to generalise to a broader community. Instead the research focused on making sense of the problem and exploring the barriers to bushfire safety in collaboration with research participants. As discussed in Chapter 5 each community has its own characteristics and power dynamics, therefore data are meant to help inform
further research or engagement methods.

I took a mixed methods approach for my research in order to get close to people to ‘see through the eyes’ of the research participants’, to discover their ideas, views, expressed values, actions and feelings, to create new forms of understanding and knowledge (Bryman 2004, p. 279; Creswell 2013, p. 20; Reason & Bradbury 2002, p. 2; Skulmoski, Hartman & Krahn 2007, p. 9). This meant I gained rich, detailed, qualitative data that provided meaning rather than simple facts about why there is a space between the theory and practice of bushfire safety (Bryman 2004, p. 287). The rich narratives I collected were interrogated through an intensive process of inquiry, to glean further insights by asking questions of the data, such as: who, what and why (Stringer 2007, p. 84), in order to construct an interpretive rendering of the data (Charmaz 2001, p. 6397).

Two broad approaches are used to determine truth and make sense of the world, converting hypothesis (ideas) into knowledge. These are the positivist realist ontological paradigm and the relativist interpretivist ontological paradigm (Creswell 2013, pp. 20, 23, 24). I chose the interpretivist paradigm as it aligns with my worldview of compassion and empowerment best explained through qualitative approaches.

A relativist world-view means that I believe there are multiple ways to understand and make sense of existence, that reality is subjective and shaped by social contexts (Corbin & Strauss 2015, p. 22). In contrast, the realist worldview known as positivism, believes in one unchanging truth, uses quantitative data, objective measurement, experimentation, and deductive reasoning in contexts where cause and effect are more identifiable (Flick 2009, p. 13). Positivism takes an etic approach where the researcher is an impartial outside observer who tries to remove as much as possible, all influence, value judgements, or bias from the object under study in order to identify causal factors of the phenomenon (Bryman 2004, p. 77; Creswell 2013, p. 35; Flick 2009, p. 13). The starting point is a hypothesis, which is tested via controlled experimentation that is repeatable to verify quantitative results (Flick 2009, p. 12) and suits contexts such as the natural sciences for example, however ‘most phenomena cannot be explained in isolation, which is a result of their complexity in reality’ (Flick 2009, p. 15).
The process of experimentation, whereby all influences are eliminated, is less applicable in social contexts in which participants are influenced by physical and social constructs and in which knowledge is a collective and ‘cumulative’ process (Corbin & Strauss 2015, p. 20; Stringer 2007, p. 195). When investigating social phenomena, cause and effect relationships are less clear because ‘meanings come in packages, whole ways of life and belief systems’ and sense making occurs in discourse with people (David & Sutton 2004, p. 35). Truth is not determined by reductionist experimentation, but influenced by subjective meaning and contextual understanding (Bryman 2004; Flick 2009, p. 15).

The interpretive approach I took entailed examining social relationships to extract meaningful themes, common or divergent ideas, beliefs, and practices (David & Sutton 2004, pp. 35, 191). Charmaz (2014, p. 231) explains that ‘interpretive theories aim to understand meanings and actions and how people construct them’ and that ‘this type of theory assumes emergent, multiple realities; indeterminacy; facts and values as inextricably linked; truth as provisional; and social life as processual’.

**Insiders’ view**

Taking an emic or insiders’ view to the research enabled me to immerse myself in the context and I was able to observe and listen to participants within their social settings (Charmaz 2014). The insiders’ approach helped me to gain insights, make sense of descriptions and interpretations of what was said, in collaboration with participants as part of helping ‘people find mutually acceptable solutions to their problems’ (Stringer 2007, pp. 189, 190).

Analysis was achieved by abductive reasoning to analyse qualitative data, from the semi-structured conversations (Charmaz 2014, pp. 200-201; David & Sutton 2004, p. 191; Dick 2011, p. 4). Deductive and inductive logic would not have been appropriate given that I was using an interpretive form of analysis. This study therefore had to rely on abductive thinking, as I was making logical inference from data that would allow me to consider what was occurring, leading to themes that would highlight the most appropriate explanations. To improve the robustness of my data analysis, I used grounded theory to produce a more detailed analysis and

**Explaining action research**

I chose action research as my methodology because: it is responsive to real world problems, is inclusive, and participatory, and is founded on reflection and learning for understanding, as well as being a process that bridges theory and practice (Creswell 2013; Dick 2002; Friedman 2001, p. 159; Kezar & Maxey 2016, p. 146; Lewin 1946, p. 47; Reason & Bradbury 2002). A defining element of action research is the iterative cycles of action and critical reflection, in which learning is used to inform understanding and in which research is undertaken *in* practice not *on* practice (Friedman 2001, p. 160). Learning gained in a cycle in turn informs subsequent action cycles (Dick 2002). According to Argyris and Schön (1974) all action involves theory as espoused theory and theory-in-use. This means ideas are practically undertaken and assessed for their efficacy as a continual learning process. Theory is not separate from practice but is a constant process of reflection *on* practice (Argyris & Schön 1974, p. 144, 146). Levin and Greenwood (2011, p. 29) define action research as:

[A] set of ... collaborative and democratic strategies for generating knowledge and designing in which trained experts in social and other forms of research and local stakeholders work together.

Kumar (2006, pp. 43-44) adds that participatory research gets the ‘internal perspective’ as opposed to an external ‘outsider perspective’, uses ‘comparison’ instead of ‘measurement’, involves ‘group work’, and builds ‘rapport’ with participants. Reason and Bradbury (2002, p. 1) describe action research as a process that:

Brings together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities.

Thus, action research is an applied research approach in which those who have a stake in the outcomes of the problem actively take part in collaborating for practical problem resolution (MacKenzie et al. 2012, p. 20). To summarise, action
research involves the process of inquiry, action, and reflection for applied research as illustrated in figure 1.0 (MacKenzie et al., p. 12).

![Diagram of the action research cycle]

**Figure 1.0 The action research cycle**

The first figure illustrates the cycle of action research where theory informs action, which in turn modifies theory. The second lower figure explains the series of cycles which commence with plan, act, reflect and refine which then inform the next cycle of act, reflect, refine and plan and so on as a process of action research and learning (Diagram illustrated by Martin Butcher 2010).

**Advantages of action research**

The advantage of action research is its application to practical problems by ‘participative, qualitative, action-oriented and emergent’ learning for the purpose of creating change, which draws in multiple sources of data for rigour and triangulation (Creswell 2013, p. 24; Dick 1999; Stringer 2007, pp. 57, 58). Participants are active agents with the process, rather than passive subjects. Action research is *with* people rather than *on* people *within* a social context and is undertaken for empowerment rather than a deductive process of research *on* a social setting (Creswell 2013; Dick 1999; 2002, p. 24; Heron & Reason 2002, p. 179; Kemmis 2002, p. 91; Lewin 1946, p. 35; Zuber-Skerritt 1996; Zuber-Skerritt & Fletcher 2007, p. 417). Furthermore, as a non-exploitative democratic process of collaboration, action research honours participants and their input (Stringer 2007, pp. 27-28).
**Reasons for action research**

As established earlier, the phenomenon of bushfire safety exists within a complex, real world context and involves people who are influenced by their relationships with nature and each other. Stringer (2007, p. 27) debates that in qualitative research we are not dealing with an:

> Insensate machine ... we must acknowledge and take account of people’s active, creative, willful, and potentially fractious responses to any situation. We need to acquire practices, processes, and skills that enable us to work effectively in this more dynamic situation.

Thus action research aligns with the phenomenon of bushfire safety as it involves collective critical reflection, and empowers people in joint deliberation on a collective problem. I choose action research as one of my methodological approaches in order to work effectively with people as an emancipatory process founded on social justice, while respecting people and their agency, in the process of inquiry (Stringer 2007, p. 27). My role in conducting the action research was facilitatory so as to encourage participants to explore and discuss the dimensions of the phenomenon, to elicit understanding, reach comparative consensus, avoid exploitation, as well as to aid verification and triangulation (Creswell 2013, p. 246; Dick 2011, p. 4; Kumar 2006, p. 258; Stringer 2007, pp. 177, 213). Data was shared with participants who interacted with the data, to generate greater understanding and insights as in a community of inquiry (Innes & Booher 2010, p. 138; Reason & Bradbury 2002, p. 2).

Action research is inclusive, builds relationships, and uses communication to resolve problems (Ife 2013; Lewin 1946; Zuber-Skerritt 1996; Zuber-Skerritt & Fletcher 2007, p. 415). To achieve a participatory and inclusive process, diverse stakeholders expressed their values by responding to a set of questions. Themed responses were then shared with participants for informed understanding (Noffke & Somekh 2005, p. 89). Each collective review of the themes with participants informed the next cycle of action (further interviews, discussion, and refining the themes) (Noffke & Somekh 2005). The cycles provided new insights and emergent understanding, which is a key feature of action research (Dick 1999). These cycles act as a positive feedback loop, as described in complexity theory, because each
round of data sharing and sorting assists understanding of the context and dynamics of the phenomenon for participants and researchers (Blackman 2000).

**Criticism of action research**

Action research is criticised for having little rigour and is not always well regarded by academia in which the positivist paradigm predominates, and where distinctions are made between ‘hard’ and ‘soft’ sciences (Denzin & Lincoln 2011; Kemmis 2002). This context is where ‘technical rationality’ dominates, but where positivist scientists fail to acknowledge their own agendas and commitments (Denzin & Lincoln 2011, pp. 1-2; Dick 1999, p. 414; Friedman 2001 citing Schön 1983, 1987; Levin & Greenwood 2011, p. 28; Stringer 2007; Zuber-Skerritt & Fletcher 2007; Zuber-Skerritt & Teare 2013). Action research, according to Checkland and Holwell (1998, p. 12) is:

- a collaborative process between researchers and people in the situation,
- a process of critical inquiry,
- a focus on social practice, and
- a deliberate process of reflective learning.

While scientific inquiry is based on ‘three fundamental principles, which characterise it and give it its power: reductionism, repeatability, and refutation’ (Checkland & Holwell 1998, p. 10-11 citing Checkland & Holwell 1981, Chapter 2). Instead, action research takes a social situation and examines that in collaboration with others to create change, blurring the boundaries between researcher and participants (Checkland & Holwell 1998, p. 17). In disciplined scientific experimentation the researcher attempts to remove themselves and their influence from the subject matter (Creswell 2013; Flick 2009). Due to the experimental nature of action research and the emergent knowledge it builds, hypotheses cannot be repeated for refutation to establish their veracity as an accumulated body of knowledge until further research proves otherwise (Checkland & Holwell 1998; Creswell 2013; Flick 2009). Instead, action research is based on values, is subjective and unpredictable and as a result action research is dismissed as unscientific and irrelevant (Checkland & Holwell 1998, p. 11). A further difficulty of action research is that once the data is generated, action research does not provide clear methods for data analysis (Dick 2011, p. 6). The approach I took to overcome this challenge was to incorporate grounded theory.
for my data analysis (Corbin & Strauss 2015, p. 3; Dick 2011, p. 2; Flick 2009, p. 428).

**Addressing bias**

In the constructivist tradition, I acknowledge my position and relationship within the research, and in which my biases and assumptions are made explicit so far as could be reasonably achieved as indicated here and in Chapter 1 (Corbin & Strauss 2015, p. 20; Creswell 2013, p. 20). My epistemological approach aligns with my desire to create human flourishing founded on the importance of social justice and my belief that compassion is an essential feature for understanding people (Reason & Bradbury 2002, p. 1). This worldview aligns with the transformative paradigm of engaging with real world problems for practical outcomes to benefit people (Creswell 2013, pp. 37-36; Gamble 2013, p. 327; Reason & Bradbury 2002, p. 1).

My relationship with the research is that I am familiar with the context of the phenomenon but claim that it is impossible for the researcher to be value free and removed entirely from the research (Burkey 1993, p. 61; Creswell 2013, p. 20; Gibbs 2013; MacKenzie et al. 2012). Burkey (1993, p. 61) explains action research as ‘starting from the principle that it is not possible to separate the facts from values and social relationships’ where the researcher ‘becomes part of the reality being investigated’. The problem of bias is addressed by including research participants in data generation and theming to ensure transparency, triangulation, and validity (Corbin & Strauss 2015, p. 47; Okoli & Pawlowski 2004, p. 27). By working together, the participants and researcher are able to test agreements and explain disagreements and strengthen the resulting theory (Dick 1999; Gibbs 2013; Okoli & Pawlowski 2004, p. 27). As a methodology, action research allowed me to co-create qualitative data with participants as a process of sense making, and reflection on the phenomenon under investigation (Dick 1999; Levin & Greenwood 2011; Reason & Bradbury 2002, p. 2; Stringer 2007).
Addressing rigour

Stringer (2007, pp. 57-58) contends that rigour in action research requires prolonged engagement, persistent observation, triangulation, checking and debriefing with participants, diverse case analysis, and referential adequacy. Each of these requirements is addressed in my research. I had prolonged engagement within the context of bushfire safety through my work with CFA. This permitted me to have persistent observation of the intentions and actions of people planning and preparing for bushfire.

I modified the action research process by devising the research questions myself rather than involving participants in question development (Dick 2002). However, I involved participants in the decision-making and co-creation of the data through (Zuber-Skerritt & Fletcher 2007): semi-structured interviews (Gray 2014), in theming the data using the Delphi technique for rounds of data sharing (Okoli & Pawlowski 2004; Pretty et al. 1995) and testing the data for disagreement (Dick 1999). Further action was incorporated in a collaborative workshop with diverse stakeholders. Triangulation was addressed through the provision of multiple sources of information, such as government documents, relevant literature, and the opinions of participants (Creswell 2013, p. 246). Participants were involved in confirming the data in the Delphi rounds and in the two-hour workshop (Stringer 2007, p. 58). The full process describing the ways by which I employed the methods is outlined in Chapter 4.

I achieved diverse case analysis by ensuring that the perspectives of all stakeholders were incorporated in the study (Creswell 2013, p. 246 citing Eisner 1991). Referential adequacy is ensured by reflecting the viewpoints of stakeholders in the themes and final concepts from the research; the themes culminated in an emergent theoretical diagram, which is part of creating theoretical understanding grounded in the data (Charmaz 2011; Corbin & Strauss 2015; Kock 2007, p. 104; Stringer 2007, pp. 57-58).

Kock (2007, pp. 100-101) proposes a further ‘antidote’ to overcome what he sees as the threats to action research of contingency and subjectivity. By contingency he means the difficulty of generalising research findings or the ability to apply the
findings in different contexts; by subjectivity he means the biases of the researcher based on emotion (Kock 2007, pp. 101-102). Kock (2007, p. 106) debates that these threats can be overcome through: evolutionary theoretical understanding, and through iterative cycles that provide cumulative data in different contexts.

**Explaining grounded theory**

Created by Glaser and Strauss (1967), grounded theory develops theory, which is grounded in the data (as opposed to the positivist tradition where theory precedes the data) (Corbin & Strauss 2015, p. 3; Creswell 2013, p. 84). Grounded theory achieves theory through *iterative, comparative and abductive reasoning* in which the researcher constantly compares data for analysis, understanding and insights (Charmaz 2001, p. 6397; 2011, 2014; Dick 2011, p. 4). This interaction with the data informs and advances greater analytical understanding (Charmaz 2011, p. 361). In grounded theory the research process commences with no pre-conceived ideas as to what themes might be revealed from the data, and then through a three step process of open, axial and selective coding, the data themes are built up over time by the researcher in isolation from participants (Charmaz 2001, p. 6397; 2014; Dick 2011; Gibbs 2013; Glaser 1992, p. 22; Kock 2007, p. 104). In open coding the researcher examines the data line by line (Charmaz 2014, p. 124; Gibbs 2010b), and asks questions of the data (e.g. who, what, how, and why) as a process of critical reflection (Gibbs 2010b), followed by axial coding in which the relationships between categories are explored (Charmaz 2001, p. 6398; Kock 2007, p. 104). Theming qualitative data allows emergent understanding of the phenomenon where links can be drawn between coded data providing essential concepts or story lines (Charmaz 2001, p. 6398; 2014; Corbin & Strauss 2015; Gibbs 2010a; Kock 2007, p. 104). Ultimately a theoretical understanding emerges which can be developed into a model to explain and illustrate the theory developed from the data (Charmaz 2011, p. 360; Kock 2007, p. 104).

Action research and grounded theory provide methodological approaches that are suited to complex social phenomena and abstract problems for sense making through iterative analysis and emergence of theoretical development (Charmaz
2011; Glaser 1992, p. 24). To improve the robustness of my data analysis, I used grounded theory to produce a more detailed analysis and to develop an emergent theoretical understanding (Charmaz 2001, 2011; Creswell 2013; Dick 2011; Kock 2007, p. 106). Incorporating the two approaches, I was able to triangulate the data for greater confidence in the findings and for research rigour (Bryman 2004, p. 275). It is not uncommon for researchers in qualitative data to utilise both action research and grounded theory (Dick 2011, pp. 268-269; Kock 2007; Yoong, Pauleen & Gallupe 2007; Yoong & Pauleen 2004). I did, however, modify both approaches to suit my research purposes (Flick 2009). In pure grounded theory, researcher doesn’t ask questions ‘directly of the interviewee’; but I asked direct questions and held the assumption that compassion might be a key component in the phenomenon (Glaser 1992, p. 25).

**Summary**

In this chapter I have explained my reasons for choosing action research and grounded theory as my methodologies to examine the phenomenon of bushfire safety. I chose these methodologies because of their participative and emancipatory benefits and because theory generation could be grounded in the data. In Chapter 4, I will examine the methods I used to engage with participants, to gather and analyse the empirical data.
Chapter 4
Research design, results and analysis

Introduction

In Chapter 3, I explained the philosophical basis for my investigation of the phenomenon of bushfire safety. In this chapter, I explain my use of mixed methods, my research design, how I addressed bias and the initial results and analysis. The methods I employed to investigate the phenomenon of bushfire safety were: semi-structured interviews and the Delphi technique followed by a facilitated participatory workshop, using diverge-converge processes, to assist participants to share and respond to the data.

Use of literature

As part of the action research process I reviewed literature that explained and helped to make sense of the emergent research findings. The literature is interwoven throughout this thesis as an emergent process that contextualises, helps interpret and analyse the emergent findings (Boote & Beile 2005). Firstly, I examined the literature to familiarise myself with government policies and practices. Then, after I had conducted my action research and themed the data, I sourced literature that provided meaning to the emergent findings. This literature was sourced from government documents, policies, research reports, academic literature for theoretical perspectives, and other research into the topic in relevant fields such as community development. My interpretation and sense making of the data was further informed by my experiences and reflections of working in emergency management (Bryman 2004, p. 30; Creswell 2013, p. 246; Kock 2007, p. 121). These sources of data add to the rich empirical data from stakeholders, from those who are at risk of bushfire (the community) and those who manage bushfire risk and hazard (agency experts).
Identifying participants

To conduct the research, I identified potential participants as those who either live in high-bushfire risk locations, or who work or volunteer in the bushfire and emergency services. To find willing participants in the research, I approached likely people in these target groups and then emailed an invitation flyer that explained the research topic and ethics process via an anonymous blind copy email (Skulmoski, Hartman & Krahn 2007, p. 1). Additional participants were found using a ‘snowballing’ process (Baltar & Brunet 2012, p. 60; Skulmoski, Hartman & Krahn 2007, p. 4; Stringer 2007, p. 47). Snowballing is achieved when invited research participants, in turn, invite other people they know in their network to also participate (Bryman 2004, pp. 100, 102).

My aim was to have a balanced representation between government staff and community members in order to hear viewpoints from these two main stakeholder groups and importantly to gain community knowledge (Franklin & Hart 2007, p. 241; Kezar & Maxey 2016, p. 153). The snowballing process however, attracted more participants from government agencies than from the community sector. This may have occurred because the relationships and networks between those in government agencies are stronger than relationships between agency and people in the community. However, I do not consider the final mix problematic because people who work for agencies are also part of the community and often live in bushfire risk locations. Community members may also be knowledgeable about bushfire hazard, not just those who are employed by agencies. Importantly, an action research process was employed to enable participants to collaborate and share their experiences representing themselves. Qualitative themes were created from data obtained from all participants for sense making rather than quantifying responses. The analysis was not to interrogate participants’ subjective judgements or perspectives. The purpose was to find out how each person was making sense of bushfire safety.

The majority of the research participants live in coastal or rural locations in Victoria. The technical experts (firefighting, volunteers and other agency staff) sometimes live in these locations and both the technical experts and general community members have greater or lesser knowledge and/or experience of
bushfire and potentially a greater or lesser understanding of the complex dynamic between people, bureaucracy, and natural systems. The majority of research participants live in areas that have a history of disastrous bushfire, for example the Surf Coast Shire that experienced Ash Wednesday in 1983. However, most participants moved to their locations after these historical bushfire events. Although the research participants live in bushfire risk locations, no significant bushfire events have occurred in these communities for some decades, with the exception of Wye River in December 2015, but this bushfire occurred after I undertook the research. Significant bushfires are those categorised by the Emergency Management Act (Victorian Government 2013, p. 3) as bushfires that ‘can cause loss of life and property’.

In the final tally I had invited sixty-one people to participate in the project of which thirty-eight people consented to be interviewed as outlined in table 1.0. Those people who consented were eager and engaged in the research topic.

<table>
<thead>
<tr>
<th>Participant profiles</th>
<th>Invited</th>
<th>By Telephone</th>
<th>In person</th>
<th>Interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Government staff</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Community members</td>
<td>20</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>CFA and DELWP staff</td>
<td>17</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Hybrid (part-time CFA staff and CFA volunteers, consultants and community members)</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Bureau of Meteorology</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other State Government departments e.g. (Department of Planning and Community Development)</td>
<td>11</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>61</strong></td>
<td><strong>20</strong></td>
<td><strong>18</strong></td>
<td><strong>38</strong></td>
</tr>
</tbody>
</table>

Table 1.0 Profile of research participants

From left to right: The sectors participants came from, the numbers invited, the number interviewed by telephone, in person and the final tally of those interviewed from each sector.

Data gathering and sense-making

This next section outlines how I conducted the thirty-eight semi-structured interviews to gather qualitative data, and then facilitated seven modified Delphi rounds to develop themes. I facilitated a participatory workshop with thirteen of
the original thirty-eight participants interviewed. The action research and Delphi rounds produced a list of themes ranked by participants from most, to least important. Ranking and sorting data is an action research process that allows participants to compare large amounts of data and arrive at a ‘comparative’ understanding (Kumar 2006, p. 258).

Table 1.0 indicates the number of the interviews undertaken. Fourteen interviews were dyadic, that is, conducted one-on-one, and two interviews were with couples from the community. With the permission of participants, a digital recorder was used to capture the interviews, and I took notes in case the recording failed (Stringer 2007, p. 73).

**Semi-structured interviews**

Semi-structured interviews allow researchers to ask questions of clarification as required, the interviewer needs to be ‘attuned and responsive’ and aware of ‘body language’ in case the interviewee becomes uncomfortable with the questions being asked (Bryman 2004, pp. 321, 327). I chose the semi-structured interview process to enable participants to discuss what they saw as important and for ‘political parity’ (Creswell 2013, p. 24). Semi-structured interviews are a reflexive process that allows for a more natural conversation style to evolve. This allows the participant and researcher to ask each other clarifying questions and where the researcher devises appropriate questions as prompts (Corbin & Strauss 2015, p. 39; Flick 2009, pp. 162-163). This interview process allows participants to ‘tell their own story in their own way’ and avoids the interview becoming ‘interrogative’ (McLennan, Paton & Wright 2015, p. 8). New insights and ideas emerged as the conversations unfolded, which brought up diverse ideas and trajectories (Gray 2014, pp. 383-384; McLennan, Wright & Birch 2014).

My interview guide contained three questions:

1. **What is your work at the moment?**
2. **I am interested in finding out your views about what you perceive might be missing between the theory and the practice of creating bushfire safe communities?**
3. **What kind of approaches might be required to bridge the space?**
Before each interview began I would initiate informal discussion with participants with an opening question to help participants feel at ease and build rapport (Bryman 2004, pp. 118-119; Stringer 2007, p. 73). Asking open questions helped explore participants’ opinions and understanding of the topic (Bryman 2004, p. 145). Open questions elicit a wider response, allow for individual interpretation and exploration as opposed to a closed question, which might yield only a ‘yes’ or ‘no’ response (Bryman 2004, pp. 145, 148). I anticipated that interviewees would diverge widely in their responses, which is what occurred; therefore I chose a problem-posing question. Question three was chosen to focus participant’s responses to the ‘problem’ and the central phenomenon being investigated (Flick 2009, pp. 162-163).

Results

The interviews went to plan, but unfortunately I did not meet all participants face-to-face due to participants’ work commitments, and therefore I had to conduct twenty interviews by telephone. I felt that the face-to-face interviews were more in-depth than those conducted on the telephone. I found it was more challenging to connect effectively with participants over the telephone due to the lack of eye contact, body language, other subtle cues, and nuances (Bryman 2004, p. 115; Gray 2014, p. 384; Opdenakker 2006). Bryman (2004, p. 115) maintains that telephone interviews have some advantages, in that they save time travelling, that telephone interviews can reduce bias because the interviewee is not influenced by the researcher’s appearance or mannerisms, which may elicit responses that are interpreted as ‘desirable’. I met eighteen participants in person, and gained detailed responses to the research questions overall.

I transcribed, proofread, and returned all interviews to participants via email or mail. For participants without email, I mailed their transcripts with a reply paid envelope. Each participant was asked to review the transcript for accuracy and return corrections or further comments. This ensured I had captured what the participant had said accurately for ‘testing and summarising understanding’ (Gray 2014, p. 396). Several amendments were made but no further comments were added.
Explaining Delphi

Delphi is a flexible, participatory technique that addresses real world problems in which a ‘virtual panel of experts’ are engaged to formulate ‘answers to a complex problem’ (Kezar & Maxey 2016, p. 146; Nworie 2011, pp. 24-25; Skulmoski, Hartman & Krahn 2007, p. 2). As describe by (Skulmoski, Hartman & Krahn 2007):

The Delphi method is an iterative process to collect and distill the anonymous judgments of experts using a series of data collection and analysis techniques interspersed with feedback. The Delphi method is well suited as a research instrument when there is incomplete knowledge about a problem or phenomenon.

The technique uses experts in the field, or on a topic, rather than a broad cross section of the population to ‘elicit, distil and determine the opinions’ of a group to ‘seek consensus’ (Nworie 2011, p. 24). Skulmoski, Hartman and Krahn (2007, p. 4), define experts as those who have the expertise, knowledge, and experience of an issue and the capacity and willingness to participate. In the original Delphi technique, participants are anonymous to each other but not to the researcher, and answer a questionnaire, which is ranked. The ranked results are then circulated again for participants to modify their choices with the aim of reaching consensus (Franklin & Hart 2007, p. 238; Okoli & Pawlowski 2004, p. 16). The shared ranking process occurs over several rounds until consensus is reached (Kezar & Maxey 2016, p. 145; Okoli & Pawlowski 2004, p. 16). The anonymous rounds assist participants to focus on the ideas without being distracted by the power, rank, or status of the other participants (Kezar & Maxey 2016, pp. 144, 146; Nworie 2011, pp. 24-25).

In my research I modified the Delphi technique. I used themed interview data shared anonymously with participants in rounds where they could contribute to, edit or either agree or disagree with the data (Dick 1999; Franklin & Hart 2007, p. 238). Participants were then asked to rank the data from the most to the least important as they chose (Okoli & Pawlowski 2004, p. 27). My intention of using the Delphi technique was to reach a ‘comparative understanding’ rather than consensus (Franklin & Hart 2007; Kumar 2006, p. 258). This allowed me to discover participant’s ‘knowledge, values, preferences, and attitudes’ on the topic of bushfire safety (Gray 2014, p. 383).
The benefits of the Delphi technique is that it can be undertaken with participants ‘separated by time and space’ who can, in their ‘own pace and time without the influence of other expert panellists’, arrive at a decision (Nworie 2011, pp. 24-25). I would describe those I interviewed as experts in the field. This is because they were either government, bushfire agency staff and volunteers, who are experienced in bushfire and emergencies or, community members who are experts of their particular context, who have agency, and who were able to recount their past behaviour towards bushfire risk, or their intended future actions (Franklin & Hart 2007, p. 241; Kezar & Maxey 2016, p. 146).

**First Delphi round: data sorting**

The first Delphi round consisted of semi-structured interviews with participants. I then created summary transcripts listing key points and circulated these as de-identified data to participants for confirmation, modification, or addition (Corbin & Strauss 2015, p. 69). Once all responses had been received from the participants, I commenced coding the summaries using Nvivo (QSR International software), allowing themes to emerge in a process of open coding to obtain broad concepts (Charmaz 2014; Corbin & Strauss 2015, p. 76; Glaser 1992). After working on approximately three transcripts in Nvivo I found that the process forced me to create categories ahead of the data, rather than allowing categories to emerge from the data (David & Sutton 2004, p. 198). I decided to manually sort the data as this allowed me be immersed in the detail and to constantly compare the codes with ease, allowing categories to emerge (Charmaz 2014, p. 132; Corbin & Strauss 2015, p. 7; Glaser 1992; Walker & Myrick 2006, p. 548).

To sort the data manually, I printed out each transcript onto single sided paper and cut out each comment or idea from the interview summaries and these formed the ‘codes’ for the process of line-by-line examination of the data (Charmaz 2001, p. 6398; 2014, pp. 124-125; Kock 2007). I then sorted the ideas into similar concept groups, what Corbin and Strauss (2015, pp. 76-77) describe as items that fit within ‘lower-level concepts’. Once I had approximately ten codes per concept group, I would review the individual codes to confirm the emergent concept. I then wrote a word or brief summary for the concept, and repeated the process for the remaining transcripts in a similar approach to axial coding in
grounded theory (Charmaz 2011). By reviewing the data repeatedly I was applying the grounded theory method of ‘constant comparison’, which meant I iteratively compared the data while sorting, categorising and extracting theoretical understanding (Glaser 1962).

I went through this process repeatedly to confirm that the data was in an appropriate concept group in what Charmaz (2014, p. 140) defines as focussed coding. Employing this method I was able to quickly see what were the ‘basic-level concepts’ for the ‘foundation’ of my theory (Corbin & Strauss 2015, p. 76). Once a concept started to coalesce, I wrote a word to describe the category onto the envelope and filed all the codes with it. When I had completed ten transcripts, I scrutinised all the codes filed in the envelope in each category, then excluded any codes that did not reflect that category on the second review as a process of ‘looking for similarities and differences within these bits to categorise and label the data’ (Walker & Myrick 2006 citing Padgett, 1998; Patton, 2002; Tutty, Rothery, & Grinnel, 1996).

**Second Delphi round**

Once the data analysis was complete, I typed all the key codes from the individual transcripts to create one whole summary document that I circulated to participants for comment. Participants were invited to rearrange the data in their order of preference, and were asked to highlight what was *most important to them* in relation to the topic (Nworie 2011; Skulmoski, Hartman & Krahn 2007). When all the participants had responded I rearranged the data to demonstrate the newly prioritised themes, from the most to the least important. Then the comments were grouped into the emerging common themes. See Table 2.0 for an example of the category of *common ground* and all the comments that were similar to that theme.

<table>
<thead>
<tr>
<th>Code</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN1_01_137_4</td>
<td>If we have common ground then we can gain trust</td>
</tr>
<tr>
<td>TN2_04_1115_1</td>
<td>Hard to develop a collaborative approach because the vision and priorities of different agencies keep changing</td>
</tr>
<tr>
<td>TN1_15_411_2</td>
<td>No joint key messages that are agreed on by all</td>
</tr>
<tr>
<td>TN3_02_110_16</td>
<td>Story sharing and local knowledge is missing</td>
</tr>
</tbody>
</table>
There isn’t an agreed strategy or common goal as to how to work together as multiple stakeholders (sic).

The boundaries are not clear around which agency does what when it comes to recovery work.

Alignment between agencies is a gap because we develop priorities based on our own accountability – we need to develop a broader program together.

Agencies have different work plans and objectives.

<table>
<thead>
<tr>
<th>Table 2.0 Emerging theme common ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>After sorting and ranking the transcripts with participants, the table demonstrates similar comments that created an emerging theme that was then labelled as common ground.</td>
</tr>
<tr>
<td>Afterwards, I summarised the emergent theme of common ground with a single quote as illustrated in table 3.0. These summarised themes and their supporting quotes were used to construct the posters for the workshop.</td>
</tr>
</tbody>
</table>

**KEY THEME: Common Ground**

<table>
<thead>
<tr>
<th>TN1_07_203_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>There isn’t an agreed strategy or common goal as to how to work together as multiple stakeholders (sic).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3.0 Emergent theme common ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>A code used to illustrate the emergent theme common ground, which was placed at the top of one flipchart poster.</td>
</tr>
</tbody>
</table>

**Third Delphi round: workshop**

Finding a suitable location and time was a challenge as participants in the research process were geographically dispersed across the state. My observation was that those that already knew me were more willing to participate further in the research, as were those who had met me face-to-face in the interviews. This meant that the thirteen participants at the workshop were those people who I had interviewed in person. However, all participants interviewed indicated that they were interested in the outcomes of the research.

I facilitated the workshop using rounds of data sharing between participants. The thirteen participants at the workshop included: four community members, three Local Government staff, four bushfire emergency management staff and two
hybrid participants who were either CFA volunteers, part-time paid government employees, consultants or a combination of these.

After welcoming participants, I ran an icebreaker exercise to assist with introductions. Participants were invited to pair up with someone they did not know and share where they have come from and what they hoped to get out of the workshop. Participants were then invited to circulate and read the displayed posters with the emergent themes.

**Themed posters**

From the twenty-two themes previously gathered, I made twelve posters by combining themes that correlated to one another as in table 4.0.

<table>
<thead>
<tr>
<th>Poster themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brochures and telling people what to do, does not work</td>
</tr>
<tr>
<td>Community action, and experiential stories</td>
</tr>
<tr>
<td>Complexity</td>
</tr>
<tr>
<td>Current practices are not working; and agencies need to change</td>
</tr>
<tr>
<td>Education, psychology and marketing approaches</td>
</tr>
<tr>
<td>Engagement</td>
</tr>
<tr>
<td>Fire planning; agency initiatives, multi-agency, collaboration and commitment; and common ground.</td>
</tr>
<tr>
<td>Individual responsibility; and shared responsibility</td>
</tr>
<tr>
<td>Meet people where they are at; and understanding human behaviour</td>
</tr>
<tr>
<td>Networking; and story telling</td>
</tr>
<tr>
<td>People need to understand bushfire better; and there is nothing like experience</td>
</tr>
<tr>
<td>Practical measures; networking; storytelling</td>
</tr>
</tbody>
</table>

Table 4.0 Poster themes

This table indicates how the themes were grouped into twelve posters.

I pasted the themes to the top of flip chart paper; for example one poster included three themes – those of ‘fire planning; agency initiatives, multiagency, collaboration and commitment; and common ground’, as in table 5.0.
Some people get stuck when writing a bushfire plan and it involves what to do with their pets. They don’t know where they can go with their pet if they have to leave early. People get to a certain point with their fire planning but when they reach certain problems they stop and put it in the too hard basket. You need to make more than one plan to cover all the ‘what ifs’ and variables.

A coordinated multi-agency approach, which engages, and involves the community, is required.

By partnering and collaborating with community, government can best use the existing resources, which are the community; it’s knowledge and capacity.

There isn’t an agreed strategy or common goal as to how to work together as multiple stakeholders.

Table 5.0 Grouped themes
The table illustrates the three combined themes displayed as one poster at the workshop.

In table 5.0 I indicate how the themes were grouped on posters. I also had on hand the full list of emergent themes for participants to refer to if they required more detailed information. All the posters were displayed around the room for participants to consider in no particular order.

Fourth Delphi round: face-to-face
In this face-to-face round participants circulated, and read the posters adding comments. Participants contributed additional ideas independently, and at their ‘own pace and time’, while reading what others had written, but they did not necessarily know who had made the comments (Nworie 2011). The process was ‘divergent’ where people were able to come up with ideas aligned to the theme, but this time, instead of working in isolation, they were able to do this with others if they chose to, or to write comments without engaging with others (Kaner, Lind, Toldi, Risk, Beger 2001).
**Fifth Delphi round: summary**

After thirty minutes, participants were asked to go to the poster that they felt most strongly about, to discuss and reflect on the contents of that poster with other participants. Working in small groups, one person in each group led these discussions at several of the displayed posters. My role during the process was to ensure that no one in the small groups monopolised the conversation and that participants kept on topic with their discussion. Participants were very engaged at this point and were able to focus on the task successfully. Most groups were able to summarise their discussion and re-wrote a clear summary, while others circled key points written on the posters. After twenty minutes I asked the small groups to complete their summaries.

**Examining themes: converging**

The theoretical base I used in the workshop was the ‘diverge-converge’ process as illustrated in figure 2.0 (Kaner et al. 2001). The diverge-converge model explains the process of analysing a topic or problem where participants expand on possible scenarios, design options, and ideas through a brainstorming process (Kaner et al. 2001). The process moves into the ‘groan zone’ (the middle section of the diamond) where the resolution appears elusive and participants feel that a solution is impossible (Kaner et al. 2001). Finally, through further discussions, collaborative processes, and intuitive leaps of imagination the ideas converge and are resolved. These steps can be repeated over a number of cycles to reach creative solutions. At the workshop, the diverge-converge process enabled participants in discussion rounds to review the data, and add additional information together. The benefits of sharing and rearranging data in this way is that participants become part of the process of sense-making which in turn creates greater understanding (Kezar & Maxey 2016). The process of converging assists participants to achieve ‘consensus’ as in the Delphi technique (Nworie 2011, p. 26), and problem solve in a collaborative and participatory approach (Kezar & Maxey 2016).
Figure 2.0 Diverge converge model

The model by (Kaner 2014; Kaner et al. 2001) demonstrates the diverge-converge process undertaken with participants at the workshop.

**Sixth Delphi round: ranking data**

At the workshop and in the sixth Delphi round, over 20 minutes, each small participant group shared their poster summary with the other workshop participants by reading aloud their summaries. Once all the summaries were provided I asked participants to rank the posters and the summaries using sticker dots: red dots as first priority, orange for second priority and blue for third priority. Once the ranking was completed, two participants gave a value to each coloured sticker dot and counted up the totals. This was another step of converging ideas and bringing participants to a decision as to what was of most importance (Kaner 2014; Kaner et al. 2001). The posters were arranged along the wall according to the total tally of priority they had received, from least to most (Skulmoski, Hartman & Krahn 2007, p. 8). Participants were asked to read and discuss anew the posters with their summary comments, so that everyone was familiar with the ranked posters. There appeared to be consensus on the findings which revealed people’s ‘different truths and realities’ as explained (Stringer 2007, p. 41):

> Constructions are created realities that exist as integrated, systematic, sense-making representations and are the stuff of which people’s social lives are built. The aim of inquiry is not to establish the truth or to describe what really is happening but to reveal the different truths and realities—construction—held by different individuals and groups. Even people who have the same facts or information will interpret them differently according to their experiences, worldviews, and cultural backgrounds.
The results from the diverge-converge and ranking and construction process are illustrated in table 6.0.

<table>
<thead>
<tr>
<th>Ranking themes from Delphi rounds</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet people where they are at; and understanding human behaviour</td>
<td>29</td>
</tr>
<tr>
<td>Bushfire planning; and agency initiatives, multiagency, collaboration and commitment; and common ground</td>
<td>29</td>
</tr>
<tr>
<td>Practical measures: networking; and storytelling</td>
<td>27</td>
</tr>
<tr>
<td>Engagement</td>
<td>24</td>
</tr>
<tr>
<td>Brochures and telling people what to do does not work</td>
<td>22</td>
</tr>
<tr>
<td>Make it personal; relationships are key; and supporting communities</td>
<td>20</td>
</tr>
<tr>
<td>Community action; and experiential stories</td>
<td>18</td>
</tr>
<tr>
<td>Individual responsibility; and shared responsibility</td>
<td>14</td>
</tr>
<tr>
<td>Complexity</td>
<td>13</td>
</tr>
<tr>
<td>Current practices are not working; and agencies need to change</td>
<td>11</td>
</tr>
<tr>
<td>People need to understand bushfire better; and there is nothing like experience</td>
<td>8</td>
</tr>
<tr>
<td>Education; psychology; and marketing approaches</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 6.0 Final ranked themes (From data set 1.0)

This table illustrates how participants ranked the workshop posters.

**Seventh Delphi round: discussion**

After a short break, participants took part in a group discussion for thirty minutes, and were asked to consider the research topic and what the workshop had revealed. This was another divergent round in group conversation and reflection. I lightly facilitated the conversation, reminding people to speak one at a time and to be aware of others’ needs to participate. A few times I asked questions of the participants and ensured people took turns in listening to each other; mostly I scribed responses from the conversation.

To conclude the whole group discussion I asked participants to provide a ‘gem’ from the participatory experience (Ochre 2013). The gem was a lasting impression, thought or idea from the workshop. These were gathered on small notepaper, which were displayed on a wall. This was a last converging round that enabled the participants to debrief what was uppermost in their minds. I thanked participants for their input and this marked the end of the workshop process.
After the workshop I sent a typed list of the ranked themes to all participants including those who were not able to attend the workshop.

**Data set 1.0 emergent themes**

As a final coalescence of the Delphi themes and after the workshop, I wrote a narrative to assist with the data analysis, which was drawn from participants’ views and expressed opinions.

The space between the theory and practice of creating bushfire safe communities is: we need to understand people and where they are at, which means understanding our human behaviour. As emergency management agencies we need to work from a common vision, which includes collaborating and working across multiple agencies. People said that the best way to connect with community people is through practical measures like networking, storytelling, and using good engagement. Brochures and telling us what to do doesn’t work: what does is making engagement personal, building relationships and supporting the community. As community we have to take action and share our stories, along with our individual and shared responsibility for bushfire. All this is complex, but the problem cannot be addressed using current practices and therefore we all need to change. We will understand bushfire danger better when we have real experiences to understand it by. Therefore, experiential stories, education, psychology, and different communication approaches are needed for us to learn how to be better prepared.

**Data set 2.0 grounded theory narrative**

Since my initial gathering of the data, two years had passed as I had been living overseas working in a voluntary position with Australian Volunteers International Development. When I re-examined the data I found that much of what I had obtained seemed abstract to me, so I chose to re-analyse the data using grounded theory to aid my reflection on what I had found. To do this, I coded the initial interview transcripts again line-by-line, then used open and axial coding (Charmaz 2011, 2014; Corbin & Strauss 2015; Gibbs 2010b, 2010a). This enabled me to familiarise myself with the data once more and provided me with the opportunity
to test the outcome of the Delphi rounds derived in the workshop. The grounded theory analysis derived from participants’ commonly held views and perspectives, resulted in thirteen themes that I wrote into a second narrative. I did not weight the two sets of data (1.0 and 2.0), but grouped these into like themes. As all the participants were part of a collaborative action research process I chose to use ‘we’ in the narratives to express their voices. I did not divide participants, because they are all people, sometimes living in the same community, with more or less knowledge of bushfire, which may or may not contribute to bushfire preparedness. This meant that responses from participants were at times contradictory. I kept these contradictions in order to be true to the methodology in expressing participant’s perceptions and understanding of the complex context.

a). The space

Bushfire is a natural part of the environment and it is our relationship with it and how we view bushfire, which is central to how we deal with it. We think there is a space between the theory and practice of keeping safe from bushfire. This is because understanding how to put theory into practice in a multi-factorial context that includes human behaviour which is complex. Maybe there will always be a space, as ultimately governments cannot guarantee safety and bushfire hazard will persist. As bushfire is a natural part of the Victorian environment, bushfire will happen, sometime. The challenge is that we do not know when and where, because bushfires are mostly rare events.

b). Complexity

Central to the problem is that keeping bushfire safe is a complex phenomenon, which cannot be achieved by using a checklist. However, it appears that there is resistance to change, we are complacent and expect others to make the effort, and whilst agencies say they want to accommodate the community, in practice they rarely do. A further contributing factor is that there is often denial. There has to be something to engage with, to move out of denial, into acceptance and action. Engagement involves emotional and psychological dimensions, and a greater understanding of human behaviour.
c). The agency approach

Bushfire fighting agencies’ skills are in the command and control structure where they have to perform under pressure and make decisions for others, which may be necessary when bushfire events occur. When there is no bushfire, and to prepare for the possibility of bushfire, we want to be engaged through dialogue, as a two-way process, and listened to in order to understand our needs. Bushfire authorities advise or expect us to plan and prepare well ahead of a bushfire event. We find this hard to do; it is inconvenient to act on advice to leave early on high bushfire danger days, and there are many complicating factors that stop us. We do not write bushfire survival plans because they are complicated and involve too many ‘what ifs’ so we make other plans instead. Those of us who have written bushfire plans find they have to be constantly revised according to changing circumstances, which means that bushfire plans are fluid documents and this adds to the many barriers we face.

d). Barriers

The barriers for change include: people working in silos, a common agreed vision, trust, and the willpower to make change. We do not trust the agencies and the advice they give us about preparing for bushfire, so make our own plans as to what to do. We find that agencies do not trust us to make our own decisions and are fearful that we will make poor decisions and panic because we do not have as much bushfire knowledge as they do. To add to the problem there are no commonly agreed definitions of resilience and what a bushfire safe community is. This may compound our lack of action, which is often viewed as apathy. Along with our lack of action, we are fearful, influenced by social pressures and rely on agencies to give us warnings, and at the same time may change our minds and make different decisions as to what to do in the event of bushfire. Mostly we will wait and see and do not think it is likely to happen to us but have our own informal bushfire plans about what we will do if it does.

e). We live in a risky place

We live in a risky place because we love the bush, and want to experience and protect the bush. Some people value the bush over people and say that safety is holistic and includes the welfare of the environment and other aspects, and not
just people. Therefore, bushfire safety is about compromise because we cannot protect people and the bush one hundred per cent. Something has to give.

f). Understanding bushfire
We do not understand bushfire fully and how it behaves, and we often underestimate the danger even though the experts do not know everything there is to know about bushfire behaviour. We realise we need to be aware of the risk and problem solve as to what we need to do. But imagining bushfire danger is abstract. Real experience of bushfire would help us to better understand the different types of bushfire and the danger it poses.

g). Trust, networks and compassion
Change is possible but it will take time, commitment and trust. We have to understand social dynamics, social networks, and genuinely engage with people to achieve bushfire safety. We will need to think creatively if we want different solutions to build more resilient communities, and this includes understanding human behaviour. To recognise human behaviour, we need to have compassion, determine what motivates us, and understand our challenges and strengths.

h). Creative not linear
We need to move away from linear approaches of telling others what to do. Creative approaches are more in line with how our brains work, where we use qualitative rich information, to help us change our environment to suit our needs.

i). Relationships
For change to occur respect, patience, and collaboration is needed. Firstly, we need to build relationships to get to know people and understand our communities, before tackling bushfire safety. Each community needs a tailored approach because each community is different and has different needs. We have to make a genuine commitment for the long term, while building relationships and developing coordinated community and multi-agency approaches.

j). Collaboration
Networks will help us share information and plan, prepare, respond, and recover from bushfires, especially those people who are isolated or excluded. Building
networks between people in and across communities, from community to community, between communities and agencies, and between agencies can achieve this. This will require collaborative decision-making so that everyone is on the same page, and will help us overcome barriers between agencies and agencies to communities. To achieve shared responsibility and remove dependency by the community of agency and of agencies to community, empowerment is required for communities and agencies.

**k). Empowerment**

To become empowered, people and agencies need to take the drive and power back, to make lasting change, and close the space. We need to be doing more than just advertising, or delivering messages alone. We need to build and create empowerment. New skills have to be learnt and adopted by all stakeholders. This can be achieved through two-way dialogue, which encourages us to think rather than being told what to do. When agencies try to close the space by promising to protect us, this is unrealistic. It lets us off the hook and disempowers us, and our attempts at safety.

**l). Strength-based ways**

This can be achieved through action learning, experiential, cyclical and iterative processes. This involves, planning and problem solving together, thinking for ourselves, and activating our imaginations in line with our interests and passions. This helps us to build our confidence to do it ourselves. We need to respect each other's knowledge and skills, make our own decisions, and try out our ideas in what we think is important and what we can do for safety. We are motivated and take ownership of the problem when we are supported in strength-based ways. This moves us from awareness of bushfire danger to deeper emotional arousal, which brings about real change in what we do to prepare for bushfire danger.

**m). Engagement**

We prefer to be approached as individuals and unique communities with specific needs, rather than receive generic information. We find that emergency management agencies have not engaged us well in the past because good engagement takes time, is hard to measure, and agency staff do not have the
skill-set required to do this well. Agency skills are in managing emergency, in making decisions on others’ behalf, under pressure, and taking control. Good engagement requires relinquishing power and making joint decisions even though we know the outcomes are uncertain. We have a lot of ideas on how to do good engagement. These are mostly active participatory methods rather than passive ones like delivering brochures, which is the least effective form of engagement. Participatory engagement involves connecting our passions and interests to interactive events including: Phoenix simulation, sharing stories, role-plays, experiential, facilitated experiences, deconstructing bushfire information and translating it from technical to lay person, along with live footage of bushfire. Programs that have been of help include Community Fire Guard and the Strategic Conversations. Finally, ongoing good engagement requires using capacity building social skills such as community development. It takes time and people need to be committed in the long term to bridge the space between the theory and the practice of creating bushfire safety.

**Summary**

In this chapter I have outlined my research design, the methods employed and how participation was gained. I outlined how I engaged and facilitated participants to analyse, theme and rank the empirical data. The methods I used to support the process were semi-structured interviews, the Delphi technique, and the diverge-converge process. Two sets of narrative data were created through the methodologies of action research and grounded theory. These narratives helped make sense of the data, enabled greater understanding, and assisted with the evolution of the emergent themes. In Chapter 5, I will use the theories of Cynefin (Snowden 2010) and community development (Ife 2013; Kenny 2011; Ledwith 2005) to link the emerging theoretical understanding and to illustrate, analyse, and explain the phenomenon further.
Chapter 5
Complexity theories

Introduction

Earlier in Chapter 3, I used the methodologies of action research and grounded theory to analyse the central phenomenon of bushfire safety. In Chapter 4, I described my research design, and how I collected and analysed data with participants. It was during this process that I became aware of the complexity of the phenomenon of bushfire safety and this awareness led me to explore the theoretical nature of complexity to help interpret and explain the emergent findings. In this chapter, I examine the theoretical framework of Cynefin and community development theory, to help explain the complexity of bushfire safety. From this analysis I identified three broad systems that impact on bushfire safety, namely the environment, community, and bureaucracy. Lastly, I examine the International Association of Public Participation (IAP2) spectrum to demonstrate the limited and mostly ineffectual way agencies address the issue of bushfire safety with communities.

This first section discusses how the theories of Cynefin (Snowden 2010) a decision making framework, and community development (Ife 2013; Kenny 2011), a social justice theory, concerned with the empowerment and the development of people, can be utilised to gain insight into the phenomenon of bushfire safety.

First theoretical perspective: The Cynefin framework

The Cynefin framework developed by Snowden (Kurtz & Snowden 2003; Snowden 2010, 2013; Snowden & Boone 2007) is a five-quadrant sense-making framework, that can be used to explain levels of complexity regarding a situation and to help with decision making in states of uncertainty (Kurtz & Snowden 2003, p. 462). Pronounced Kih-neh-vihn a Welsh word to describe habitat, or as Snowden (2010) explains, ‘a place of your multiple belongings’. This means that as individuals we are influenced and ‘rooted in different pasts’ which we can only be ‘partially aware of’ and that this complexity means there are many unknown causal factors
that determine the result (Snowden 2010). Snowden (2010) depicts the Cynefin model as:

A decision-making framework that recognises the causal differences that exist between system types and proposes new approaches to decision making in complex social environments.

The Cynefin framework (figure 3.) assists people to make sense of problems and reach decisions by making explicit the different practices required to address problems that are simple, complicated, or complex (Kurtz & Snowden 2003, p. 470). The Cynefin framework assists understanding by aligning data to an emergent framework, while a categorisation approach group’s similar items to fit a framework created prior to the data (Snowden 2010). In my analysis of the phenomenon of bushfire safety I utilised Cynefin as a sense-making framework.

![Figure 3.0 Cynefin framework (Snowden 2010)](image)

The Cynefin sense-making framework, which is read anticlockwise from right to left and commences with the simple domain, then rotates around through complicated, complex, and chaotic to the final central domain of disorder (Snowden 2010; Snowden & Boone 2007).

Simple and complicated domains

The Cynefin model is made up of five parts that are read anticlockwise commencing with the simple and complicated domains, where cause and effect relationships are linear, knowable and ordered (Kurtz & Snowden 2003, p. 468). These domains allow people to work with ‘experiment, expert opinion, fact-
finding, and scenario planning’ and where cause and effect can be determined in a mostly stable system; for example by someone with expertise or with enough time and resources to resolve the problem (Kurtz & Snowden 2003, p. 468).

Each of the Cynefin domains describes how the response to a problem will vary according to the level of complexity. For example, for a simple problem ‘sensing, categorising and responding’ will serve where ‘standard operating procedures’ and practices will create the desired result – for example to control a small grass fire (AFAC 2004; Kurtz & Snowden 2003, p. 468; Snowden 2010). Within the simple sector cause and effect relationships are known and repeatable. The methods of working within these two domains is to: ‘sense incoming data, analyse that data, and then respond in accordance with expert advice or interpretation of that analysis’ (Kurtz & Snowden 2003, p. 468). Thus, CFA can put into action its response to a small bushfire in low risk conditions (a mild day) and will in most instances be successful – that is, be able to extinguish the bushfire.

However, when a problem becomes more complicated, then ‘sensing, analysing and responding’ are required because cause and effect are separated ‘over time and space’ (Kurtz & Snowden 2003). An example is when firefighting agencies utilise their Phoenix Rapid Fire – a modelling system used to determine the rate and spread of fire and what might happen across a landscape either before or once a bushfire has commenced (CFA 2013g; DELWP 2015e). However, the system does not model what people might do. Snowden Kurtz and Snowden (2003) argue that it is impossible to truly model human behaviour.

**Complex domain**

The second half of the model illustrates the ‘complex, chaos, and disorder’ domains where patterns are not discernible, and where experience or expertise is not as important as how agents interact with the situation (Kurtz & Snowden 2003, p. 470). In the complex domain, patterns emerge due to multiple agents and their relationships, and can be perceived but not predicted only making sense retrospectively (Snowden 2010). In any complex situation, any number of patterns might emerge, but what is learnt cannot be re-applied to a new complex situation because the new complex system will have different emerging patterns (Kurtz &
To illustrate, any one bushfire will be different to any other bushfire: while it is known that certain patterns exist, for example on milder days when it is not too hot and the wind is low, flame heights will be smaller but how the fire behaves overall will depend on other factors (CFA 2012f; 2012d, pp. 5-6). This includes future weather conditions, the type of fuel and its arrangement in the landscape, the degree of mitigation work undertaken (e.g. if a planned burn to reduce fuel in the landscape has been conducted and when), and the interventions applied by bushfire fighting agencies (CFA 2013g; DELWP 2015b).

However, what the literature shows is that we cannot be certain how people will respond to bushfire threat. They may choose to stay and defend, leave or take some other action. If they choose to stay it is uncertain what they might do, if they leave, we cannot be sure when and how they will leave and any other actions they take will be determined by their circumstance. In the complex domain, experience and expertise do not address these multiple complexities. Instead, the practice required is to ‘probe, sense and respond’ within an overall ‘emergent’ approach – in other words problem solve through responsive cycles (Kurtz & Snowden 2003; Snowden 2010; Snowden & Boone 2007). Probing can be tried to make the patterns more visible or stabilise them: to make sense of what is occurring in the multiple and diverse perspectives ‘on the nature of the system’ (Kurtz & Snowden 2003).

**Chaos domain**

In the ‘chaos’ domain, patterns are difficult, if not impossible to perceive and the situation is ‘turbulent’ because there are multiple cause and effect relationships occurring (Kurtz & Snowden 2003, p. 469). To reduce the ‘turbulence,’ the practice is to, ‘act, sense and respond’ in ‘novel’ ways accordingly to the outcome (Kurtz & Snowden 2003, p. 469). Kurtz and Snowden (2003, p. 469) argue that there are two ways to intervene in the chaos sector: authoritatively to make the ‘space’ knowable and by interrupting the turbulence in some way, so that patterns emerge in an attempt to change the situation to one of the domains of simple or complicated. Alternatively we can make ‘multiple interventions’ and take innovative approaches (Kurtz & Snowden 2003; Snowden 2013).
An example of operating in the chaos domain is being caught in a bushfire unprepared. All that one can do is to ‘act quickly to create stability’, ‘notice’ what happens and respond accordingly (Snowden 2010, 2013). Procedures of any kind are unlikely to be of much help as there is only time to act, sense what happened to the action taken, and again, to respond accordingly in ongoing attempts. The person caught in bushfire has to respond in novel ways to try to survive. Examples of individuals surviving in extreme bushfire situations were retold in the ABC documentary about Black Saturday (ABC 2009b). In one household different measures were taken by the grandparents, their grandchildren and two neighbours who took shelter in the grandparents’ house. Some people in this household survived, while others did not due to the practices each employed (ABC 2009b; McLennan, Paton & Wright 2015; Whittaker et al. 2013).

**Disorder domain**

In the fifth, and final sector of disorder Snowden (2010) explains that we are unaware of which domain we are in. In this situation, we default to our ‘comfort zone’ in terms of our practices and we either revert to ‘best practice, good practice, emergent practice, or novel practice’ (Snowden 2010). This means that practice needs to match the context that we are in, to aid decision-making.

Returning to the family in the house on Black Saturday. The grandparents had been participants in the CFA’s Community Fire Guard (CFG) program and had some ideas about actively defending against bushfire, which they used while inside the house (ABC 2009b; CFA n.d., p. 9). However, it appears that their grandchildren and neighbours took the strategy of passively sheltering, which meant they were lying prostrate on the floor of the corridor (ABC 2009b; Haynes et al. 2010, p. 192). The grandchildren and neighbours action of sheltering passively was probably within their ‘comfort zone’ but proved fatal because they were unable to be responsive to the changing situation (Whittaker et al. 2013, p. 847). The grandparents however, were operating in novel ways by taking what action they could by acting, sensing and responding to the changing conditions presumably against their instinct following information they would have learnt from their CFG training (Snowden & Boone 2007, p. 5). The grandparent’s responsive actions to the changing conditions probably saved their lives.
Furthermore, Snowden (2010) stresses the importance of the boundary line between the simple and chaotic domains; people may become complacent and believe they have everything under control as they practice simple to best practice methods unaware that they can easily fall into the chaos domain. An example of this is when agencies use the ‘simple’ message of ‘leave early’ that can be interpreted in many different ways (CFA 2012; Tippett 2016; Whittaker, Handmer & Mercer 2012). The ‘leave early’ message can be categorised as best practice that fits within the simple domain of Cynefin and leads to simplistic solutions. Simplistic solutions can fail in situations that are outside of the simple domain, for example when people have to problem solve and think for themselves (Batten & Batten 2011, p. 34). For example, in the bushfires of 2009 when the authorities’ communication systems failed, many people were unaware of bushfires threatening them and had not prepared themselves (ABC 2009b; Choo & Indrani 2014, p. 95; Oloruntoba 2013, p. 1692; Victorian Government 2010). When they became aware of the bushfires, they were unclear when, where, and which way to go, often with disastrous results (ABC 2009b; Stanley 2013). People had not developed the capacity to problem solve and relied passively on advice and assistance from the experts – which in most instances failed to arrive due to the dynamics of that day which were chaotic and disordered (Choo & Indrani 2014; Oloruntoba 2013, p. 1692; Victorian Government 2010, p. 15).

**Second theoretical perspective: community development**

Community development theory is founded on the social justice world-view that includes the concept of empowerment, participation, and inclusion (Craig et al. 2011; Ife 2013; Kenny 2011; Wenar 2012). Community development is applied in many different ways by individual practitioners, and is subject to interpretation by those who work in the field, however what defines the theory is the importance of placing people and their needs first and working at the grass-roots level to change the status quo (Burkey 1993; Craig et al. 2011; Ife 2002, pp. 96-97; 2013; Kenny 2011, p. 30; Ledwith 2005, p. 33). Community development aims to empower communities to take collective control and responsibility of their own development (Ife 2013). Empowerment is defined as a redistribution of power
and the capacity of people to address institutions to make them more responsive to people’s needs (Kenny 2011, p. 8). Community development theory acknowledges social deficits and provides a vision of how development might be achieved in the face of evolving dilemmas and complexities of practice (Ife 2013, p. 69). Thus community development is a multifaceted, complex philosophy and practice, based on values and principles (Kenny 2011, p. xxi) that have evolved over time with diverse historical roots that Craig et al. (2011, p. 7) describe as:

An ‘embodied argument’, a continuing search for new forms of social and political expression, particularly ‘at the grassroots level’ (within a participatory paradigm) in light of the new forms of political and social control.

Community development discourse addresses complex problems in strength-based practices that critically reflect on people and their social-cultural structures while tackling the dynamics of power and inclusion. Working collectively and collaboratively community development can assist people for greater empowerment in decision making, on the factors which concern and impact their welfare and wellbeing (Batten & Batten 2011). Working with complexity, community development utilises creative approaches and processes to achieve equity and empowerment as it attempts to change ‘power over’ people and redistribute power through collaborative ‘grass-roots’ processes (Chambers 2012; Gamble 2013; Ife 2013; Kenny 2011; Ledwith 2005). Inclusion is about devising ways of incorporating those who are hard to reach and are often overlooked; young people, women, people living with other abilities or who come from marginalised Indigenous and cultural groups and in particular those who are disenfranchised, poor and vulnerable (Kenny 2011, pp. 312-313; Ledwith 2005).

Empowerment requires people in the community to be part of the process of sense-making, analysis, and problem solving where they are able to make their own decisions about what concerns them, rather than decisions being made by experts (Batten & Batten 2011; COAG 2011; Lapsley 2016; Ledwith 2005). An empowering process would enable and include people in identifying and formulating approaches that best suit their conditions, incorporating the social, economic, political, cultural, environmental, and spiritual spheres of culture and society (Batten & Batten 2011; Ife 2013; Ledwith 2005). Although government
agencies indicate the need for communities to become empowered, this appears to be more in line with ‘shared responsibility’ and doing what they advise: that is being empowered enough to follow instructions rather than people being able to think for themselves and for problem definition, analysis and resolution (Batten & Batten 2011, pp. 33-34).

As community development is about **empowerment and building local capacity** (Ife 2013; Kenny 1999; Kenny 2011; Ledwith 2005, 2011a), consequently, when those in power make decisions on behalf of others rather than developing decision making capacity at the grassroots, then individual and local capacity is stifled and social capital, interest, and enthusiasm are extinguished (Eriksen 2014). People may become passive and reliant on those with power, or those who are the experts, to fix the problem for them (Batten & Batten 2011; Ledwith 2005). Instead, people in community could be asked what they think is necessary to address the risk of bushfire – what might work for them? What capacities and skills do they have and what do they want to do themselves? How might communities explore the topic to formulate ideas that would be inclusive, and try new ways of approaching the problem that would engage people in the decision-making process? Gamble (2013, p. 340), debates that strength-based approaches can be achieved when diverse people are included in a process that is implemented over the long term, that is empathetically led by a humble facilitator, who will enable people to work collaboratively to identify and analyse the needs of each community for empowerment and change. After examining the theories of Cynefin and community development, my analysis leads to examining three complex systems involved in bushfire safety which I will outline next to help further explain the complexity of the phenomenon.

**Three conceptual systems**

Systems are defined as a set of things working together – for example – people and their relationships to each other as in a network and in the natural environment, how bushfire interacts with fuel in a forest while being influenced by wind and the amount of humidity is another system (Blackman 2000; Innes & Booher 2010; Mollinga 2010). The three systems I examined and the ways in which they intersect are illustrated in the Venn diagram in Figure 4.0. They are
firstly, the system made up of people working hierarchically, such as in emergency management (COAG 2011, p. 1), secondly the system of community in which individuals interact, network and relate to each other (COAG 2011, p. 1; Ife 2013), and thirdly, the system of the natural environment which includes bushfires that behave in non-linear and unpredictable ways (Mollinga 2010, p. 52). Systems theory is defined as the non-predictable internal and external interactions and communication between systems through a series of either positive or negative feedback loops (Blackman 2000). Garnsey and McGlade (2006) list four properties of complex systems: they are unpredictable dynamic structures that include relationships, have positive and negative feedback loops, where cause and effect cannot be localised, and where organisation emerges. Meanwhile, Peak and Frame (1994, p. 364) demonstrate that some patterns of change can be observed within systems that can be duplicated using mathematical formula. In this chapter I explain how these three conceptual systems interact in the context of bushfire and examine how agencies engage with the community to build resilience to bushfire.

**Figure 4.0 Venn diagram**

The diagram illustrates the three systems of community, bureaucracy, and environment involved in the phenomenon of bushfire safety.

**System 1: The environment**

Bushfire is a natural part of the Australian environment. It has evolved over the millennia as part of the cycle of decay and regeneration of indigenous vegetation, which has been influenced by human activity through clearing the bush and disrupting the cycle of bushfire from pre-settler days (DELWP 2015d; EMV 2013;
Hallam 2002, p. 7; Parks Victoria 2013; Webster 2000, pp. 2-5). People interact with the natural environment in the way it is ‘governed by different groups of people for whom the system has different purposes, benefits and meanings’ and where ‘not all the mechanisms operating in the systems, and their interactions are known’ (Mollinga 2010, pp. S-2). The natural environment’s current observable feedback loop is a changing climate (BOM 2015a, 2015b; FEMA 2011; Steffen 2013, pp. 8-9).

**Bushfire is complex, chaotic, and difficult to predict**

Factors that promote bushfire include air temperature, moisture (both rain and humidity), wind, and the fuels in the environment enabling bushfires to start and spread (Clarke, Lucas & Smith 2012; Spooner & Grace 2015). In addition, bushfire frequency and intensity has been expected to increase due to an upward trend of more variable weather patterns occurring across the planet (BOM 2015a, 2015b, 2016; FEMA 2011, p. 1; Steffen 2013, pp. 8-9). Considerable work has been undertaken to understand bushfire, but even those with high bushfire knowledge are not able to predict bushfire behaviour with complete certainty (Saab 2015; Tippett 2016). Agencies use complex computer systems such as Spark or Phoenix RapidFire modelling as bushfire management tools before and during a bushfire event, to help determine bushfire spread and potential impact on settlements and infrastructure (CFA 2013g; DELWP 2015b, 2015c; Saab 2015; Tolhurst, Shields & Chong 2008). Bushfire behaviour is seen to be chaotic, largely unpredictable and is experienced as a complex system – especially by the average person (COAG 2011, p. 7; EMV 2013, p. 7; Saab 2015). The unpredictability of bushfire in the environment is one complex feedback loop to the systems of community and bureaucracy. Despite this complexity, agencies believe people in the community should be able to ‘prepare, stay and defend, or leave early to mitigate’ risk (CFA 2012c; COAG 2011, p. v; Saab 2015; Victorian Government 2010, p. 5).

**People in the natural system**

Due to the cost of living in the cities, people may choose to live in high bushfire risk locations for cheaper housing or, conversely, because they can afford to buy ocean views (Bushnell & Cottrell 2007; Dow 2015; Monroe, Bowers & Hermansen 2003). Others live in high-risk locations because they have lived and farmed there
for generations or because they work there (Whittaker, Handmer & Mercer 2012). Newcomers are attracted to the bush by the perceived benefits of smaller friendlier communities, because they love the bush and want to pursue rural lifestyles, businesses (farming, vineyards, tourism), recreational activities (e.g. surfing, trail bike riding, bushwalking), or because they want to avoid people (Oloruntoba 2013, p. 1685). This results in communities made up of diverse people with different cultural attitudes, capacities, skills, and resources living in bushfire risk landscapes (Baxter, Hayes & Gray 2011; Whittaker, Handmer & Mercer 2012).

**System 2: The community**

Communities are complex arrangements of people communicating, interacting, and creating in different ways through their political, spiritual, social, economic, and recreational interests among others (Ife 2013; Sampson 2008). However, the meaning of community is fraught because people and agencies commonly use the term community as a way of bundling people together in order to get back to the discussion of what occurs in community (Fairbrother et al. 2013; Ife 2013, p. 117; Kenny 2011; Phillips et al. 2011). Kenny (2011, p. 44) maintains that traditionally community referred to ‘groups of people in face-to-face relations’, but now community is either a romantic concept or so hollowed out as to have little meaning. In its place the ‘word and concept’ of community has been hijacked and used by different groups (for example government and marketers) as a way of selling their agendas and is power over people rather than being bottom-up empowerment of people (Kenny 2011, p. 51).

Wilson (2012, pp. 7-8, 35) contends that communities are not homogenous and can be viewed at the individual, household, town, and city, national, and international level. Community can be viewed as an, ‘open and unbounded system’ rather than closed, easily identifiable geographical entities (Wilson 2012, p. 7). The structure and organisation of communities can be formed unconsciously by where people live, as much as by intent and choice e.g. some people choose to buy property and move into a geographic area for aesthetic value, lifestyle, work, and schools, or to join in an intentional community. Phillips et al. (2011, p. 2) define three common categories of community: community as
locality, community as a shared sense of belonging, and community as a social network, while Ife (2013, p. 114) portrays functional community as one in which people are connected through their interests, hobbies or sport, or as online communities, while geographical communities are those in which constellations of diverse people build relationships and networks between each other to create places that nurture and include, or which exclude and are a source of conflict (Cottrell 2011; Kenny 1999, pp. 38-39; Kenny 2011, p. 406; Ledwith 2005, p. 36; Whittaker, Handmer & Mercer 2012, p. 165). Socially, communities are rarely homogenous, nor static, and can be characterised by different interests, allegiances, and world-views (Kenny 2011; Phillips et al. 2011, p. 2; Whittaker, Handmer & Mercer 2012; Wilson 2012, p. 8). There are often social-political issues of power, status, and rank for individuals in any community and communities contain complex networks, which are hard to define with complete certainty (Bushnell & Cottrell 2007a, p. 7; Ife 2013, pp. 118-119; Ledwith 2005, p. 32; 2011b; Wilson 2012, p. 37). Ife (2013, pp. 116 - 117) argues that community is not a neat formula, which can be measured, but is ‘felt and experienced’. An important point about community is that ‘community is … an attitudinal construct that means different things to different people’ (Wilson 2012, p. 7 citing Tönnies, 1963; Agrawal and Gibson 1999).

We can gain insight into what community means through our own experiences, or by observing and researching communities in order to determine how people negotiate all facets of life e.g. relationships, issues of power, transactions, and collective actions (Ife 2013, p. 117). This is where Leventhal, Brooks-Gunn & Kamerman (2012, pp. 127-129) refer to communities as ‘place, face, and space’ where ‘place’ denotes the geographic arrangement, ‘face’ refers to relationships and relationship dynamics and ‘space’ refers to the built physical spaces, the social and other services, political organisation and networks. The individuals who make up community in a geographic location have less clear boundaries (they may come and go and interact with other communities internally and externally), so that community as a phenomenon is dynamic, complex, and multilayered, operating within time and space and about which we can, therefore, only know so much about its workings (Bushnell & Cottrell 2007a). The community as a ‘unit’ or
‘site of investigation’ (Jakes et al. 2007; Kenny 2011, p. 45) forms one part of the story about the system of community in terms of bushfire safety.

Community in the context of bushfire includes the CFA volunteers, who are part of Victorian geographical communities as well as the organisational community of CFA, which is made up of 60,000 volunteers (CFA 2014). In terms of planning and preparing for bushfire, CFA volunteers and staff straddle the roles of those who advise others to plan and prepare, while being those who need to plan and prepare for bushfire. In summary, and for the purposes of this thesis, I define community as a geographic location where people live and which includes the dynamics of relationships, inclusion, diversity, communication, negotiation, and power (Ife 2013). This creates a complex social system, where it is not possible to predict how people might behave, but where patterns of behaviour may be observed.

**How people plan and prepare for bushfire**

As discussed briefly in Chapter 1, how people plan and prepare for bushfire is highly variable determined by their perception of risk and their interests and capacities (Mannix 2008; McLennan, Paton & Wright 2015; Nous Group 2013; Rhodes 2011d, 2011c, 2011b; Rhodes et al. 2011a; Stanley 2013; Whittaker & Handmer 2010). Importantly, the literature demonstrates that most people underestimate the risk, to the extent that planning and preparing for bushfire is inadequate according to agency standards (Beatson & McLennan 2011; Bushnell & Cottrell 2007a; Cottrell et al. 2008; McLennan, Paton & Wright 2015; McLennan, Wright & Birch 2014; Rhodes et al. 2011a; Strahan Research 2010).

**System 3: The bureaucracy**

Sager and Rosser (2009 p. 1137 citing Weber 1980 and Ringer 2004) describe government bureaucracies as ‘hierarchically structured, professional, rule bound, impersonal, meritocratic, appointed and disciplined body of public servants with a specific set of competencies’ that operate within siloed structures created to formulate and implement policy for social benefit, and who exercise power and authority over others (Sager & Rosser 2009 citing Weber 1980). In theory, experts within bureaucracy provide impartial policy advice to government in relation to
social and development issues for the ‘protection of each individual’s property and thus for the promotion of every individual’s welfare’ (Sager & Rosser 2009 p. 1142 Citing Hegel 1952). In bureaucratic systems classification, order, and rational thinking dominate (Innes & Booher 2010, p. 125 citing Gray 2003, p. 12; Kurtz & Snowden 2003, pp. 462-463; Snowden & Boone 2007, p. 70). In bushfire management, bureaucracies operate in complicated hierarchical structures (Allan 2016) to tackle the complexity of bushfire safety with an ‘all hazards and all agencies’ command and control emergencies structure (AFAC 2004, p. np), known as the Australasian Inter-service Management Systems (AllMS) (AFAC 2004).

Expert knowledge, which is practiced as top-down power, is valued over bottom-up community knowledge and experience (Chambers 2012; Ife 2013, pp. 83, 89). Top-down, traditional approaches employed by government to: ‘conceive, decide, and implement’, and also ‘decide, announce, and defend’, means that stakeholders can be excluded from decision-making processes, reinforcing bureaucratic and expert power (Innes & Booher 2010, pp. 9, 125). Stakeholders are defined as those with an interest in an issue – for example people in the community, other bureaucracies, and businesses. Power is usually held by institutions rather than stakeholders and this results in decisions being made on their behalf without systematic consultation and collaboration (Arnstein 1969; Attorney General 2013). Compliance of stakeholders is achieved through legislation, persuasion, or manipulation where the power and mystique of the professional expert is valued over other forms of knowledge (Ife 2013). A paradox is created between how experts in bureaucracies are guided by bottom-up theory but use top-down practices (Argyris & Schön 1974; Kenny 2001). Communities are left to challenge bureaucracies in order to participate in decision making processes (Arnstein 1969; Bang the Table 2015; Ife 2013, p. 132).

**Discussion: The intersection of the three systems**

In the intersection of the three systems of environment, community, and bureaucracy, it follows that the overlapping space is extremely complex, unpredictable, dynamic with few discernible patterns and where cause and effect are not easily perceived (Kurtz & Snowden 2003). Why people fail to plan and prepare for bushfire safety adequately may be attributed to aspects of any one of
these three systems with their diverse internal and external feedback loops (Blackman 2000). This is because each system has an infinite number of variables and bushfire safety exists at the crossroads of the three systems where it is difficult to anticipate ‘the extent to which this information is incorporated into the individual’s existing knowledge, which is created through dynamic relationships and interaction with land, nature, events, and people’ (Erikson & Prior 2011).

For example, people say they will leave on high fire danger days, but may in practice stay at their property, while others who have a strong attachment to place – that is, the physical environment and/or their property, might plan to stay and defend should bushfire threaten them, but may in practice flee when they are confronted with the reality of bushfire (Rhodes et al. 2011a). Those who are vulnerable and ideally should leave early, may make the decision to stay, and others who make the decision to go should have stayed because they may in fact be safe where they are and in leaving might travel into the path of bushfire (Mannix 2008). On a high fire danger day, where and when fire may or may not ignite, and travel across the landscape cannot be predicted with complete certainty. Meanwhile, the bureaucracy comprises of individuals who have their own values and assumptions, while also being members of the community with diverse experiences, beliefs, attitudes, and values relating to bushfire (Erikson & Prior 2011 p. 612). In the context of bushfire, when all three systems overlap, there is a great potential for things to go counter to the plans people might have made (Oloruntoba 2013).

Agencies attempt to make sense of this complexity by tackling the complexity as a complicated problem. They do this by categorising people by their response to bushfire. As outlined in the Bushfire Safety Policy Framework (EMV 2013, p. 2; Nous Group 2013, pp. 1-2) people are categorised as ‘archetypes’ that include: ‘can do defenders; considered defenders; livelihood defenders; threat monitors; threat avoiders; unaware reactors; the isolated and vulnerable’. According to Rhodes (2011c) there are four further categories, which identify people according to how vulnerable they believe people are and which describe people’s actions according to the perceived risk. These are people who judge their vulnerability and plan to go in the event of a high bushfire danger day, possibly even before
fire occurs; those that need a tangible sign (e.g. smoke) before responding to bushfire; those that will ‘wait and see’ before they respond to bushfire threat because they believe they have the capacity to cope with the threat when and if it arrives; and those who have decided to stay and defend and have made preparations to do so, because their property is their priority (Rhodes 2011c).

The benefit of categorising people is that agencies are provided with information about people’s capacity to respond to bushfire, according to agency ideals. The limitation of categorising people is that it may appear to simplify the complexity that exists in people’s responses to emergency and may provide a false sense of security. How would agencies know which person is in which category unless they are identified? How might a categorising process assist people? In addition, people may have good intentions and say they will do one thing but may in fact do something quite different (Oloruntoba 2013, p. 1685; Victorian Government 2010). Categorising may be attempting to turn a complex problem into a complicated problem for which the outcomes may be determined (Garnsey & McGlade 2006). Categorisation may be useful for a mass marketing campaign to target different groups with specific messages relayed through one-way communication (Eriksen & Prior 2011). However, people are very different from each other in their aspirations, values, and worldviews and their response to emergency (Prior & Eriksen 2012; Rhodes et al. 2011a, p. 72). Complicated, linear responses will not address diversity and complexity when it comes to people because our behaviour patterns are largely ‘unpredictable’ and ‘dynamic’ (Oloruntoba 2013, p. 1685; Tippett 2016). However, when observing human behaviour, influencing people and their actions is sometimes possible when we understand human nature, engage with people in ways that interest them, build empowerment and engage with people’s intrinsic drive (Kurtz & Snowden 2003, pp. 464-465, 477; McLennan, Paton & Wright 2015, p. 326; Pink 2010).

The engagement spectrum

Along with categorising people, government agencies aim to educate communities in how to plan and prepare for bushfire. It is important to investigate how agencies engage with communities as one feedback loop in the bushfire context. The Victorian Government defines engagement as a planned
process with identified groups for decision-making, according to their ‘interest or affiliation, to address issues affecting their well being’ (Department of Sustainability and Environment 2005a, p. 10). To illustrate how government engages with community in relation to bushfire safety approaches, I have listed the engagement methods used by the two lead agencies of CFA and DELWP in Table 7.0 against the levels of engagement as outlined in the IAP2 spectrum see Appendix III. The IAP2 spectrum is founded on Arnstein’s (1969) ladder of participation, which ranges from informing to empowering stakeholders (Commonwealth of Australia 2013). The IAP2 spectrum is an internationally recognised and Australian Government endorsed decision-making tool for effective engagement and communication with stakeholders (Commonwealth of Australia 2013; IAP2 2013). Stakeholders are defined as those people who have a stake in a topic that is of importance to them, in this instance, bushfire safety (Commonwealth of Australia 2013, p. 9). The IAP2 spectrum (see Appendix III) defines the meaning of commonly used words by government when communicating to the public.

When analysing how agencies engage with the community against the IAP2 spectrum, most communication is positioned at the inform end of the spectrum. This is because agencies largely make the decisions concerning bushfire safety and inform the community of their decisions. There is little communication that occurs at the collaborative to empowerment end of the IAP2 spectrum where two-way communication occurs (Harrington & Lewis 2013; Macnamara 2015). However, two way and interactive communication is what is required in complex domains to assist understanding (Snowden & Boone 2007, p. 9). Passive one-way communication is not effective for engaging people, helping them understand the actions desired by government, nor does it build people’s capacity to be resilient and to plan and prepare for bushfire (Harrington & Lewis 2013; McLennan, Paton & Wright 2015, p. 322; Rhodes et al. 2011a).
<table>
<thead>
<tr>
<th>Engagement Level</th>
<th>Strategies</th>
<th>Desired outcome</th>
<th>Communication style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informing</td>
<td>Messaging and warnings: understand risk; activate bushfire survival plan; leave and live; write a bushfire survival plan.</td>
<td>To ensure people have planned and prepared for bushfire.</td>
<td>One way communication</td>
</tr>
<tr>
<td>Informing</td>
<td>Social media: CFA web site, television, social media, radio, applications for phone, emergency phone alerts, CFA Facebook page, DELWP web page.</td>
<td>To ensure people plan and prepare for bushfire, informing people of CFA services, education and warning messages through new social media.</td>
<td>One way communication</td>
</tr>
<tr>
<td>Informing</td>
<td>Print: Newspaper, billboards, kits, booklets, flyers, posters, brochures and Township Protection Plans (Community Information guides).</td>
<td>To raise awareness, promote preparation, provide information, educate and change behaviour. TPP Guides which outline local resources that might be useful in a bushfire for example sources of water.</td>
<td>One way communication</td>
</tr>
<tr>
<td>Informing</td>
<td>Educational programs: Fire Ready Victoria, Bushfire Planning workshops.</td>
<td>Educational programs to ensure preparedness, planning and response to bushfire threat.</td>
<td>One way communication</td>
</tr>
<tr>
<td>Informing</td>
<td>Assessments: HBAS Home Bushfire Advice Service.</td>
<td>To promote individual home risk reduction, provide advice to ameliorate risk in preparation for bushfire.</td>
<td>One way communication</td>
</tr>
<tr>
<td>Collaborate to Empower</td>
<td>DELWP Strategic Conversations (Fire Conversations) and CFA Community Fireguard</td>
<td>Empowerment and community development, approach to build relationships and learning.</td>
<td>Two way communication.</td>
</tr>
</tbody>
</table>

Table 7.0 Level of engagement

The table compares agencies level of engagement of the community against the IAP2 engagement spectrum (IAP2 2013).

Passive communication is about ‘telling people what to do’, providing linear instructions, which try to turn complex problems into complicated solutions (Cottrell 2011). Harrington and Lewis (2013, pp. 3, 16) describe good communication as that which requires trustful and respectful relationships where listening is a larger and important function. Furthermore, empowerment provides individuals with the opportunity to problem solve and is better suited to engaging communities to find resolutions to the phenomena of bushfire, by involving members of the community in decision-making (Batten & Batten 2011; Rhodes et al. 2011a). Thus, from this analysis, the feedback loop is that agencies communicate to communities but provide minimal opportunity for communities to feedback to the agencies their views, needs, knowledge, or aspirations. What is
lacking is dialogue that will enable learning, in order to ‘share experiences’ and to contextualise communities bushfire risk (Prior & Eriksen 2012, p. 203).

Rhodes et al. (2011a, p. 69) explain that the CFA provides information to communities to increase their understanding, to encourage and modify actions and to build capacity for safety and survival. This, however, is not in line with ‘attitudes, skills, behaviours and capacities, which people may need in order to respond safely to the risk of fire’ (Rhodes et al. 2011a, p. 69). Agencies assume that communities can ‘understand and interpret the information appropriately’ and ‘that warnings will enable people to assess the threat and respond appropriately’ (McLennan, Paton & Wright 2015; Oloruntoba 2013; Rhodes et al. 2011a, p. 71). This means that there are people who plan and prepare, but ‘a large proportion of people in high-risk locations are probably less well-prepared and less able to respond safely to a bushfire than they believe’ (Rhodes 2011c).

As I am trying to determine what is limiting people’s ability to be safe from bushfire, i.e. why they fail to plan and prepare adequately, I must take into account the complexity inherent in each of the three systems described. Factors that influence these systems include: the mode of communication from the system of bureaucracy to the system of community, which is mostly one-way communication, limiting the self-organising mechanisms of the systems. Many other factors influence the systems and includes: the degree of bushfire risk, how people manage the environment, the diversity within and between communities, the type of social and communication networks, the levels of inclusion and exclusion, where communities are geographically located, individual perceptions of risk, the actions taken to plan and prepare for bushfire, individual and agency resourcing among many other factors (Bushnell & Cottrell 2007; Bushnell & Cottrell 2007a; Cottrell 2005; Cottrell et al. 2008; Harte, Childs & Hastings 2009; Rhodes 2011d, 2011c, 2011b, 2011a; Rhodes et al. 2011a; UN 2015; Whittaker et al. 2013)

Furthermore, bushfire fighting agencies are complex in themselves as they both operate under bureaucratic structures and systems exclusive to themselves and at the same time are part of the community, which comprises of people who have the skills to plan and prepare while sometimes being aware of the need for
empowerment. The three systems are intermeshed and at the same time hampered by one-way communication, which inhibits sense making and the capacity of people to collaborate and jointly problem solve. The system of the natural environment is unpredictable and complex and cannot be effectively changed by human intervention with complete certainty; the systems that may be able to be influenced are those of the bureaucracy and the community.

**Discussion**

The theories of Cynefin and community development explain complexity differently, however there are commonalities between the theories that illuminate diverse aspects and characteristics of complexity. Each theory tries to address or describe complexity, referring to the idea of incremental learning and that complex problems and phenomenon are not resolved through one solution or practice. Using community development theory as a critical lens, much of the current practice by government institutions involved in bushfire safety is about telling people what they should do to be fire ready, making it power ‘over people’ rather than ‘power with’ or from the ‘grassroots’. This is because the practices employed for bushfire safety have been formulated largely by experts within government rather than by people in the community (Cottrell 2011; Ife 2013; Kenny 2011; Ledwith 2011b).

The theoretical model of Cynefin helps explain decision and practice within complex settings, as far as we can comprehend. To work in this context requires patience, practice, and awareness, to accommodate emergent understanding (Batten & Batten 2011; Gamble 2013; Ife 2013). We can act, sense and respond to this complexity, enabling us to make sense of what we experience (Snowden 2010). Of the three systems described in this chapter, we can only affect change in two: that is, we have control over what we do as people in the community and bureaucracy. We have much less control over the environmental system. However, capacity building and local initiatives have been undertaken in the past and can be fostered into the future (AFAC 2015; Campbell, Campbell & Blair 2010; CFA 2012b, 2013d, 2013e, 2013f; Warrandyte Community Association 2016).
Summary

In this chapter, I have identified and explored three complex systems and two theoretical perspectives that impact the phenomenon of bushfire safety. The Cynefin framework helps with understanding decision-making and practice within different levels of complexity, which can be applied to how people plan and prepare for bushfire. Community development theory and practice likewise provides approaches to address complexity in social settings and champions inclusive, participatory and empowering practices that place people at the centre of decision-making for problems that directly impact them. Creative and emergent practices are required when dealing with complex phenomena, such as those that involve people. This is especially so when confronting the intersection of the environment, community and bureaucracy responding to the existing bushfire risk conditions.

Therefore, facilitated ongoing processes of analysis need to be applied to address the phenomenon of bushfire safety. Community development is a people-centred approach that works to empower people individually and collectively so that they are better equipped and are able to develop capacity to respond to complex problems. Standard operating procedures have their place in response to bushfire safety – however, emergent, creative and novel practices are required when working in the social-cultural domain. In the next chapter, I provide a more detailed outline of my findings and synthesise these findings together with literature to highlight agreement or disagreement with the empirical data, and to make sense of the findings.
Chapter 6
Findings

In previous chapters I described my motivation for undertaking the thesis and my interest in bushfire safety. I examined the risk of bushfire, government policies towards bushfire safety and outlined my methodologies and research design. The theory of the Cynefin framework and the practice of community development were considered to explain the complexities of bushfire safety, which was then conceptualised as three complex systems. In this chapter I compare my empirical findings with the literature to triangulate and determine if there are correlations or disagreements with the findings (Bryman 2004, p. 275; Creswell 2013, p. 251; Dick 1999). To commence with, the themes from the two sets of qualitative data gained from the research process were compared and developed into key themes, are illustrated in table 8.0. The first data set (1.0) of twelve ranked themes are listed in column one, and the second data set (2.0) of emergent themes are listed in column two. The third column in the table is the synthesis of the two data sets, which resulted in eight themes. From these eight themes, a further abduction resulted in seven core categories when the themes were combined. The final seven core themes listed in column four will be discussed in this chapter (Corbin & Strauss 2015, p. 77).

Comparing the themes

The two data sets had similar results. The first set of data revealed that of most importance to participants was ‘meeting people where they are at’ and ‘understanding human behaviour’ along with ‘collaboration, commitment, and finding common ground with agencies’. The second analysis revealed commonalities and relationships between themes as part of an emergent process of abduction and categorisation (Charmaz 2014, p. 230; Corbin & Strauss 2015, p. 76). Table 8.0 lists how the themes emerged in order of analysis from left to right in the columns. For example, in column one the first theme: 1. Meet people where they are at and understanding human behaviour, corresponds with the theme in data set 2.0 of: d). Barriers, i). relationships, j). collaboration, l). strength-based ways.
<table>
<thead>
<tr>
<th>COLUMN ONE</th>
<th>COLUMN TWO</th>
<th>COLUMN THREE</th>
<th>COLUMN FOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delphi rounds (Data set 1.0)</td>
<td>Grounded theory analysis (Data set 2.0)</td>
<td>Eight emergent themes</td>
<td>Final core themes</td>
</tr>
<tr>
<td>1. Meet people where they are at, and understanding human behaviour</td>
<td>d). Barriers i). Relationships j). Collaboration l). Strength-based ways</td>
<td>1. Understanding human behaviour, people siloed, isolated, excluded and not on the same page</td>
<td>Core theme #1 Community isolated, alienated, segregated, and siloed</td>
</tr>
<tr>
<td>2. Fire planning and agency initiatives, multiagency, collaboration, commitment and common ground</td>
<td>d). Barriers g). Trust, networks, and compassion i). Relationships j). Collaboration</td>
<td>2. Work together with compassion to find common ground</td>
<td>Core theme #2 Relationships, trust, compassion, networking and collaboration</td>
</tr>
<tr>
<td>3. Practical measures, networking and storytelling</td>
<td>g). Trust, networks, and compassion</td>
<td>(Combined in theme 2)</td>
<td></td>
</tr>
<tr>
<td>4. Engagement</td>
<td>h). Creative not linear approaches j). Collaboration m). Engagement</td>
<td>3. Good engagement is required that is interactive rather than didactic</td>
<td>Core theme #3 Empowerment, creative engagement, listening and strength-based approaches (e.g. community development practice)</td>
</tr>
<tr>
<td>5. Brochures and telling people what to do doesn’t work</td>
<td>c). The agency approach</td>
<td>(Combined in theme 3)</td>
<td></td>
</tr>
<tr>
<td>6. Make it personal, relationships are key and supporting communities</td>
<td>g). Trust, networks, and compassion k). Empowerment l). Strength-based ways</td>
<td>4. Empowerment and relationships (combined in theme 2)</td>
<td></td>
</tr>
<tr>
<td>8. Individual responsibility and shared responsibility</td>
<td>d). Barriers e). We live in a risky place where bushfire is more frequent and unpredictable</td>
<td>6. Responsibility for bushfire safety and love of the natural environment</td>
<td>Core theme #4 Place, love and connection to the bush and home</td>
</tr>
<tr>
<td>(Same as 11 below)</td>
<td>e). We live in a risky place where bushfire is more frequent and unpredictable f). Understanding bushfire</td>
<td>Bushfire is a natural part of the environment and people have little experience of bushfire</td>
<td>Core theme #5 Environment, fire is a natural part of the environment, is unpredictable and more frequent</td>
</tr>
<tr>
<td>10. Current practices are not working and agencies need to change</td>
<td>c). The agency approach j). Collaboration</td>
<td>8. Bureaucracy needs to change from authoritarian and linear to dialogue</td>
<td>Core theme #7 Bureaucracy, linear, hierarchical, didactic and authoritarian</td>
</tr>
<tr>
<td>11. People need to understand fire better and there is nothing like experience</td>
<td>e). We live in a risky place where bushfire is more frequent and unpredictable f). Understanding bushfire</td>
<td>(Combined in theme 5)</td>
<td></td>
</tr>
<tr>
<td>12. Education, psychology and marketing approaches</td>
<td>l). Strength-based ways m). Engagement</td>
<td>(Combined in theme 5)</td>
<td></td>
</tr>
</tbody>
</table>

Table 8.0 Themed data process

The table illustrates the themed data from the Delphi rounds (Data set 1.0), the grounded theory analysis (Data set 2.0) and the final emergent core themes.
These two themes were categorised as: understanding human behaviour, people siloed, isolated and excluded and not on the same page, in column three. This theme was abducted further into the core category of: community, isolated, alienated, segregated, and siloed (Corbin & Strauss 2015, pp. 76-77). The same process was applied to the remaining categories where several lower-level categories were incorporated into the core categories in the final analysis. The fourth column lists the final seven emergent core themes of:

1. Community, isolated, alienated, segregated, and siloed
2. Relationships, trust, networking, collaboration, and compassion
3. Empowerment, creative engagement, listening, and strength-based approaches (e.g. community development practice)
4. Place, love, connection to the bush and home
5. Environment, fire is a natural part of the environment, is unpredictable and more frequent
6. Complexity and the space

In the next section, quotes from participants are acknowledged as either from the community, agency, government, or hybrid. Hybrid refers to people who have multiple roles as part-time CFA staff and / or CFA volunteers, and / or community members. Government includes diverse government departments including Local Government staff, while agencies refers to staff from CFA, DELWP or PV. Agency participants did not speak on behalf of community members, only for themselves, however they did express their views about the non-specialist community. There was congruency between non-specialist community and agency views on reasons why people do not plan or prepare for bushfire.

**Core theme # 1**

In the first core theme, both agency and community participants strongly identified a sense of alienation, and of segregation and stressed the importance and benefits of networks along with a need to understand human behaviour (Frandsen et al. 2012; Ledwith 2011a, p. 80). Participants viewed networks and collaboration as important to break down silos and alienation and said that:
Cross-pollination is required, so collaboration between community and agencies to achieve common goals is needed. (Community)

We need to collaborate, (Emergency Management, community, Local Government) for fire safety to work, but silos are strong and healthy! (Hybrid)

The importance and benefits of networks as articulated by participants is that networks aid communication, build understanding and resilience:

*People get information about fire safety through their individual networks.* (Community)

*Communities are good for networking and sharing information and understanding, which help with resilience.* (Agency)

*Have local people who can act as conduits between the agency and the community. They need to live in the community and have roots there.* (Community)

*Ideally there is ongoing commitment for people to be conduits between the agency and the community, support and bolster networks and communication.* (Agency)

*Communication in town is really important in relation to keeping people networked [connected to each other in relation to fire]. It’s harder if you don’t have a good communications network. … In a small town communication is key (sic).* (Community)

*People get information about fire safety in different ways—through their own networks and different programs for example.* (Community)

The literature acknowledges the advantage of collaboration and networking (Gordon et al. 2010, p. 474). At the community level networks are beneficial for building local capacity for sharing information between friends and neighbours for bushfire safety (Eriksen 2014, p. 30; Fairbrother et al. 2013, p. 191; Ife 2013, p. 331; Kenny 2011, p. 272; McLennan, Paton & Wright 2015, p. 322; Moore & Westley 2011, p. 4). At the government level, networks have been identified as essential for collaboration and interoperability to connect people, ideas, and knowledge between agencies and community (CFA 2014, pp. 4-5; EMV 2013, pp. 2, 9, 11; EMV 2015b; Gordon et al. 2010; Innes & Booher 2010, p. 208; Victorian Government 2012, p. 5). A potential disadvantage of networks is ‘group think’ by government or the community where understanding is socially assembled (Cottrell et al. 2008, p. 12; Innes & Booher 2010, p. 213; Kurtz & Snowden 2003, p. 465; McCaffrey et al. 2011, p. 485; McLennan, Paton & Wright 2015, p. 325):
There is peer group pressure because some families leave or want to leave but they are told by their friends that it’s silly to do so, but one family is determined to do that no matter what (sic). (Hybrid)

Insight is required to understand human behaviour and the gap between espoused theory and the practice of bushfire safety (Argyris & Schön 1974; EMV 2013; Rhodes et al. 2011a; Rhodes 2011b, c, d). The factors and values that impact on how bushfire safety theory is practiced are briefly summarised in Appendix I. These include: economic and environmental conditions, physical capacity, cultural understanding, knowledge, and perceptions of risk (Erikson & Prior 2011; McCaffrey 2015; McLennan, Paton & Wright 2015; Rhodes et al 2011a). Values that influence behaviour include: relationships, position, power and rank, attachment to place, capacity to act at a psychological level, where people’s interests lie as well as their social agency (Campbell, Campbell & Blair 2010; McCaffrey 2015). These factors and values are further swayed by the priorities that people have at any given moment across space and time (Blair 2010; Burkeman 2016, p. 26; Bushnell & Cottrell 2007; McCaffrey 2015; McLennan, Beatson & Elliot 2013). Furthermore, people may not behave rationally in response to bushfire safety, and be in denial or display optimism bias – convincing themselves that bushfire is not likely to happen to them any time soon, while dreading the potential (Bushnell & Cottrell 2007; McLennan, Paton & Wright 2015; Paton 2006; Rhodes et al. 2011a). The concerns of daily living and survival often take precedence over the effort and attention required for bushfire safety (Rhodes 2011b, c, d). As expressed by a participant:

*We have to engage with people’s passion and interests because that is slotting into their existing lifestyle not giving them something more to worry about that has to be done.*

Participants identified the importance of stakeholders, including agencies, business, and community. However, the finding indicates that stakeholders are segregated from each other and do not work collaboratively:

*A gap is that different agencies work in silos—not collaborating on reducing the fire risk. ... We need to do things in combination with agency and community. (Agency)*

*A silos approach won’t cut it (sic). (Agency)*
This finding is confirmed by a number of agencies and their representatives as part of the identified need for an all hazards, all agencies, collaborative and cooperative future strategy to tackling bushfire safety (Lapsley 2016; Victoria Government 2011, p. 1; Victorian Government 2012). In the National Strategy for Disaster Resilience report (COAG 2011, p. 2) silos are recognised as a barrier between agencies working collaboratively:

Traditional government portfolio areas and service providers, with different and unconnected policy agendas and competing priority interests may be attempting to achieve the outcome of a disaster resilient community individually. This has resulted in gaps and overlaps, which may hamper effective action and coordination at all levels and across all sectors.

This quote illustrates that agencies work in silos that exclude other agencies and the community. Working in silos results in agencies reinforcing their ‘best to good practice’ as identified in the Cynefin framework, to address the problem of bushfire safety (Innes & Booher 2010, p. 197; Snowden 2010; Snowden & Boone 2007, p. 70). Best and good practice means agencies work in the simple to complicated domains, where cause and effect are apparent, the system is stable and the right answer can be deduced (Snowden & Boone 2007, p. 70). This approach is the domain of experts who design ‘command and control’ and procedural work practices, and where categorising dominates and can result in less communication (Ife 2002, 2013; Snowden 2013; Snowden & Boone 2007, p. 70).

In contrast, building relationships and networks entails complex processes where cause and effect are less clear (Snowden & Boone 2007, p. 74). To form networks effectively, practice involves two-way communication that empowers and incorporates diverse ideas and decisions (Ife 2013, p. 180; Innes & Booher 2010, p. 207; Sampson 2008, p. 168; Snowden & Boone 2007, pp. 9, 74). To achieve this changed practice requires non-linear, emergent and novel practices where ‘safe to fail experiments’ can be conducted to learn (Chaskin 2001, p. 108; Innes & Booher 2010, p. 138; Snowden & Boone 2007, p. 75). Innes and Booher (2010, p. 207) highlight the need by government to include diversity of people and experience, communication and interaction, experimentation and learning by doing along with expertise. This first core theme demonstrates current practices and the potential to include community and agencies in mutual networks.
Core theme # 2

In core theme two, participants highlighted the need for planning involving multiple agencies, and that collaboration, commitment and finding common ground were important elements of this process. This translates into the need for compassion and trustful relationships in order to find common ground between multiple stakeholders as identified by participants:

*In building relationships and working together informal partnerships are formed and you get to know each other; who the movers and shakers and the agitators are. The community gets to know me for my strengths and my weaknesses and we have that understanding. If emergency arises we are at least working around a common goal—we may not achieve the goal but at least we know the strengths of each other and know each other. To be able to, in times of emergency, to at least know who to talk to or if you are talking to someone, who they are and what they do. (Local Government)*

*We are all part of the community whether we are in the organisation volunteer or community person ... It’s all people to people—we have to personalise it—it’s not them and us (sic). (Agency)*

*Trust within the community and belief will take us a long way to where we want to get to. (Hybrid)*

In government literature, the importance of relationships is recognised more at the intra-agency and private sector level, than between government, agencies, and the community (Victorian Government 2012, p. 11). The importance of relationships between agencies and community is detailed in the COAG paper (COAG 2011, p. 9) but has less emphasis in other government documents (EMV 2014, p. 13) where relationships are usually referred to as ‘community connectedness’ between people in the community (CFA 2014, p. 4). A marked difference is in the literature involving the Strategic Conversations program where the emphasis is on building ‘relationships’ between people in community and agencies (Blair, Campbell & Campbell 2010; Blair et al. 2010; Campbell, Blair & Wilson 2010a, 2010b; Campbell, Campbell & Blair 2010). The benefit of relationships is that they assist learning and sharing and therefore are applicable in the context of people being better prepared for bushfire and for negotiating shared activities (Blair, Campbell & Campbell 2010, p. 28; Campbell, Campbell & Blair 2010; Cottrell 2011, p. 6; Devere 2015, p. 70). Valuing relationships places people at the centre, promotes inclusion, and leads to safety in emergency
management as outlined in the United Nations Sendai framework (UN 2015, p. 10):

There has to be a broader and a more people-centered preventive approach to disaster risk. Disaster risk reduction practices need to be multi-hazard and multi-sectorial, inclusive and accessible in order to be efficient and effective.

Furthermore, participants highlighted the need for trust in order to build relationships and to enable people to work together:

*Everything is based on relationships and building trust—that is how to make things happen, that is what moves theory into practice.* (Agency)

*Engagement is getting to know people, about them, then trust happens, rapport, and we start having a two way-conversation, and then we can talk about the threat of fire, where you live and it becomes a natural conversation.* (Hybrid)

Gilbert’s (2004) research confirms the need for trust between agencies and the community, as does that of Jakes, Kruger, Monroe, Nelson, and Sturtevant (2007 pp. 195-196), Gordon et al. (2010, p. 474), Ryan and Wamsley (2012), Tippett (2016) and Oloruntoba (2013, p. 1700), whose research realised the importance of trusting relationships between community and agencies. Innes and Booher (2010, p. 114) discuss how collaboration can occur without trust, but through collaboration come trust, where experts respect local knowledge and perspectives (Gordon et al. 2010, p. 474). Gilbert’s research noted that trust was highest between the CFA brigades and the community as contrasted with other government departments (Bushnell & Cottrell 2007, p. 9; Gilbert 2004; Mannix 2008) while Ochre (2016, p. 100), maintains that it is necessary to treat people with ‘respect, dignity and trust as that is what you will get’ in return. Furthermore, participants said that ‘getting to know one another’ is important so that people feel ‘welcomed’, build ‘rapport, empathy and compassion’ so that ‘feelings’ are acknowledged.

*Going with the human response that is what is missing—I need to harness energy and empathy to what other people must be feeling.*

(Community)

**Compassion** can assist people in gaining greater understanding and insight of themselves and others (Conklin 2009, p. 114). Compassion helps us recognise others’ feelings, respond to others’ suffering as an ongoing process and practice
We can appreciate the value of empathy, kindness and understanding and model compassion but not mandate it (Paterson 2011, p. 23). Compassion is about acknowledging our feelings and humanity, which can be overlooked in a dichotomous, rationalist western world (Ledwith 2005, pp. 33, 39; Ife 2013).

A further feature highlighted in this theme is the purpose of collaboration and the challenge of realising it:

Partner and collaborate with communities to use existing resources—the community its knowledge and capacities. (Community)

What are needed are resources, genuine commitment, collaboration, and multi-agencies working with community to achieve bushfire safe communities. (Agency)

The challenges of collaboration are the different priorities of different organisations, willingness of people in organisations to change, and lack of a common vision and common ground to work together. (Agency)

Lapsley (2016) acknowledges, as do Innes and Booher (2010, p. 9), that working collaboratively is a complex challenge not encouraged by hierarchical structures, which rely on those in power making decisions and providing directives to others from the top-down (Dick 1991; Ife 2013, pp. 89, 349; Ochre 2013, p. 23). Meanwhile, government literature maintains that multi-hazard, multi-agency planning for bushfire risk is necessary to engage all stakeholders (COAG 2011, p. 9; EMV 2014, p. 38; EMV 2015b; UN 2015, p. 10; Victorian Government 2012, p. 8). However, the American agency FEMA (2011, p. 20), places community first in its approach to engagement. Likewise, community development practice embraces diversity, calls for full participation in order to develop empowerment, raise consciousness, improve the skills, knowledge and capacity of people to equip them for collaboration and to shape change (Craig et al. 2011, p. 10; Ife 2013, pp. 232-233; Kenny 2011, pp. 193-194; Ledwith 2005, pp. 1, 35; Ochre 2013, p. 45; 2016; Ryan & Wamsley 2012).

This second core theme illustrates how hierarchical structures – an outcome of rationalist worldview – do not always encourage trusting relationships that lead to compassion and collaboration across sectors (Ife 2013, p. 89). When the rationalist paradigm dominates, experts use ‘best to good practice’ to categorise
and to make sense of reality and bring order to chaos (Ife 2013, p. 89; Rhodes 2011a, p. 7; Snowden 2010; Snowden & Boone 2007, p. 70). An example of this was outlined in Chapter 4 when agencies attempt to categorise people by their response to bushfire (EMV 2013, p. 2; Nous Group 2013, pp. 1-2). Kurtz and Snowden (2003, p. 465) argue that it is not helpful to try and categorise people, as people are unpredictable and it is impossible to tell what they might do in any particular circumstance (Oloruntoba 2013, p. 1685; Whittaker & Handmer 2010). Categorisation may work for simple problems where cause and effect can be deduced, however social problems that involve values ‘are never solved’ and must rely on iterative processes, ‘at best they are only resolved over and over again’ (Innes & Booher 2010, pp. 9-10; Rittel & Webber 1973, p. 160). Therefore, to build relationships and work from a compassionate and humanist perspective, collaborative, emergent, empowering practice is required to acknowledge the complexity and chaos (Craig et al. 2011, p. 10; Ife 2013, p. 90; Ledwith 2005, p. 33; Ochre 2016, pp. 189-190; Raadt 2011, p. 513; Reisch, Ife & Weil 2013).

Core theme # 3

In the third core theme, participants said that empowerment is central to developing bushfire safety because people have greater control over their own decisions and actions. To develop and build empowerment participants said that:

Community development is about putting the power, the drive, and motivation into the hands of people, rather than bringing it from another source. ... Make people self-empowered, self-motivated, respect their knowledge, their understanding, rather than treating them as idiots and giving them the right to make their own decisions about what they think is important and what they can do. (Hybrid)

The concept of empowerment is a process of action learning that critiques reality and the power structures in our socially constructed society (Gamble 2013, pp. 327, 339; Ledwith 2005, pp. 1-2). Empowerment occurs when people have agency and the capacity to make decisions about what concerns them (Kenny 2011, pp. 27, 186). However, agency practice largely enables experts to make the decisions concerning bushfire safety resulting in a top-down power dynamic (Ife 2013, pp. 69, 89; Rhodes 2011a, pp. 9-10). When experts and bureaucrats make decisions in isolation from those on whom the decisions impact, lack of trust and alienation
occurs leading to disempowerment (Ife 2013, p. 69; Ledwith 2005, p. 32; Macnamara 2015, pp. 7, 60):

Trust has to be built when working in community engagement, as many community members are suspicious or cynical of agencies. (Agency)

Empowerment is facilitated through engagement; participants highlighted the lack of good engagement as a central theme of the phenomenon:

Engage people one-on-one is best. Good engagement needs passion! (Community)

The Aireys emergency scenario workshop worked best—bringing people into discussion, painting a picture of reality. (Agency)

Engage people in creative and in ongoing ways ... Make it creative ... and engaging, interesting and not repetitive and also have something they can do to takeaway—like have a written fire plan, or a list of contacts. But not brochures! (Community)

Engage different people not the same small pool [of people]. (Agency)

A lot of money can be spent on delivering just a piece of paper into a letterbox—informing people only [rather than engaging with them]. (Agency)

Engagement is patchwork and not what the community wants. ...There is little commitment by State Government to do comprehensive engagement over a longer period of time; it’s usually piecemeal (sic). (Agency)

The literature debates that genuine discourse, shared decision-making, and listening to people with compassion are necessary for empowerment and good engagement (Ledwith 2005, pp. 33, 36-37 citing Hustedde and King 2002 p. 340, and Freire 1972; Macnamara 2015). Engagement is a process that occurs over the long term using skilled practitioners (Gamble 2013, p. 340; Innes & Booher 2010, p. 66; Ochre 2013, 2016) and is necessary to facilitate planning and preparing for bushfire (COAG 2011, p. 5; Cottrell 2011, p. 20; EMV 2013, p. 7; Handmer & Hayes 2008, p. 5; Macnamara 2015, pp. 6-7; Rhodes 2011a, p. 10). Good engagement involves getting to know and understand a community’s character and needs (Gamble 2013, p. 338; Kenny 2011, pp. 379-384; Ledwith 2005, pp. 34-38). Then it is possible to ‘negotiate a way with the community to address bushfire issues’ (Cottrell 2011, p. 11). The Sendai framework outlines the need for inclusive engagement approaches that incorporate diverse stakeholders in policies and practices (UN 2015, p. 10):
While recognising their leading, regulatory and coordination role, governments should engage with relevant stakeholders, including women, children and youth, persons with disabilities, poor people, migrants, indigenous peoples, volunteers, the community of practitioners and older persons in the design and implementation of policies, plans and standards.

A member of the community echoed the idea of inclusion:

*We need to involve the whole community including children to find solutions.* (Community)

**Poor engagement** disempowers stakeholders and is contrary to building good relationships. Participants said that the least effective engagement methods were those where information is communicated one-way, such as through brochures ‘*which usually get chucked in the bin*’ (sic), and are ‘*impersonal*’ a viewpoint that is corroborated by the literature (Bushnell & Cottrell 2007a, p. 9; Macnamara 2015, p. 6; Rhodes et al. 2011a, p. 28). People are disempowered when they are not encouraged to think and become part of the process of critical reflection, problem solving, and conscientisation (Batten & Batten 2011, pp. 33-34; Gamble 2013, p. 327; Gordon et al. 2010; Ife 2013, pp. 122, 164; Kenny 2011, pp. 187, 282, 383 citing Freire 1972; Ledwith 2005, pp. 96-97; Pisaniello et al. 2002). Disempowerment leads to passive, disengaged people, who are reliant on experts to make decisions about their safety (Batten & Batten 2011, p. 34; Kenny 2011, p. 187 citing Freire 1972; Ledwith 2005, p. 96 citing Freire 1972, p. 41).

Communities are dependent on agencies ... and ... communities are reliant on agencies to make decisions for them. It will take time to make change: they will need to gain knowledge, skills, and confidence to achieve shared responsibility. (Agency)

Overwhelmingly participants said **good engagement** involves dyadic ‘one-on-one’ discussion, ‘genuine’ discourse, ‘listening’ to people’s needs and concerns, helping people to problem solve and ‘think for themselves’. This builds ‘confidence’ and when people are engaged their ‘imaginations start working’ for ‘creative problem solving’. Participants also stressed the need for good engagement that uses creative approaches:

*Engagement has to meet the needs of the individual and not [be] a generic approach to engagement. So need different tools to achieve that.* (Community)

*We can learn through case studies and through storytelling, which helps people imagine and learn what other people did in emergency*
situations—what worked or didn’t work. Then in a pressure test, people don’t consciously bring these things up but they respond (sic). (Hybrid)

Participants identified many good engagement approaches utilised by agencies. These included: the ‘Phoenix’ RapidFire modelling system (DELWP 2015e; Tolhurst, Shields & Chong 2008), ‘scenario workshop’ (CFA 2013g), ‘live videos of fire’, and the ‘CFA landscaping booklet’ (CFA 2012i) which engages people on a topic they are ‘passionate’ about. The Strategic Conversations and the Community Fire Guard programs were noted for their innovative approach that allows people to ‘learn over time, explore possibilities, and come to their own conclusions’ (Campbell, Campbell & Blair 2010; CFA 2012b, 2012i, 2013d).

*The scenario workshops were excellent in providing information and helping us imagine what it would be like.* (Community)

*[The] Phoenix workshop made it real, all agencies were represented and explained their roles; the fuel risk load was explained and people could ask questions.* (Agency)

Good engagement is not static nor has an endpoint because people are not all at the same level of capacity:

*People move in and out of community so it is very important to repeat fire conversations—especially for new people in town. Takes continual education. ... Have to keep up engagement work, and keep it interesting for residents who have heard it before, basics need to be covered off.* (Community)

*The community is made up of a diversity of people who are ready to be aroused or motivated in relation to fire. ... You need to raise people’s arousal (emotions) in order to get behaviour change. In other words—it has to mean something to a person—has to join up the dots, make sense and see the worth of it at more than just at an intellectual level. It has to connect emotively.* (Agency)

The literature articulates that engagement is important to help people and those who are vulnerable to plan and prepare for bushfire. Eriksen’s (2014, p. 31) research reveals that three factors are required for successful engagement: hands-on experience and practice, the strength of networks and supportive learning environments. Cottrell et al. (2008, p. 20) claim that people have the capacity to prepare for bushfire if they are supported and well engaged by agencies who work on locally based issues and responses. Rather than seeing community as the problem, it should be viewed as a resource (Cottrell et al. 2008, p. 11). Good engagement can reach those who are vulnerable and isolated, who
usually bear the brunt of bushfire danger and are often overlooked (Brackertz & 
Meredyth 2008, pp. 14-17; COAG 2011, p. 1; Cox & Perry 2011, pp. 400, 408; 

Good engagement involves listening, however participants noted that, rather 
than being listened to people are often told what to do instead (Cottrell 2011, p. 
11).

*Empowering approaches that use listening, rather than telling, work across contexts including fire. (Hybrid)*

Listening is an essential action of valuing, honouring, and understanding people 
and their different experiences (Cottrell 2011, pp. 10-11; Gamble 2013, p. 338; 
Gutiérrez et al. 2013, p. 448; Macnamara 2015, p. 16; Ochre 2016; Pisaniello et al. 
and collaborative approaches that result in ‘collaborative rationality’, finding 
mutually beneficial options to problems between stakeholders in facilitated 
processes to equalizes power and where everyone is heard respectfully (Frandsen 
et al. 2012).

The findings revealed that strength-based approaches are required to overcome 
barriers, change practices, and build empowerment (Gamble 2013, p. 338). 
Strength-based approaches are defined as those that champion people’s existing 
skills and capacities rather than operating from a deficit approach where only 
people’s problems and their lack of skills are acknowledged (Batten & Batten 
2011). The practice involves creating a supportive grassroots environment to 
harness people’s capacities, strengths, knowledge, and existing skills to work 
towards resolutions that are built on over time (Burkey 1993, p. 59; Eriksen 2014, 
p. 31; Gamble 2013, p. 338; Ife 2013, p. 71; Kenny 2011, pp. 26-27). This can be 
achieved through the identification of issues and concerns, rather than trying to 
find solutions, which in reality are ‘mirages’ and where – at best – only 
‘resolutions’ can be found (Innes & Booher 2010; Rittel & Webber 1973, p. 159). 
Snowden and Boone (2007, p. 3), claim that ‘right answers exist’, but the 
challenge is finding them in complex contexts, whereas Rittel and Webber (1973, 
p. 160) argue that by formulating a problem the ‘resolutions’ become apparent.
Without strength-based approaches, people are reliant on agencies and are not able to ‘share the responsibility of bushfire preparedness to the best of their individual ability’ (Eriksen 2014, p. 31). As articulated by a participant, people ought to be empowered by including their knowledge, experience and skills:

_Telling people and expecting that they now know it and that they are going to do it doesn’t work. … A bottom-up rather than a top-down approach [is required] (sic). (Hybrid)_

However the CFA (2014, p. 8) priority 2 for community resilience states that: ‘an increased number of Victorian at risk households demonstrate _appropriate action_ to ensure their own safety before, during and after an emergency, based on _sound advice_,’ (my emphasis). This statement gives the impression that, as part of a rationalist world-view, communities will deferentially follow governments’ ‘best practice’ standards (Snowden 2010), and that ‘responsibility is shared’ (CFA 2014, p. 8; COAG 2011, pp. v, 2; EMV 2013, pp. 4, 7; 2014, p. 1; Victorian Government 2010, p. 6; 2012, pp. 2-3). It appears that some community participants hold the same view: that the responsibility for bushfire safety rests with them rather than with agencies and government:

_Resources are limited so people have to be self-reliant … and … what would work are people taking responsibility of their own wellbeing and safety rather than relying on others to assist … and … people need to be responsible and independent of authorities. (Community)_

Another view is that communities are passive and reliant on agencies:

_Communities have very much built up a reliance on the agencies to play that role of decision making so it will take time to shift the communities thinking to gain the knowledge and skills to confidently engage in that shared responsibility. (Agency)_

Cottrell et al. (2008, p. 20) disagree that people are over reliant on government and argue that what communities expect is ‘clear advice’ from brigades and view themselves as ‘primarily responsible’ in an emergency. Rhodes (2011b) adds that people are not passive but are constantly evaluating government policy, judging, and making decisions before and during a bushfire.

Participants in the research described meeting people with strength-based approaches to empathise with people’s feelings, respond to local need and for empowerment:
Our approach is about the local people, about drawing from the grassroots and pushing it upwards and about being very empathetic and compassionate. (Hybrid)

Empathise with how people feel (not just about learning), and there is a need for a human response. (Community)

Help the community to get to know one another, think about what they might need to do and decide, and this will help them become empowered. (Hybrid)

Participants said that engagement ‘takes time’, that ‘one-on-one’ engagement ‘works best’, take a ‘personal genuine approach’, ‘build relationships to clarify issues’, ‘ask questions’, and go through a ‘learning process’.

To get a resilient community takes time, respect, patience and relationships and spending the time to build relationships. Because it is slow [work]—to engage the community or champions in the community. (Hybrid)

Community development practice yields people-centred approaches that assist in building empowerment through full participation (Craig et al. 2011, p. 7; Gamble 2013, p. 337; Ife 2013, pp. 172-173; Kenny 2011, p. 25; Ledwith 2005, p. 32). Strength-based approaches respect local knowledge and skills, while also being aware of the social dynamics of power and exclusion that exists between people in communities and between people and other stakeholders (Gutiérrez et al. 2013, p. 451).

As established, agency practice is mostly in the rationalist domain of best to good practice, which involves following procedures and protocols (Snowden & Boone 2007). This means that government experts mostly use their power to make decisions and implement actions for bushfire safety, without the participation of community members (Innes & Booher 2010, p. 111; Rhodes 2011a, p. 9; Rhodes et al. 2011a, p. 75). Within the paradigm of rationalist practice, there is no protocol to empower those who are not part of the bureaucratic system and it is not possible to ‘operationalise’ people (Stringer 2007, p. 193). Rhodes et al. (2011a, p. 6) argue that:

A more integrated, locally based approach potentially addressing a broader range of outcomes, including those relating to decision-making capacity and community resilience, is needed.
Empowerment is complex; it can be practiced in emergent and novel ways that include and incorporate formal and informal capacities, through respectful and trustful practices that facilitate skills and equalise power (Batten & Batten 2011, pp. 33-34; Gamble 2013, pp. 338, 340; Ife 2013, p. 71; Innes & Booher 2010, pp. 11, 33; Kenny 2011).

**Core theme # 4**

The fourth theme centres on where people are at, their attachment to place, and sense of community, which has important implications in engagement about bushfire safety. Some people have an abiding attachment to place whether they live in rural or urban bushfire risk locations, whilst others may have less attachment to place. This influences whether people stay and defend their homes or evacuate before a bushfire (McCaffrey 2015, p. 86 citing Anton & Lawrence 2014). For example, ‘a sense of community and place attachment was found to be more important to people who stayed to defend their properties than for those who left’ (McCaffrey 2015, p. 86 citing McLennan, Elliott, Omodei & Whittaker 2013). This information can help inform agencies in how they might engage with people in accordance to their level of attachment to place.

Participants in the research said they have a **connection with and love of the bush** and want to keep it as ‘as they found it’, and not clear it away, which would result in a barren landscape, because then they might as well have ‘stayed in the city’. Others said they ‘value the bush more than people’. As for living in high-bushfire risk locations one participant said that:

*Fire is a natural part of Australia—we can’t get rid of it (sic). (Agency)*

The literature confirmed that people appreciate the aesthetics of the bush and feel an attachment to place (Jakes et al. 2007, pp. 194-195), which extends beyond the house and into the landscape and becomes an ‘empathy of place’ and ‘spirit of the land’ (Reid & Beilin 2015, p. 101). People are prepared to live with the risk of bushfire for the benefits of living in the landscape (Bushnell & Cottrell 2007; Frandsen 2012; Handmer & Hayes 2008; McLennan, Wright & Birch 2014; Reid & Beilin 2015, p. 101).
Indigenous Australians have an ancient connection to the land that guides how the land should be cared for and includes fire burning practices (Hill 2004, p. 103 citing Judy Shuan 1996, Wyanbeel):

_When we walk on the earth, we can feel the spirit...we must speak to the bama there. We speak to the leaves, trees, plants, birds, the rainforest in the land, or down to the sea. That gives protection._

Cox and Perry (2011, p. 400) found that the value people have for their **home** is more than just the physical structure: ‘it’s not just your house, it’s your heart … (sic)’, and that home is important to people as part of social trappings, status and rank in society. Cox and Perry (2011, p. 404) express the meaning of home as:

_Beyond narrow material and economic narratives of home lay expressions of home as shelter, as a symbolic extension of self, as meaningful livelihood, and as a locale of social relations and community._

At a practical level, where people live is in the bush because it can be more affordable, for the clean air, less crime, pollution, traffic, and crowding (Bushnell & Cottrell 2007, p. 2 citing Monroe, Bowers & Hermansen 2003; Dow 2015; Hermansen-Baez, Seitz & Monroe 2016; Monroe, Bowers & Hermansen 2003, pp. 2, 7; Whittaker, Handmer & Mercer 2012, p. 163).

**Core theme # 5**

In core theme five, participants argued that bushfire safety is about ‘compromise’ because ‘we cannot protect people and the bush one hundred per cent. Something has to give’. This assertion demonstrates an awareness of the level of control that people have over the **natural environment** which is **unpredictable** and where bushfire is expected to be **more frequent** (BOM 2015b; Steffen 2013).

_Fire is necessary it’s part of our DNA. We need to understand fire and how it behaves and the way to learn about fire is to allow people to use it rather than prohibiting it all together. That way they would gain experience of how fire behaves (sic). (Agency)_

Participants from the community also specified that they have little knowledge of bushfire through either experience or education:

_Theory lots—but very little practice. (Community)_

_People have little fire knowledge, its speed, and the fear it creates. Just plain ignorant. (Community)_
Use fear and shock tactics, brainwash people, have a questionnaire to test their fire knowledge, have a demonstration put on by fire authorities so that people can see fire in action. (Community)

The literature confirms that people lack bushfire knowledge, nor understand how dangerous it can be, are overconfident, choose to tolerate the risk, underestimate the risk, think it will not be that bad, while establishing their homes at the urban-rural interface where the bushfire risk is greatest (Bushnell & Cottrell 2007, p. 2; Cox & Perry 2011; Gilbert 2004; Handmer & Hayes 2008; McNeill et al. 2013, p. 13; Monroe, Bowers & Hermansen 2003, pp. 2, 7; Rhodes 2011a). This is partly because people perceive risk differently from researchers and agencies (Bushnell & Cottrell 2007a, pp. 6-7; Cottrell et al. 2008; Monroe, Bowers & Hermansen 2003, p. 8; Reid & Bellin 2015, p. 101). The perception and estimation of risk varies greatly depending on a person’s worldview, degree of tolerance understanding of fire, age, and gender (Cottrell et al. 2008; Eriksen 2014, p. 31).

Bureaucracy expects people to be rational, exercise choice and take responsibility, which amounts to conforming to expert advice, bureaucratic hierarchical structures and practices that are procedural and rational (COAG 2011, p. 10; Cottrell et al. 2008, p. 12; Ife 2013, p. 89; Snowden & Boone 2007, pp. 70, 74; Victorian Government 2012, p. 2). Instead, people in the community are characterised by their contradictions, chaos and disorder and cannot be classified nor controlled as agencies might expect (Ife 2013, p. 89; Kurtz & Snowden 2003, pp. 464-465). As a natural phenomenon, bushfire is not fully controllable most of the time unless it is behaving within recognised patterns as discussed in Chapter 2, where fire is managed through procedural practice which may result in some control (Snowden 2010). Mostly, however, bushfire and people operate in the complex to chaotic domains, as explained earlier, because cause and effect patterns are difficult if not impossible to define (Kurtz & Snowden 2003, p. 465; Lewin 1946, p. 36; Oloruntoba 2013, p. 1685; Snowden & Boone 2007, p. 74). The reality is therefore, that all three systems of community, bureaucracy, and the environment are essentially unpredictable and uncontrollable.
Core theme # 6

Complexity is a recurring theme throughout the data. Participants identified that the phenomenon of bushfire safety exists within complexity; bushfire danger cannot be resolved simply with written plans; and theory is not put into practice for reasons including:

[That is because] ... we are dealing with a complex system which involves people and how they relate, connect and the ecological and economic, sociological factors and how you adapt to make it a reality. (Agency)

Well you can’t write a checklist for all the variables you are going to confront. So once you get confronted with something outside that checklist you don’t have anything to go to. This is when people make bad decisions and take late action (sic). (Agency)

People are used to the ‘control and command’ model where things are done for them and that is at odds with community empowerment. There are two philosophies operating in parallel—and that is very confusing for people in the community. We are told to obey and we are told what to do and at the same time we are ‘told to act’. They don’t run together these two approaches and are philosophically opposed—unless we come to grips with that—we are giving mixed messages (sic). (Government)

This comment highlights the dichotomy between the practice and the theory, and illustrates how the positivist worldview of agencies competes with the interpretivist worldview of communities (Ife 2013, p. 84). Participants indicated that agencies want people to plan and prepare for bushfire, have written plans and leave early; but people find these actions difficult because of the complexities and practicalities of diverse options that need to be considered. In place of formal written plans for bushfire, people have informal or ‘back-up’ plans instead:

We do not make written plans for any other elements of our lives and bushfire plans are complex and require multi scenarios and for many people this is too difficult. (Community)

There are so many variables—just writing a fire plan is not easy as there are multiple plans and considerations to take into account. It is too complex and there are too many what ifs. The authorities tell you to have a plan to cover their ass but in the end it is all too complex and too hard to actually write a fire plan even being a volunteer (sic)! (Hybrid)

The literature supports the findings that most people do not have written fire plans, rely on back-up options and deciding what to do on the day, according to the conditions and their assessment of the situation (Bushnell & Cottrell 2007, p. 20; Cottrell et al. 2008, p. 16; McLennan, Paton & Wright 2015, p. 325; Nous
Group 2013, p. 2; Rhodes 2011a; Rhodes et al. 2011a, p. 5; Strahan Research 2010, pp. 8-9; Victorian Government 2010, p. 5).

Efforts to address the complexity utilise practices centred on creating more bureaucracy, such as establishing the agency of Emergency Management Victoria and taking approaches such as ‘interoperability’ (EMV 2016). This effectively amounts to more control and command systems, which Snowden argues are not able to address the nature of complexity (Snowden & Boone 2007, p. 73). On paper the rhetoric may seem sound, but how to engage and create action around the problem is less clear:

“The White paper is not prescriptive but it is over simplified. It doesn’t provide guidelines on how to engage and how to get people to the table, and how to support them (sic). (Local Government)

However, understanding and analysing complexity is necessary; we cannot just throw our hands up in the air and admit defeat.

Really important: understanding the complexities gives reality to the challenges to tackle many of our other themes. (Workshop participant)

Even though agencies are trying to work in linear rationalist ways when the social world is a more complex:

“We are doing all these linear processes in a non-linear world. (Workshop participant)

An expectation by government of community to overcome the complexity of bushfire safety is in the often expressed, although non-negotiated, expectation of ‘shared responsibility’ (CFA 2014, p. 4; COAG 2011, p. 2; Gill & Cary 2012; Lapsley 2016; Victorian Government 2010, p. 6; 2012, p. 2). Participants also acknowledged shared responsibility because:

“There are not enough fire trucks to protect everything so you must be responsible for your own actions and government will provide you with general information. Resources are limited so people have to be self-reliant. (Volunteer)

Kenny (2011, p. 123) debates that sharing responsibility is a community development practice of empowering communities to take care of their own welfare; however, when practiced by government, shared responsibility shifts risk management from paid public servants to the ‘grassroots’ and volunteer level.
Cottrell (2011, p. 9) argues that ‘in essence ... fire services want the community to own the risk’ and can be cynically viewed as a way of shirking responsibility. On the other hand, brigades are made up of volunteers from the community, so they may be better placed to engage with those they already know (Frandsen 2012, p. 222). Another consideration is that brigade members as volunteers may only engage those friends and family that they know, and not a wider pool of people in the community due to resources or understanding of inclusive networking (Cottrell et al. 2008, p. 19).

Participants raised the need for practical bushfire experience for motivating people from denial and fear of bushfire and because importantly:

*Experience helps build people’s awareness and also confidence in their ability to act.* (Workshop summary)

*People in the community* lack empathy and imagination for what a real bushfire will be like—many people half get there and then do not want to know and push it away and do not act [prepare]. (Community)

*Initially I thought it would not happen to me but then I changed and realised that it will happen and when it does it would be impossible to stop because of the increased vegetation on the coast.* (Community)

*It is important for people to get an impression of what fire would be like.* (Community)

In the literature, Eriksen (2014, p. 31) supports the assertion that practical experience is necessary and reasons that ‘hands-on ‘supportive learning environments’ that provide experience and practice are necessary, especially for women to better understand bushfire. As expressed by a participant:

*People are not first aid bushfire ready. There is no compulsory training for living in the bush and nothing to make them be fire ready [like getting a license to drive a car].* (Hybrid)

Imagining what bushfire might be like is abstract. People’s level of planning and preparation is linked to their perception of risk (McNeill et al. 2013, p. 11), which leads to the underestimation of risk, an overestimation of their level of planning and preparation, and their capacity to deal with bushfire (Cottrell et al. 2008, p. 16; McLennan, Paton & Wright 2015, p. 323; McNeill et al. 2013, p. 11). Participants added that:
Preparing for fire is complex—it’s not like wearing a seat belt. The risk remains despite preparation (sic). (Hybrid)

... I have a minimum of three plans ... and plans have to be revised and reviewed and are therefore fluid [according to circumstance of household and its individuals]. ... [the] fire plan is dependent on information that we have at the time, because the different days bring different responses. (Community)

It is very complex and the more you get into it the more complex it becomes [bushfire plans]. People give up because it is so complex but you have to persist and we put ours into practice each year. (Community)

Snowden (2013) explains that complexity is more involved than people think and includes both theory and practice that he surmises as ‘praxis’. He uses the analogy of a novice cook following the instructions in a cookbook, whereas a chef has the experience, skills and theory to cook a meal without a set of instructions, because a chef ‘understands the theory of food’ and will know what ingredients to add to get the desired effect (Snowden 2013). Snowden’s argument is that the ability to practice theory (or knowledge) comes from a lot of practice, best achieved through an apprenticeship, where skills become automatic or subconscious, and where the optimal blend of theory and practice become ‘praxis’ (Snowden 2013).

Employing Snowden’s (2013) metaphor in the context of bushfire, the expectation by government is that community people will be able to plan and prepare for bushfire from the available protocols available in the bushfire safety literature (the cookbook). However, people in the community may not have the benefit of an apprenticeship or of planning and preparing for bushfire. Community members are less likely to achieve the desired result using a set of instructions. Instructions are applicable to simple or complicated problems – not those that are complex, which include real life problems that merge with life’s many other demands (Cottrell et al. 2008, p. 15).

Therefore, people need the practice and theory to plan and to prepare for bushfire, to achieve praxis. Due to their lack of praxis, people may be naïve to bushfire danger, how to mitigate risk, nor understand the benefits of planning and preparing. At best, people in bushfire-prone communities are patrons at the chef’s restaurant where someone else is taking care of the cooking (in this case the bushfire). When confronted by bushfire, people revert to their comfort zone, the chaotic domain in Snowdon’s Cynefin sense-making model (Snowden 2010,
2013). An understanding of the complexity of planning and preparing for bushfire safety by a participant was:

*We do not give people food and a fridge and expect them to prepare a dinner party if they have never cooked before, so why do we expect them to be able to write a fire plan without any prior experience and capacity on the topic?* (Hybrid)

Additionally, the theme of complexity incorporates people and **human behaviour**:

*Understanding the many facets of human behaviour is the biggest influence over what we are told and what we do to keep [bush] fire safe.* (Workshop notes)

*Denial came before acceptance and then [I began] planning and preparing for bushfire. The CFG group made that change [in me].* (Community)

This theme puts people at the centre of the phenomenon and highlights the need to understand diversity, social dynamics, and how people are constructed by society through cultural and social influences (Kenny 2011, p. 376; Ochre 2016, p. 95; Snowden & Boone 2007). Furthermore, the human brain reacts to threats in different ways and finds it hard to imagine what a real bushfire would be like, which can lead to apathy and inaction, so that planning and preparing for bushfire is not undertaken (Gordon 2014; McLennan, Paton & Wright 2015). Participants reflected this understanding:

*People think it won’t happen to them ... and ... people become blasé about fire when it hasn’t happened for a while (sic).* (Workshop notes)

*People think ‘it will never happen to me’.* (Community)

*Human behaviour is overlooked; I don’t practice the theory even though I am a CFA volunteer (sic).* (Hybrid)

This last quote indicates the complexity of the situation. Even those people who have served an apprenticeship and are trained in safety protocols concerning bushfire, are not necessarily better prepared as might be expected and may take either a rational or irrational approach to bushfire danger. The way people behave or say they will behave to prepare for bushfire safety is often contradictory, although there may be a tacit logic that is not always expressed – where internally people calculate the risk to be low. As McCaffrey (2017) questions, why do participants believe that apathy is a reason for their lack of bushfire mitigation – ‘are they actually making a rational response to an intermittent risk, or is it a
matter of exposure?’ While agencies focus intensely on bushfire danger, homeowners are more likely to be thinking of many other daily concerns in their lives and view bushfire as an intermittent concern (Eriksen & Prior 2011; Eriksen 2014; McCaffrey 2017). Perhaps people use the terms apathy and complacency to either cover their fear, or because it is what the authorities expect them to say concerning bushfire preparation.

Agency staff can become frustrated by people’s behaviour, which is contrary to their expert advice, and can either stereotype, label, or blame those in the community in response. An agency participant said:

*People can be non-compliant or non-committal ... delusional and they either don’t accept or understand risk, or have any real perception of risk. Then there are the ignorant and sometimes the arrogant. A lot of this is based on misconceptions, misinformation, and perceptions and sometimes mistrust (sic).* (Agency)

Examining the language of this comment in the context of Cynefin theory: ‘non-compliant’ presumes that people in the community will respond and behave like trained agency staff or volunteers, and follow instructions — in other words operate in the best to good practice domains (Snowden 2010; Snowden & Boone 2007, p. 70). The reality is people’s responses vary: according to this comment people in the community are either ‘delusional, don’t accept nor understand, are ignorant, arrogant or ill informed’, when it comes to bushfire, because they are in fact operating in the complex to chaotic domains and cannot be operationalised (Kurtz & Snowden 2003, p. 73; Stringer 2007, p. 193).

A further insight from another participant is that:

*Planning for fire and making the right decisions is complex because it’s about emotions, heritage, culture and how people relate to where they are and what they are doing (sic).* (Local Government)

People in the community also critiqued other people’s passivity, reliance, and lack of action:

*Also the community could try and make things happen too. The theory is working, but people are apathetic or will ‘wait and see’, or waiting for someone to tell them what to do and then they die waiting. That is because we are told by big brother how to do everything, from driving our cars, raising our children. We can’t think for ourselves (sic).* (Community)
Getting the message through is difficult and there is apathy generally from community people. (Community)

Snowden (2010), Snowden & Boone (2007) explain complacency as the ‘cliff like ledge’ between ‘best practice’ and the ‘chaos’ domains in the Cynefin framework. In the bushfire context, both agencies and community are capable of sliding into the chaos domain. For example, this is because agencies think everything is under control: people in communities have been told what to do and have been provided with bushfire safety information. Meanwhile, people in communities think that bushfire is unlikely to happen and if it does then the agencies will come and assist. It could be argued that both agencies and the community are being complacent (Snowden & Boone 2007, p. 71). In reality, agencies continue to work in the domains of best and good practice maintaining current procedural work practices within their comfort zone, while avoiding complexity (Kurtz & Snowden 2003, pp. 475-476; Snowden 2010). The community maintains their social, economic, and educational status quo within their comfort zones and avoids dealing with complex threats that appear abstract or unlikely to occur (Rhodes 2011a, p. 9). Both community and agencies avoid pre-emptive collaborative planning and preparing for bushfire threat – and are potentially teetering on the edge of chaos – which is what occurs when bushfire strikes (Bushnell & Cottrell 2007a; Kurtz & Snowden 2003; Oloruntoba 2013, p. 1700).

Core theme # 7

Core theme seven designates bureaucracy as being hierarchical, authoritarian, and didactic. The critique is that linear ways of working are suited to fighting fire, but fall short when applied to working with people and therefore:

> Engagement in community is far more complex than they understand. So maybe some social science education in some of those areas, ... typically it’s a paramilitary organisation because that’s what has to be on the fire grounds. But when you work with community that skill set is something entirely different, ... I am saying to up-skill staff or employ staff who have strengths in these areas rather than pretending that fire fighters can have this capability where they have been trained to do a paramilitary process, to do firefighting instead (sic). (Agency)

Participants said that authoritarian and didactic responses are detrimental to creating good relationships between stakeholders.
We say the community is foremost, but we do it to the community [we try] to fix the community and fix their risk. (Hybrid)

People [agency] come in with ideas about community and what makes it resilient, rather than having a conversation to decide what resilience is for their community. (Community)

Cottrell (2011, p. 9), argues that this can be improved and outlines how:

Communities should not be viewed as being a ‘problem’. It is essential to engage with communities to seek solutions to fire issues.

Government and firefighting agency participants articulated the need for skills in how to work with communities:

*The gap is clear guidelines for councils and government—how to translate the theory and put it into practice. It is easy to say you will work with community but what does that look like and where is the training for that? (Local Government)*

Innes and Booher (2010, p. 8), along with Sachs and Calhoun (1981), debate that government tinkers around the edges of problems, not making change where it is needed. This is demonstrated by improved emergency and fire warnings, the building of fire refuges, the application of stricter house building standards for new houses, the consideration of evacuation as a better option for community safety and in the creation of an overarching bushfire and emergency management body in EMV (Victorian Government 2010, p. 6). These changes are welcome but they are solutions that have been reached without joint decision-making. They have therefore not fostered empowerment, engagement, and participation with those in the community. Those who are in government have made the decisions instead resulting in top-down solutions (Jakes et al. 2007).

Participants identified the **hierarchical** and **authoritarian** culture of firefighting agencies by describing two ends of a spectrum:

*The command and control environment is not compatible with the collaborative environment and ... works opposite to engaging with and empowering communities. (Agency)*

This culture inhibits people’s capacity to be empowered to plan and prepare for bushfire:

*Government and agencies make promises they can’t keep e.g. on Black Friday in 1939 [when] 70 percent of Victoria burnt—if that sort of thing happens again then the government can’t protect everyone. In fact on*
Black Saturday 2009 only a small section [of the state] was burnt and the agencies could not do a lot due to the ferocity of those fires (sic). (Volunteer)

This theme concerns practice by agencies and community and how those practices can be tackled differently around the phenomenon of bushfire danger. Participants raised the issue of the need for practices to change:

We can’t keep doing business the same way – or we won’t get different outcomes if we do (sic). (Agency)

Eriksen (2014, p. 29) argues that the dominant and paternalistic paradigms of CFA need to change: ‘culture change from the grassroots level of volunteer brigades to the upper echelons of head office staff’. Other government documents agree that there is need for sustained change (CFA 2014, p. 4; EMV 2015b; Lapsley 2016), in ‘how communities operate, and how governments and emergency service organisations work with them’ (Victorian Government 2012, p. 4). The VBRC advised further changes and these are being implemented through the EMV role of the Fire Services Commissioner (COAG 2011, p. 1; Victorian Government 2010, pp. 5, 20). The CFA’s Strategy 2013-2018 (CFA 2014, p. 4) articulates that change is needed because:

Our traditional ‘response’ to emergencies cannot effectively combat their catastrophic impact. Working closely with our partners, CFA needs to better engage communities to fully understand their collective and individual risk, and to better enable them to prepare for and respond to emergencies.

While acknowledging the need for change, agencies do not fully include people in decision-making. The CFA Strategy 2013-2018 declares that CFA requires a ‘shift in thinking’ to ‘empower, equip and partner’ with communities, but does not define how this will be achieved (CFA 2014, p. 4). Empowering and partnering presupposes shared decision-making, but this appears to remain in the domain of the experts, as there is no description as to how participation and shared decision-making will be achieved (EMV 2015b).

Eriksen (2014, p. 25) argues that the dominant paradigm in the firefighting agencies is that of male hegemony and patriarchy sidelining and ‘suppressing’ emotion, while objectivity and detachment is the dominant approach to bushfire
risk. It appears again that the rationalist view dominates over the interpretivist view (Eriksen 2014, p. 25 citing Anderson and Smith, 2001, p. 7):

Detachment, objectivity, and rationality have been valued, and implicitly masculinised, while engagement, subjectivity, passion, and desire have been devalued, and frequently feminised.

Emotion is valid, as contended by Rogers (1975, p. 2), who portends that ‘a high degree of empathy in a relationship is possibly the most potent and certainly one of the most potent factors in bringing about change and learning’. Emotion has been overlooked in the past and is part of the dynamic of understanding human nature and what people value, as a participant said:

It’s easy for a bureaucrat to say just leave your property, insurance will take care of the rest, but there is a lot of blood, sweat and tears and emotions in a farm as opposed to building a house on a quarter acre block. It’s a business but it’s also part of community, part of heritage, part of culture ... those are the things that have to be understood (sic). (Local Government)

This theme ends with the idea that community and agencies’ practices need to change if the space between the theory and practice of bushfire safety is to be addressed:

Longevity ...it’s really about behaviour change. These things take time and recognition of the time that is required to commit to that process (sic). (Local Government)

An organisation that doesn’t like to change, but wants to incorporate community values. ... We need to adjust our practice to meet different values; can that happen in the organisation or will it be a compromise? (sic) (Agency)

Society can change and campaigns have been undertaken to tackle smoking and wearing seatbelts, so behavioural change can be achieved [for bushfire]. (Hybrid)

Discussion

The findings and the literature align with the ideas of empowerment, collaboration, networking and good engagement with community stakeholders, however the reality is that these tools for change are rarely activated by government agencies. Power is largely in the hands of bureaucracy and people in the community are disempowered and disengaged in the discourse on bushfire safety. As bushfire danger resides within complexity and chaos domains, current practices that exclude the community are not able to address the space between
bushfire theory and practice. To work with complexity more successfully, the findings and the literature concur that novel and emergent practices need to be employed. A practice that addresses diversity and complexity is that of community development. This analysis points to the need to create empowerment for those in community and to apply creative engagement and strength-based approaches to help people to be part of decision-making, to problem solve collaboratively, to better plan and prepare for bushfire (Gordon et al. 2010; Pisaniello et al. 2002, p. 30). However, how and who will do this if agencies hold the power and set the agenda? How is it possible for bureaucratic agencies working within the positivist paradigm to move to the interpretivist paradigm? How can the dialogue be fostered? The next chapter examines how this might look explained through my evolving theoretical understanding.

**Summary**

These research findings have provided a rich picture of the complexity of bushfire safety across the three systems and seven core themes. The theories of Cynefin and the practice of community development have provided insights into the practices employed by the system of bureaucracy that operates from a positivist worldview where cause and effect are knowable, where standard procedure, best and good practices prevail within a ‘command and control’ rationalist paradigm (Joy 2012; Snowden 2010; Snowden & Boone 2007). On the other hand, the community and the natural environment systems are diverse, largely unpredictable and uncontrollable, dependent on the context and therefore are located in the domains of complexity through to chaos (Kurtz & Snowden 2003, pp. 464-465). To address this more fluid environment, exploration has to be undertaken to open up possibilities for learning (Kurtz & Snowden 2003, p. 477).
Chapter 7
The emergent theory

Introduction

In Chapter 5, I discussed the Cynefin framework and community development theory to help analyse, reflect, and make sense of the three systems involved in bushfire safety. Then in Chapter 6, I discussed the core research themes, supported by literature and quotes from participants, which confirmed or challenged the findings (Creswell 2013, p. 272). To make further sense I employed the theoretical model of Cynefin and the theories that shape community development. In this chapter, as informed by action research and grounded theory practice, I outline how I developed an emergent theoretical understanding that culminated in a conceptual model (Charmaz 2001; 2011, p. 361; Dick 2002, p. 443; Reason & Bradbury 2002; Stringer 2007; Zhao, Wight & Dick 2012).

How the themes were realised

As discussed in Chapter 6, table 8.0 clarifies the steps used to process, analyse and theme the qualitative data to identify themes with the final colour coded core themes listed in column four. After theming the data, I made a creative leap and abductively conceptualised the relationships between the themes to create the model (Charmaz 2011, p. 361). My hand written notes (in Appendix IV) illustrate how the model was imagined. This theoretical model (Figure 5.0) represents the relationship between the three systems of environment, community, and bureaucracy as initially described in the Venn diagram, (Figure 4.0 in Chapter 5). Each system contains a spectrum made up of two opposite extremes and where the three spectrums intersect is the space between the theory and practice of bushfire safety. I will outline how the model is understood then examine the central hypothesis, and the resulting conclusions that comprise the new best practice.
Reading the model

The model describes the opposite extremes of the three spectrums of environment, community, and bureaucracy, depicting graded positions between those extremes. For example, the grey coloured spectrum of environment and place illustrates that the natural environment can be unpredictable and dangerous, while also being an enjoyable place to live, that is loved and valued and called home. The turquoise coloured spectrum of community and resilience includes people who are isolated, alienated, segregated, and siloed, and also contains the opposite: people who have capacity, strong relationships, skills, and knowledge for resilience. The mustard coloured spectrum of bureaucracy describes the capacity of people to take linear and didactic approaches while ensuring control via authority. Conversely, the sector of bureaucracy has the capacity to take empowering approaches to the complex issue of bushfire safety by adopting strength-based practices.

The centre of the model labelled complexity reflects the overlap of the three multifaceted systems that are constantly changing, dynamically interacting, and self-organising in response to changing conditions (Gilchrist 2000, pp. 265-266; Innes & Booher 2010, p. 32; Snowden 2010). Emergency management agencies may plan to respond in predictable patterns, but theory does not always match practice, people in the community respond to bushfire risk according to different stimuli, while bushfire varies in its behaviour and trajectory. The systems are interwoven and influence each other and cause and effect cannot be predicted with absolute certainty (Kurtz & Snowden 2003, p. 464). The model demonstrates the multi-dimensional nature of the phenomenon, the complexity of achieving bushfire safety, and elucidates on the infinite number of variables in planning and preparing to be safe from bushfire (Lapsley 2016; Paton & Tedim 2012, p. 5; Snowden & Boone 2007, p. 74). Next I examine what the space contains and how to work with that complexity.

Unpacking the space

The space at the centre is conceptualised as containing compassion, power, and attachment to place. These concepts are the driving forces of the overarching complexity of bushfire safety.
The model illustrates the three emergent spectrums that are colour coded as: grey for the environment and place spectrum, mustard for the bureaucracy and empowerment spectrum, and turquoise for the community and resilience spectrum. The centre of the model represents the complexity of the space between the theory and practice of bushfire safety.

Compassion is described as strength-based practice that aims to empower people to realise their full potential through participation in matters that concern them (Gamble 2013; Milner 2008). Compassion is a deep and genuine engagement for another’s situation, informed by the understanding of human rights and a deep motivation for change (Bierhoff 2004, p. 148; Nussbaum 2001, pp. 308, 315; Reisch, Ife & Weil 2013, p. 91). Compassion helps us understand how people become segregated due to social constructs and bureaucratic structures (Ife 2013; Kenny 2011, p. 308), while caring for other’s wellbeing and valuing relationships (Gilchrist 2000, p. 267; Jakes et al. 2007, p. 190). As a humanist
approach, compassion places people at the centre through the actions of love and care (Milner 2008; Peck 1990, 1997; Reisch, Ife & Weil 2013).

**Power** is the capacity for agency and self-actualisation, and is exercised by experts in bureaucracies who make the decisions through ‘command and control’ structures (Innes & Booher 2010, p. 9; Ife 2013; Kenny 2011; Ledwith 2005, 2011b; Snowden & Boone 2007, p. 74). People in the community can exercise their informal power through the process of inclusion, exclusion, or conflict in diverse ways (Devere 2015; Ledwith 2005). In the context of bushfire safety, individuals can decide how and if they will act on advice given by government (Oloruntoba 2013; Rhodes et al. 2011a). The power that is exercised between people in bureaucracy and in communities can either hinder or support capacity building and problem solving (Ife 2013; Ochre 2013, p. 121). The resulting dynamic requires skills to work with people in formal and informal structures to resolve shared problems (Department of Sustainability and Environment 2005a; Gamble 2013, p. 339; Johnson & Johnson 2000; Ochre 2013).

**Attachment to place** can be expressed as love for a home, or a place where events have occurred and memories are made (Cox and Perry 2011). The connection to place can be associated with feelings of belonging, to specific landscapes and places that have cultural meaning and purpose for people (Hill et al 2004; Jakes et al 2007; Stevens 2017; Reid & Beilin 2015). Attachment to place impacts people’s perception of risk and preparedness for bushfire (McCaffrey 2015).

**Addressing the space**

To work within the complex space, novel understanding and practices are required of which a significant characteristic can be described as **powerful compassion**. Powerful compassion is a driver that motivates people to place others’ needs first, and promote creative practice according to individual needs (Innes & Booher 2010; Wenar 2012). Powerful compassion is about **choosing** to be helpful, caring and compassionate of others, and requires us to relax our egos and put others needs first (Freire 1972; Moore & Westley 2011). Successful outcomes are achieved dependent on how self-aware we are as individuals and
how we exercise our compassion and modulate our power (Bierhoff 2004, pp. 149-163; Ledwith 2011b, p. 146). Consciousness-raising can promote powerful compassion when individuals learn to understand others’ life circumstances and transcend stereotypes of ‘the other’ (Bierhoff 2004, p. 148; Gilbert & Bierhoff 2004; Nussbaum 2001). When people work together on practical activities in facilitated contexts and enter into dialogue with others they are better able to understand their social context and find common ground (Blair, Campbell & Campbell 2010; Blair et al. 2010; Gamble 2013; Innes & Booher 2010; Kelly & Sewell 1994; Ledwith 2011b p. 80; Mason 2011; Ochre 2013). Complexity is best addressed with a social justice world-view where people are placed at the centre (Ife 2013; Freire 1972; Ledwith 2011a; Reisch, Ife & Weil 2013).

**New best practice**

The skills for practicing powerful compassion include the *strength-based practices* of *participatory learning, creative engagement, listening, genuine* and ongoing *political will*, with people who are *self-aware* and committed to change (Ife 2013, p. 85; Innes & Booher 2010; Kenny 2011, p. 29; Mason 2011, pp. 389-390; Sachs & Calhoun 1981). Ideally, this would occur in a context of *participatory learning* utilising appropriate practices including reflective and critical praxis and where power is consciously acknowledged and facilitated between stakeholders (Campbell, Campbell & Blair 2010; Gamble 2013, p. 340; Ife 2013; Innes & Booher 2010, p. 6; Kenny 2011; Ledwith 2005; 2011b, p. 32; Moore & Westley 2011; Ochre 2013, 2013a).

**Community development** as a strength-based practice values people and their diversity, skills and experiences (Batten & Batten 2011; Ife 2013; Kenny 2011; Ledwith 2005, 2011b). Working at the grassroots it builds empowerment, raises consciousness, and promotes participation through the inclusion of diverse voices (Burkey 1993; Ife 2013; UN 2015). Community development seeks to resolve problems by building diversity and relationships, encouraging collaboration and respect for mutual support (Batten & Batten 2011; Campbell, Campbell & Blair 2010; Gamble 2013; Gutiérrez et al. 2013; Ife 2013; Kenny 2011; Ledwith 2005, 2011b, 2011a; Mason 2011; Reisch, Ife & Weil 2013).
Further benefits of community development are that local knowledge, experience and skills are valued and utilised, strengthening local capacity (Ledwith 2005; 2011b, pp. 80, 85). This helps inform communities about bushfire history, its behavior in the local landscape and the makeup of the community, while those who have a stake in the problem can be engaged for analysis and problem resolution (Erikson & Prior 2011). As Gordon et al. (2010, p. 474) expound, ‘it is critical to understand bushfire assessment and reduction as a community development process’ so that the community can collectively identify fire as a problem. The inclusion of diverse viewpoints helps people find resolutions to complex phenomena (Ife 2013; Innes & Booher 2010; Kenny 2011, p. 29) where more robust resolutions can be found, rather than relying on top-down solutions from experts (Kenny 2011, p. 375).

**Political will, and self-awareness** are required to be inclusive, to achieve ‘power with’ each other for better praxis (Ledwith 2011b, p. 146). However strength-based approaches can be challenging for those who hold power. They have to be willing to share their power and enable those without power to be part of decision making, an approach which those with the power can find unfamiliar and/or threatening (Sachs & Calhoun 1981). Meanwhile, those in the community may have to become more formal in how they exercise their power and take an active part in decision-making with agencies. Ultimately the process takes time, as one participant eloquently described it:

*The process is cyclical – people discover it and forget it – discover and forget it and that’s just the nature of being human and life ... people have to be able to relate new ideas and practices to their own lives – it’s not just in ‘one silo’ but making extended connections of meaning, in place and context. When that happens then it becomes practice. In fire safety we don’t give the time or widely recognise how critical that process is (sic).* (Agency)

The challenge of course remains that those with power rarely relinquish their status to empower those without power without some catalyst or disruption to the status quo (Innes & Booher 2010; Moore & Westley 2011; Sachs & Calhoun 1981). In turn, those who are disempowered have to be highly motivated and have great determination to challenge existing power structures – not something that everyone has the capacity or interest to pursue.
A further catalyst to change the current status quo are **creative engagement practices** where people agree to work collaboratively on common goals using facilitative methods that promote learning and participation. Examples of techniques to enable this are: World Café, Strategic Conversations, and Kitchen table discussions (Brown, Isaacs & Cafe Community 2005; Campbell, Campbell & Blair 2010; Department of Sustainability and Environment 2005a; Gamble 2013; Johnson & Johnson 2000; Ochre 2013; Sarkissian et al. 2009). Ongoing learning opportunities can occur in Communities of Practice (CoP), a non-hierarchical group that has a common interest that encourages learning and reflection for stakeholders and improves their common practices (Friedman 2001; Innes & Booher 2010; Jakes et al. 2007, p. 195; Reason & Bradbury 2002). An empowering process, creative engagement builds confidence, encourages people to think, problem solve, and address phenomena that concern them (Batten & Batten 2011; Department of Sustainability and Environment 2005a; Freire 1972).

These facilitative processes enable people to **listen** and value diverse viewpoints and the knowledge of all stakeholders (Dick 1991, p. 315; Gutiérrez et al. 2013, p. 448; Ledwith 2011b, pp. 72, 98; Macnamara 2015; Ochre 2013; Rosenberg 2003). Listening ensures full and open communication, to get to know people and communities, their strengths and challenges. Listening also provides new insights, mutual learning and re-framing the phenomenon for problem resolution (Gamble 2013; Innes & Booher 2010; Johnson & Johnson 2000, p. 167; Ledwith 2005; 2011b, p. 98; Ochre 2013). Dialogue can help build empowerment and compassion for others’ circumstances, and to address those concerns through cooperative relationships (Boyatzis, Smith & Beveridge 2013, p. 157; IAP2 2013, p. 154).

Facilitating dialogue enables people to listen and learn from each other, evaluate, and resolve potential conflict for a win-win rather than a win-lose approach to problems in common and meaningful transformation (Freire 1972; Innes & Booher 2010, p. 121; Ledwith 2011b, p. 98; Reason & Bradbury 2002; Rosenberg 2003). Furthermore, conversation moves from debate into mutual two-way understanding, where people are open to each other and are able to internalise others’ views (Bierhoff 2004, p. 163; Innes & Booher 2010). This process of
‘authentic dialogue’ enhances understanding, builds empathy, allows creative results, and can help bind people together (Innes & Booher 2010, p. 119). Trusting relationships enable people to work together effectively on areas of common interest, to move from a ‘diversity of interests’ to ‘shared meaning and innovation’ (Campbell, Campbell & Blair 2010, p. 9; Innes & Booher 2010, p. 35; Mason 2011; Milner 2008; Ochre 2013).

My conclusion is that the phenomenon of bushfire safety cannot be solely addressed through best and good practice, but by embracing emergent and novel practices to respond to a complex phenomenon in a new paradigm of powerful compassion. To bridge the space and keep people safe from bushfires in Victoria requires the full participation of all relevant stakeholders collaborating, analysing, and learning together about potential approaches to the phenomenon, while sharing power for decision-making. This research has identified that to be truly effective in resolving the phenomenon of bushfire safety the exercise of powerful compassion is required. Powerful compassion can enable communities and agencies to work collaboratively in people-centred ways where people’s diversity, skills, and capacities are valued and fostered to help resolve complex phenomena (Gordon et al. 2010; Innes & Booher 2010).

**Summary**

In this chapter I have explained my conceptual model of the emergent theoretical understanding. I have unpacked the model to examine the central complexity that includes compassion, power and attachment to place. To bridge the space between the theory and practice of creating bushfire safe communities, political will and self-awareness supported by strength-based approaches is required. These include participatory learning, creative engagement, and listening. Facilitation and novel practices can enable bureaucracy and community to share power and assist these stakeholders to work collaboratively with the existing complexity.
Chapter 8
Conclusion

Overview

Bushfire is an unpredictable annual hazard in Victoria one of the most bushfire-prone places in the world, which is predicted, to increase in intensity and frequency as a result of a changing climate. What takes minutes to start can grow and develop into a towering inferno, meters higher than the tallest tree, destroying flora and fauna and exposing people to smoke, flames and radiant heat which can be deadly. In any one summer there can be thousands of incidents of bushfire, any one of which can be life threatening. Many Victorians live in bushfire-prone locations where the city meets the bush: in semi-arid, rural, mountainous, farmland, and coastal regions. People live in these at risk locations because they love the bush and enjoy living and working in these locations. Cultural, social, and economic factors influence how people plan and prepare for bushfire. People think that they are unlikely to experience bushfire and if they were to, that the experience would be survivable (Ryan & Wamsley 2012). However, bushfire is a natural and intrinsic part of the Victorian landscape, and cannot be fully eliminated and is therefore intertwined with the lives of people.

Government firefighting agencies counsel people to plan and prepare for bushfire and instigate four strategies to mitigate risk that include: the stay and defend or leave early policy; housing and fuel management; education and information. However, these strategies are only partly successful and an important element that has not been fully understood is human nature and the actions people take concerning bushfire. The importance of this research has been to highlight this phenomenon and expose underlying causes for people’s responses to the risk. The research question was: What is the space between the theory and practice of creating bushfire safe communities in Victoria?

My interest in this topic stemmed from my family’s experience of bushfire, from my work in community education for bushfire safety with CFA, as well as my
community development background, which inspires me to help people. I set out to investigate this important real world problem, to understand what the space is between the theory and practice of creating bushfire safe communities. What I found is that the space lies at the centre of three complex systems: environment, community, and bureaucracy, and the space where they intersect is chaotic and largely unpredictable. The emergent theoretical understanding is illustrated in a model which involve the opposite domains of: environment and place; bureaucracy and empowerment; community and resilience. What emerged was an understanding that the complex intersection of the three spectrums is the space where compassion, power, and attachment to place reside.

The methods used to make sense of this phenomenon were participatory action research to bring the voices of participants to the fore, to create processes for parity, empowerment, inclusion, and collaborative analysis. I chose qualitative over quantitative methods that allowed me to delve into others’ insights and explore reasons as to why people think and act as they do. Stakeholders who were involved in the research included, community people, firefighting volunteers and emergency staff, and employees of Local Government and other government agencies that had a connection or interest in the topic. I asked participants their opinions about the reasons for the space. The qualitative data was shared in rounds with participants, collaboratively sorted, and ranked using a modified Delphi technique, ending with a participatory workshop. Secondly, I used modified grounded theory approaches to analyse and re-theme the data. My analysis and abductive reasoning of the grounded data led to the development of a model illustrating the emergent understanding (Charmaz 2014; Dick 2011).

The theoretical model demonstrates that people are often siloed from each other hampering resilience, relationships, and the capacity to network and collaborate and that linear, hierarchical, didactic, and authoritarian approaches largely used by bureaucracies inhibit empowerment, good engagement, and novel practice. The complexity of the phenomenon requires practices to extend and include more emergent, innovative, and strength-based practices. To build empowerment the resulting humanist approach required is what I have called powerful compassion. Compassion is about caring for others to the extent that we are
motivated to make change to improve people’s situation and wellbeing in the world. For positive change compassion requires action to move the status quo into another reality enabling people to learn, reflect and change and in the process develop empowerment for all (Freire 1972).

To explain the findings I used the combined theoretical lenses of Cynefin, a decision-making framework (Snowden 2010), and community development, which are the theory and practice for human development, empowerment, and social justice (Ife 2013; Kenny 2011). These theoretical perspectives explain broadly how current emergency practices are applied from a positivist worldview, and that what is missing is an interpretivist world-view with a people-centred humanist approach. A humanist approach acknowledges the complexity of the phenomenon where cause and effect cannot be determined with complete certainty as the context includes people. The positivist approach to phenomena is feasible when cause and effect are clearer and linear procedural practice can be applied. In the context of bushfire safety command and control practices may be applicable in an emergency but are not adequate when working with people to build their greater capacity and resilience. However, when cause and effect are not able to be determined within a complex context, such as those that include people, their behaviour and relationships, then emergent processes founded on an interpretivist perspective are more applicable.

Human centred empowerment is necessary because the research shows that total control of the phenomenon is not possible as the systems in the model are fluid. We can only influence the systems that contain people but not control them. Neither can we fully control the environment, as our technologies are not able to guarantee complete protection. The control we do have though, is to choose to work authoritatively or collaboratively. We can choose to build relationships of trust and compassion, and to network and collaborate. We can practice empowerment with people-centred approaches to engage, listen and work with others in strength-based ways and accept where people are at in terms of their love and connection to the bush, a place that they call home, and to understand power dynamics and relationships between people (Frandsen et al. 2012; Ife 2013; Innes & Booher 2010).
Was the question answered?

The answer to the research question is that the complex space between the theory and the practice of bushfire safer communities is: understanding power, compassion, and attachment to place and how these can be addressed through practice methods that put people at the centre. This includes activating creative engagement and empowering approaches enabling all stakeholders to learn through iterative and collaborative practice.

What I learnt

As I explored and reflected on this topic I realised that the phenomenon of bushfire safety for communities has many more layers than I first thought. I had to undergo a personal emergent journey of probing, sensing, and responding in order to make sense of the problem (Snowden 2010). This thesis is not an end in itself but forms part of another cycle of learning in the context of community safety for bushfire safety, part of ongoing cycles of learning and reflection. A possible way to move through the space and address the complexity of bushfire safety is by using emergent and novel praxis for reflection and learning. My thesis is not a manual that demonstrates how to solve the phenomenon: it describe the complexity of the problem and points to potential resolutions as iterative processes instigated over time and space responding to each situation, each community, and each particular context (Rittel & Webber 1973). The theories and practices that allow for iterative approaches are those of community development and action research. These provide practice methods for people to work together to find ongoing resolutions to phenomena over time and space.
Recommendations

My recommendations are that creative and bespoke activities need to be tried and evaluated in a culture of inquiry. Through continual cycles of action, reflection, and theoretical learning, people in communities partnering with experts and agencies, can develop diverse resolutions that will assist everyone to better plan and prepare for bushfire. Planning for change needs to include the full diversity of people, especially those who are the most vulnerable, marginalised and excluded in problem solving and decision-making (UN 2015). This means that all stakeholders need to be engaged, and need to become engaged, so that government agencies and community people share power for decision making. This will involve valuing local knowledge, people’s diverse capacities, and will require agency experts to become ‘curious’ and ask people what concerns them, what their ideas are, and what they are prepared to try in collaboration (Dick 2016). Collaborative and experiential learning can occur through processes tailored to each situation and community. For example, facilitated processes that allow all to be heard and be part of decision making can include: peer learning, a community of practice, action learning sets, community strategic conversations linked with participatory analysis activities, scenarios, community rehearsals, organising community fire preparedness activities and other activities as identified by the community which are relevant and of interest to them (Eriksen & Prior 2011).

This thesis has explored the significant challenges of ensuring people plan and prepare for bushfire and the factors and conditions required to encourage this to occur. Current practices largely exclude people in the community from decision making; fail to build capacity and empowerment required for sharing the responsibility of bushfire safety. However, influencing positive change is possible to reduce the space between the theory and practice of bushfire safety. The proposed response is to promote collaborative and fully inclusive practices such as those found in action research and community development practice that can be applied as the new best practice.
## Appendix I: Factors that influence how people prepare for bushfire

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>DESCRIPTION</th>
<th>BARRIERS AND ENABLERS</th>
<th>DESIRED ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONOMIC</td>
<td>People’s economic status influences their capacity to actively plan and prepare for bushfire (Bushnell &amp; Cottrell 2007, p. 8).</td>
<td>Income and access to transport (Harte, Childs &amp; Hastings 2009, p. 152).</td>
<td>Install fire protection devices (CFA 2012d). Build structures to advised bushfire attack levels (BAL) (CFA 2012e).</td>
</tr>
<tr>
<td>ENVIRONMENTAL</td>
<td>Type of weather and geographic location (CFA 2012m).</td>
<td>Awareness of position in the landscape topography, prevailing winds, vegetation and bushfire risk (CFA 2012c, 2012g).</td>
<td>Prepare property ahead of fire season, write bushfire survival plan/s (CFA 2012m, 2013g) Prepare personal items (CFA 2012b).</td>
</tr>
<tr>
<td>PHYSICAL</td>
<td>Ability and capacity to plan and prepare for bushfire (AFAC 2005).</td>
<td>Physical health and fitness, age and ability, mental wellness and adaptability (Beaton &amp; McLennan 2011, p. 176; McLennan, Paton &amp; Wright 2015, p. 324).</td>
<td>To be aware of physical capacity and make sound judgments (AFAC 2005; EMV 2015b).</td>
</tr>
<tr>
<td>SPIRITUAL</td>
<td>Connection to environment, flora, and fauna (CFA 2012); Cox &amp; Perry 2011; Jakes et al. 2007).</td>
<td>Love of place and connection to country (Jakes et al. 2007).</td>
<td>Care for and empathy for the bush, home and others (Reid &amp; Bellin 2015).</td>
</tr>
<tr>
<td>PSYCHOLOGICAL</td>
<td>Psychological states influences how people think and act (Gordon 2014; Rhodes 2011c).</td>
<td>Optimism bias, fatalism or denial and the ability to problem solve (Beaton &amp; McLennan 2011).</td>
<td>Psychologically prepared for bushfire (AFAC 2015; Gordon 2014).</td>
</tr>
</tbody>
</table>
Appendix II: The Wye River and Separation Creek bushfire plan (CFA 2012-2013)

The Wye River and Separation Creek community bushfire plan was developed in collaboration between the Wye River Surf Life Saving club, the Wye River CFA brigade along with other community stakeholders prior to the Christmas Day 2015 bushfire.

WYE RIVER * SEPARATION CREEK

BUSHFIRE

URGENT THREAT ALARM

Should a bushfire threaten our villages
A CONTINUOUS UNINTERRUPTED SIREN WILL SOUND.

IF YOUR BUSHFIRE PLAN IS TO LEAVE, LEAVE IMMEDIATELY.
Do not wait until you can see smoke or flames.

Cover up in long sleeved shirt, long pants, sturdy shoes or boots & a hat. Take with you an EMERGENCY BOX containing: Identification, money, woollen blankets, battery radio, torch, sunscreen, water, medication & toiletries.

Make your way to:
THE WYE RIVER SURF LIFE SAVING CLUB
If you can walk, do so. If you need to drive
park in the Big 4 Tourist Park
PLEASE KEEP TRAFFIC TO A MINIMUM TO EASE CONGESTION

Tune to ABC RADIO 774 AM for fire updates
FOR MORE INFORMATION CALL
The bushfire information line on 1800 240667
The following web sites will also have information:

CFA  www.cfa.vic.gov.au
DSE  www.dse.vic.gov.au

FOR ALL EMERGENCIES CALL 000
Appendix III: The IAP2 spectrum (IAP2 2016)

The IAP2 spectrum indicates the levels of engagement in relation to decision-making and empowerment.

### IAP2 Spectrum of Public Participation

<table>
<thead>
<tr>
<th>Inform</th>
<th>Consult</th>
<th>Involve</th>
<th>Collaborate</th>
<th>Empower</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public participation goal</strong></td>
<td><strong>Increasing Level of Public Impact</strong></td>
<td><strong>Promise to the public</strong></td>
<td><strong>Example techniques</strong></td>
<td></td>
</tr>
<tr>
<td>To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.</td>
<td>To obtain public feedback on analysis, alternatives and/or decisions.</td>
<td>To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.</td>
<td>To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.</td>
<td>To place final decision-making in the hands of the public.</td>
</tr>
<tr>
<td>We will keep you informed.</td>
<td>We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.</td>
<td>We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.</td>
<td>We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.</td>
<td>We will implement what you decide.</td>
</tr>
<tr>
<td>Fact sheets</td>
<td>Public comment</td>
<td>Workshops</td>
<td>Citizen advisory committees</td>
<td>Citizen juries</td>
</tr>
<tr>
<td>Web sites</td>
<td>Focus groups</td>
<td>Deliberative polling</td>
<td>Bullets</td>
<td></td>
</tr>
<tr>
<td>Open houses</td>
<td>Surveys</td>
<td>Participatory decision-making</td>
<td>Delegated decision</td>
<td></td>
</tr>
<tr>
<td>Public meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Appendix IV: Conceptual sketches

Below are the iterative sketches I made while conceptualising the theoretical model of the emergent themes. From top left clockwise: a). The first round of concepts b), the second conceptual diagram c), and the final sketches illustrating the development of the conceptual model on the lower left.
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