We have not lived long enough:
Sensemaking and learning from bushfire in Australia

Graham Dwyer

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Department of Management and Marketing
The University of Melbourne

Abstract

> Why did the bushfires of 7 February 2009 in Victoria take so many lives? Why were those bushfires so extreme, so feral, so catastrophic, so devastating? What can be done to ensure that so many lives are not lost, that so much devastation is not caused, in such bushfires in the future? (Parliament of Victoria, *Opening Remarks, Chair of the Victorian Bushfires Royal Commission*, 2009: 1)

Victoria, Australia, is arguably the most fire-prone area in the world. Increasingly, with climate change, atmospheric scientists claim that we are experiencing longer drought periods, higher wind speeds and warmer temperatures which are giving rise to a greater bushfire threat in an already extremely bushfire-prone environment. Given such circumstances, it is likely that Victoria's emergency management organisations will increasingly find themselves responding to bushfires characterised as complex, harmful and rare. Therefore, my study seeks to understand how emergency management organisations make sense of and learn from bushfires in Victoria so that they can be better prepared for bushfires in the future. To do so, I focus on the Royal Commission, which followed the "Black Saturday" bushfires, commonly referred to as Australia's worst ever natural disaster.

My study comprises a qualitative and interpretive methodology to explore how emergency management organisations implement recommendations emanating from public inquiries, and the role that sensemaking plays in this. In addition, given the devastating impact that disasters such as bushfires can have, I also explore how emotions influence the sensemaking process associated with implementing recommendations in such organisations. Through this dual-focused approach I build new theory in relation to the ways in which individuals in organisations make sense of and learn from public inquiry recommendations after disasters, while highlighting the role of both negative and positive emotions in this process.

Declaration of Originality

This is to certify that:

i. the thesis comprises only my original work

ii. due acknowledgement has been made in the text to all other material used

iii. the thesis is less than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices.

Signed: _____

Date: _____

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Preface

The material pertaining to the pilot study in this thesis has been published in a peer reviewed journal paper and has been appropriately referenced. The author of this thesis was responsible for the ideas in this paper which make a contribution to theory in relation to organisational sensemaking and learning. The author provided more than fifty percent of the content in this paper. The complete published paper is provided in Appendix Five of this thesis.

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Chapter 1: Introduction

Over the last decade, the earth's natural environment has provoked a growing and justifiable level of concern over our ability to cope with significant natural disasters (Pelling, 2010). Atmospheric scientists are attributing higher temperatures, intensifying wind speeds, and rain deficits to climate change, which is subsequently causing natural disasters that have become increasingly frequent, complex, and devastating (Birkman, 2006; Rosenthal, Boin, & Comfort, 2001). Hence, in the last decade, we have witnessed more frequent and more damaging earthquakes, flooding, droughts, and bushfires (Glade, Felgentreff, & Birkman, 2010). Such natural disasters are proving to be a challenge for emergency management practitioners, including government ministers, policy-makers, police officers, firefighters, weather forecasters, and geospatial analysts, thereby creating three forms of uncertainty described as "known, unknown and unknowable" (Chow & Sarin, 2002:127). Globally, hurricanes (Katrina, USA, 2005: 1,464 lives lost), earthquakes (Haiti, 2012: 223,000 lives lost), tsunamis (South East Asia, 2004: 250,000 lives lost) have revealed insights into the difficulties facing community, government and industry organisations as they cope with, manage and respond to adversity in such challenging environments (Birkman, 2006; Dwyer, 2015; Kates, Colten, Laska, & Leatherman, 2006; March & Olsen, 1983; Pauchant & Douville, 1993).

Despite being well prepared, experience has shown that organisations still struggle to respond effectively to natural disasters (Mileti, 1999) because their learning from previous events is undermined when new or unfamiliar conditions unfold. Disasters are typically events with a high impact but with low probability of ocurring, meaning that they interact with actors, systems, and routines in the organisational environment in a manner that is often rapid, unpredictable, harmful, and on an unprecedented scale (Kruke & Olsen, 2005; Weick,

1988; 1999). Such scenarios create a high cognitive load (Sweller, 1994) as individuals' ability to understand and manage what is occurring begins to diminish in the face of escalating danger. Accordingly, individuals move between emotional states such as anxiety, panic, fear and stress as they seek to take meaningful action to ameliorate the emerging danger and avoid significant losses and damages on communities. Such disasters also have an emotional impact on individuals who work in emergency management organisations as they experience feelings of regret, shame and sadness afterwards because of a perception created by media commentaries and public inquiries that their actions were unable to ameliorate the harmful effects of disaster.

Accordingly, my study focuses on the ways in which emergency management organisations make sense of disasters and learn from them, as well as the role of emotion in these processes by examining case studies of bushfires and the public inquiries which arose after them in the State of Victoria, Australia. The unique combination of landscape, climate and vegetation make Victoria one of the most fire-prone areas in the world. Consequently and not surprisingly, Victoria has had a long history of bushfires (Griffiths, 2010). Three such bushfires that continue to live in the collective memory of Victorians are the focus of my study: the Black Friday Fires, 1939 (71 lives lost); the Ash Wednesday fires 1983 (75 lives lost: 47 in Victoria and 28 in South Australia); and the Black Saturday fires 2009 (173 lives lost), with a detailed exploration of the Black Saturday fires. In each case, the organisations responsible for managing these fires faced conditions that, despite their experience with bushfires, faced surprising, overwhelming and novel situations that were difficult to manage, giving rise to widespread damages and losses and leading to close examination by public inquiries afterwards.

My thesis seeks to understand how emergency management organisations understood and acted following the occurrence of these disasters. One way they do so is by making sense during the disaster. We know from the existing literature that such sensemaking occurs as

individuals seek to understand a situation that is rapidly and unpredictably unfolding. Often, because of the nature of a disaster, this initial attempt at understanding fails, as Weick (1993) famously showed in the rapid onset of wildfire at Mann Gulch 1949 with fateful consequences as firefighters failed to make sense of what was happening. A long list of other studies has shown how problems with sensemaking and the failure to generate plausible meanings about what may be unfolding can lead to or exacerbate disasters (Brown 2000, 2004; Gephart, 1984, 1993, 2007; Turner, 1976; Vaughan, 2006; Weick, 1990, 1993, 2010).

We also know that, in order to make sense of what happened during a disaster, and how and why it occurred, governments will usually commission a public inquiry afterwards (for examples see Gephart, 1984; 1993; Gephart, Steier, & Lawrence, 1990; Elliot & McGuiness 2002; Lalonde, 2007). Studies of such inquiries have shown that they often identify how people's behaviour in emergency situations is frequently a contributing factor to the disaster – because they failed to make sense of it at the time (Leveson, Dulac, & Carroll, 2009; Perrow, 1981; 1983; Vaughan, 1990; 2006). They also show that the inquiry itself involves a retrospective form of sensemaking of what happened during the disaster (Boudes & Laroche, 2009; Colville, Pye, & Carter, 2013; Brown & Jones, 2000; Brown, 2000; 2004; 2005; Gephart, 1984, 1993, 1997).

There is, then, a rich body of literature about sensemaking during a disaster and afterwards when an inquiry takes place. However, there is less work on how individuals in organisations charged with responding to the inquiry make sense of their environment after a disaster and the associated enquiry has taken place; and the role that sensemaking and learning plays during this latter part of the process. This, then, is the focus of my study.

1.1 What happens afterwards?

It is important to understand what happens after disasters and how organisations respond to them for both practical and theoretical reasons. Practically speaking, inquiries are ostensibly intended to either reduce the likelihood that disasters will re-occur or, if that is not

possible, to improve the way organisations respond to them. In Victoria, inquiries into bushfire disasters have significantly informed the practice of emergency management, but we know very little about how this takes effect and whether and how they engender change and learning in organisations (Dwyer & Hardy, 2016). For example, managing bushfire in Victoria involves a complex arrangement of plans, structures and hierarchies that have been established and refined over many years as a result of learning from a range of different bushfires as well as other natural disasters. Anecdotal evidence thus suggests that public inquiries and their recommendations do play an important role in shaping the ways in which Victorian emergency management organisations respond to and prepare for bushfires, although how they do so is not clear. Moreover, some researchers suggest that public inquiry recommendations can make a "staunch commitment to a particular set of meanings" that may, in fact, create "substantial blindspots that impede action" such as organisational change and learning (Maitlis & Sonenshein, 2010: 562). In other words, public inquiries may inhibit the future attempts of organisations to deal with disasters as much as they help them.

Theoretically speaking, it seems likely that individuals who work in emergency management organisations will have to make sense of inquiry recommendations before they can implement them. They may therefore also engage in sensemaking and sensegiving (Gioia & Chittipeddi, 1991) as they seek to interpret them, influence each other's perceptions of different recommendations, and implement change in their organisation. It is not clear whether and how individuals in different hierarchical echelons influence the way in which sensemaking and sensegiving occurs. To date, many studies imply that sensemaking and sensegiving are the domain of managers in the upper echelons of an organisation's hierarchy – those who operate at the lower echelons of a hierarchy appear more likely to be passive recipients of sensegiving with their responses often cast as resistance (Bartunek, Rousseau, Rudolph, & DePalma, 2006; Bean & Hamilton, 2006). However, given the broad array of functional experts in emergency management organisation i.e., those with various forms of

highly technical expertise who do not necessarily have managerial responsibility, it seems likely that those at the lower echelons of organisations would play an important and, indeed, prominent role in the sensemaking and sensegiving processes following from public inquiry recommendations. Accordingly, the first research question that my study explores, is: *How does sensemaking occur in emergency management organisations that deal with disasters after the findings from public inquiries have been published and, in particular, does it give rise to learning?*

The second focus of this thesis is the role of emotion in these sensemaking processes. Sensemaking scholars have argued for more research to clarify the role of emotion in sensemaking (e.g., Liu & Maitlis, 2014; Maitlis, & Christianson, 2014). Some scholars suggest that existing models of sensemaking portray emotion as an impediment to meaningful action in organisations (Maitlis, Vogus, & Lawrence, 2013). However, other studies suggest that emotional states such as fear, panic and stress play an important role in directing individuals' attention to the very anomalies or discrepancies in their environment which fuel sensemaking before, during and after both man-made crises and natural disasters (Colville, Pye & Carter, 2013; Cornelisson, Mantere & Vaara, 2014; Weick, 1993). Thus it seems unclear as to which emotions arise during a disaster and the effects they have. We know even less about emotions that arise after disasters in relation to subsequent public inquiries. Often, the individuals who responded to a disaster will be required to give evidence at the inquiry, which often emphasises blame and culpability. After the inquiry has completed its deliberations and published its findings, individuals who may have been found to be at fault by the inquiry may then be responsible for making sense of the recommendations and implementing changes in their organisations. Yet, there is little understanding of the impact of such emotional 'contagion' (Cornelisson, Mantere, & Vaara, 2014) on the organisation and its response to the inquiry. Accordingly, the second research question is: *How do emotions influence sensemaking in emergency management organisations that deal with crises and*

disasters after the findings from public inquiries have been published?

I explored these research questions by examining bushfires in Victoria. I chose this context because such disasters occur regularly, leading to subsequent inquiries. Further, emergency management organisations are charged with preparing for and responding to subsequent bushfires based on what they have learned from previous events. I felt that I could discern evidence of how sensemaking occurs from public inquiry recommendations, as well as the emotions surrounding such events, by examining the state's most significant fire events. To explore my research questions, I used a qualitative and interpretative methodology whereby I examined evidence of how sensemaking occurred in two Victorian emergency management organisations following bushfire public inquiries. I chose such an approach because sensemaking is a social process that emerges as a result of dynamic interactions between different groups of individuals who seek to interpret equivocality in their environment (Weick, Sutcliffe, & Obstfeld, 2005; Maitlis & Christianson, 2014; Brown, Colville, & Pye, 2015; Sandberg & Tsoukas, 2015).

1.2 Thesis outline

Chapter 2 reviews the sensemaking literature and provides the basis for how I arrived at the research questions, which sit at the empirical core of my findings. In this chapter I identify the characteristics of sensemaking as a concept and explain how it arises from equivocality, where situations allow for the possibility of multiple meanings and interpretations (e.g., Wagner & Gooding, 1997; Weick, 2001). In particular, the focus of my review is on sensemaking studies, which relate to manmade and natural disasters. My literature review finds that crises and disasters have provided potent conditions for observing how sensemaking – or a lack thereof – unfolds. Next, I examine the work of scholars who have sought to show how public inquiries make sense of such disasters. Such scholars have shown that public inquiries usually result in authoritative accounts of findings and recommendations. From my review of the literature, I find that disasters have provided a

basis for developing theory in relation to how sensemaking arises. Moreover, scholars examining the ways in which public inquiries make sense of highly equivocal events such as disasters have extended sensemaking theory. However, despite such advances, the literature is somewhat silent about the ways in which public inquiry findings then influence emergency management organisations.

In chapter 3, I explain the research methodology and methods applied to answer my research questions. The first part of this chapter provides an overview of the suitability of my research setting for my study before justifying my research methodology. I explain why I have chosen to take an interpretive approach to my study, which emphasises qualitative research methods that are flexible, sensitive to the social context and concerned with understanding complex issues (Eisenhardt, 1989; Gephart, 2004; Eisenhardt & Graebner, 2007).

Chapter 4 presents the findings from my pilot study. Here, I present the findings from a textual analysis of three public inquiries to explore how they might give rise to complex social and multifaceted phenomena such as sensemaking and learning amongst senior managers, middle managers and functional experts within organisations (Yin, 1994; Colville, Hennestad, & Thoner, 2014). From this study, I found evidence suggesting that emergency management organisations used single loop learning from the recommendations comprising these inquiries to make sense of, and learn from, three of Australia's worst bushfires so as to be better prepared for similar events in future. The pilot study also shows how emergency management organisations made sense of such recommendations. I find that public inquiries were a basis for double loop learning insofar as publicly available commentaries suggested that sensemaking and learning cues from recommendations gave rise to new practices which enabled emergency management organisations to prepare better for the future effects of fire. My main study explores this post-inquiry sensemaking and learning dynamic in more depth. I then develop a model from these findings which provides the basis for the design of my main

study.

For my main study, I interviewed senior managers, middle managers and functional experts working in emergency management organisations in Victoria. I examined how these organisations made sense of and responded to the recommendations made by the Black Saturday Royal Commission. Chapter 5 is the first of my two findings chapters comprising my main study. This chapter shows how three groups of individuals – senior managers, middle managers and functional experts – within Victorian emergency management organisations experienced equivocality when the findings and recommendations of the Black Saturday Royal Commission became known. It shows how actors used sensemaking and sensegiving to interpret this equivocality. I specifically focus on Recommendation 1, which suggested changes to Victoria's bushfire safety policy. My findings show that in the first instance, individuals, to a greater or lesser degree, drew on sensemaking cues from the text of the Report, from their interpretation of the evidence heard during Royal Commission deliberations, and from their experiences of responding to the fires on the day of Black Saturday in order to make sense of the equivocality that surrounded Recommendation 1. Over time, as sensemaking and sensegiving activities progressed amongst actors, the level of equivocality surrounding the recommendations decreased. Organisational actors then began to rely on learning – rather than sensemaking – cues to create plausible meaning about how the recommendations could be extended from the report of the Royal Commission findings into the operational practices of their organisation. In this way, as the level of equivocality diminished and plausibility increased, sensemaking was replaced by learning as the recommendations were implemented within the two organisations.

In chapter 6, I focus on the emotions experienced by senior managers, middle managers and functional experts during this process. I find that individuals in each of the three groups experienced negative emotions arising from – and even before – Black Saturday, as well as the Royal Commission that followed it. Thus, individuals were already conscious

of negative emotions *before* they had to grapple with the equivocality associated with the recommendations. My findings show that negative emotions were eventually replaced by positive emotions during the subsequent sensemaking and learning processes to deal with Recommendation 1. It appears that there was a reciprocal relationship insofar as sensemaking and learning may have helped individuals feel more positive about the equivocality they faced and, in turn, positive emotions facilitated sensemaking and learning. However, I conclude by noting that, even after experiencing positive emotion associated with the organisational changes required to implement Recommendation 1, individuals continue to experience some negative emotion because of their concern about the unknown form of prospective bushfire events.

In the final chapter, I present a model to show the processes of sensemaking and learning that occur within organisations following a disaster and any associated inquiry, as well as the effects of positive and negative emotion during these processes. To conclude the thesis, I reflect on the limitations of my study and make some suggestions for future research.

1.3 Contributions

While my interest and experience in bushfire emergency organizations led to this research, my aim was not to simply employ sensemaking theory. This study seeks to extend our understanding of sensemaking through an abductive approach by drawing on the various concepts and meanings used by different social actors and the activities in which they engage to produce scientific accounts of organizational life (Mantere & Ketokivi, 2013). Hence my analysis emphasises the importance of context (Guiette & Vandenbempt, 2017) when considering my primary and secondary data against the existing theories surrounding sensemaking. Accordingly, my approach moved between my data and existing theory in an ongoing manner as I sought to identify the most plausible to contributions to sensemaking and learning in the context of Victorian emergency management organizations. By doing so I was able to extend our understanding about sensemaking and learning in emergency

management organisations after the conclusion of public inquiries and make the following contributions.

In the first instance, my study clearly shows that sensemaking plays an important role in organisations after a public inquiry is held and its report is published, as individuals seek to interpret what public inquiry recommendations mean for their present and future preparation for disasters. By doing so, my study challenges the idea that public inquiry recommendations are authoritative and provides insights into the way in which they are re-interpreted within organisations through sensemaking and learning. In addition, my study suggests that in post-inquiry situations, organisations, individuals and groups are dealing with multiple sources of equivocality – not just from the report of an inquiry, but also from past events, which collectively shape the sense that is made.

My study extends our knowledge about the relationship between sensemaking and learning in a number of ways. First, it provides a deeper understanding of the interplay between the two concepts by showing the various ways in which sensemaking gives rise to learning and how learning gives rise sensemaking as individuals create meaning in relation to public inquiry recommendations. Accordingly, my study challenges the proposals that sensemaking may preclude more fundamental learning because individuals interpret equivocal cues to align with current knowledge. Moreover, I suggest that more fundamental learning can occur as a result of sensemaking and learning cues which over time give rise to organizational change. Second, I expand our knowledge about what constitutes sensemaking cues and show how they emerge from multiple sources based on lived experiences of meaning making within organizations as individuals seek to interpret complex public inquiry recommendations, as well as through participation in public inquiries and the experience of the disaster itself. Third, I show how learning cues are used by individuals to identify how to change and improve different organisational processes. Hence, I propose that sensemaking and learning cues play are important mechanisms enabling individuals to translate public

inquiry recommendations into organisational change initiatives.

Finally, my study shows how important emotions are in post-inquiry sensemaking: while disasters trigger emotions in immediate and visible ways, the emotional context of post-inquiry sensemaking is more complex. My findings suggest that making sense of Recommendation 1 (and other recommendations) did not occur in an emotional vacuum. This is an important finding as we begin to extend our understanding of the role of positive and negative emotions in sensemaking and learning. My model proposes that anxiety, stress, anger, shock and sadness were all carried forward into organisational sensemaking as individuals struggled to interpret the equivocality associated with the Royal Commission's report. For those individuals required to appear before the inquiry and/or charged with implementing its recommendations, equivocality and emotion are bound up together. Therefore, my study shows how public inquiries give rise to negative emotions such as anxiety, stress, shock and anger which have a far greater impact on individuals than research to date has suggested. However, my findings also show that positive emotions, such as trust, confidence and happiness arose as sensemaking and learning progressed although, when deeper, more reflective learning occurred, negative emotions were reported once again. Accordingly, my model proposes that tensions between negative and positive emotion provides an important basis for sensemaking and learning which challenges existing research suggesting that sensemaking and learning are more effective when emotions are held in check.

My study also makes a number of important practical contributions. With climate change, natural disasters are becoming ever more likely. In this regard, my study of bushfires represents an important study of a natural disaster, which often receive less scholarly attention than "man-made" crises (Sellnow, Seeger, & Ulmer, 2002). My study shows just how difficult it can be to develop and implement new organisational practices and change from recommendations in the aftermath of a traumatic disaster. It is my hope that my model

will provide a basis for organisational practitioners to develop processes for identifying sensemaking and learning cues which enable them to implement public inquiry recommendations in the most meaningful and efficient manner in their organisation. Also, my study shows that being called before a public inquiry can be traumatic and stressful for individuals, particularly when they are blamed or even scapegoated for the decisions they made when managing a disaster. Individuals who conduct such inquiries have the retrospective wisdom of hindsight, which is not afforded to those practitioners who face managing the disaster at the time. My hope is that this study provides a basis for re-evaluating and reconsidering the ways in which future Royal Commissions after disaster events are conducted so that the emphasis is put on procedural sensemaking and learning rather than allocating blame. I believe such an approach may yield better sensemaking and learning cues and, consequently, more meaningful organisational change.

With predictions of more frequent bushfires, we need to admit, like those before us, that we have not lived long enough to know what the future holds. Our need to anticipate it creates great scope and an onus born of our responsibilities, to carry out future studies. The need to continue to make sense and learn from bushfires is as relevant now as it is ever has been, even though history may dim the memory of just how devastating bushfires can be (Griffiths, 2010). Yet the experiences of those who have lived through such calamities remind those of us with an interest in emergency management of the need to continue to make sense and learn from them:

> In the usual course of life you cannot gain experience without paying the price but in the experience of the many bushfire-affected families of this state and those in charge of the systems … the price has been immeasurable … It is tragic to pay the price for the experience and not learn the lesson (Ms. Scherman who lost family members on Black Saturday, quoted in Parliament of Victoria, 2009: xxiv).

Chapter 2: Literature review

In this chapter I review the sensemaking literature. Scholars agree that sensemaking is a well-established theory or perspective, which has had a significant influence on the body of organisation studies knowledge (Colville, Pye, & Brown, 2016; Holt & Cornelissen, 2014; Sandberg & Tsoukas, 2015). In general, sensemaking has mainly been associated with research that is "interpretive, social-constructionist, processual and phenomenological" (Brown, Colville & Pye, 2015: 266) with many of the studies surrounding the concept having their roots in symbolic interactionism, ethnomethodology, cognitive psychology and phenomenology (Brown, Colville, & Pye, 2015). The variety of subject areas that influence sensemaking has meant that the concept is usually defined from a range of different perspectives (Colville, Pye, & Brown, 2016; Sandberg & Tsoukas, 2015). Conceptually, my literature review shows that sensemaking can be considered as a social process whereby individuals create plausible meaning and understandings when they encounter equivocality and/or discrepant cues in their environment (e.g., Maitlis, 2005; Maitlis & Sonenshein, 2010; Sandberg & Tsoukas, 2015).

Equivocality arises as individuals and groups experience novelty, ambiguity and uncertainty and is associated with the complexity and unpredictability of organisational life (Brown, Stacey, & Nandhakumar, 2008). Equivocality has also been defined in different ways by different scholars. Allard-Poesi (2005) associates it with confusion and ambivalence, while Balogun and Johnson (2005) associate it with uncertainty. Sometimes it is associated with ambiguity (e.g., Sonenshein, 2007); sometimes, it is differentiated from it (e.g., Colville, Pye, & Carter, 2013; Brown, Colville, & Pye, 2015). For the purposes of this study, I define equivocality in general terms where some form of confusion and ambiguity leads to discrepant cues which, in turn, gives rise to multiple interpretations that are reconciled

through sensemaking (e.g., Weick, 2001; Weick, Suttcliffe, & Obstfeld, 2005). Such equivocality can arise gradually or rapidly with sensemaking being a delineating "process by which organisational situations are framed, narrated or categorised through the words or bodily gestures of agents in contexts, and how these structure subsequent perceptions" (Holt & Cornelissen, 2014: 525). Accordingly, Weick, Sutcliffe, & Obstfeld (2005: 410) have suggested that "sensemaking and organisation constitute one another" because the organisation will emerge "from an ongoing process in which people organise to make sense of equivocal inputs and enact that sense back into the world to make it more orderly".

While the literature suggests that sensemaking can be prompted by mundane everyday moments in sensible organisational environments (Patriotta & Brown, 2011), there seems to be agreement amongst scholars that sensemaking (or the lack of it) is much more potent and visible in non-sensible environments such as crises and disasters, where inconsistent or conflicting cues give rise to novelty and equivocality for individuals (Weick, 1993). In particular, research studies show that disasters are often characterised by "dynamic complexity" (Colville, Pye, & Carter, 2013: 1201). In disaster situations, scholars have observed that "the sense of what is occurring and the means to rebuild that sense collapse together" (Weick, 1993: 634). As a result, those who live through such experiences express sentiments that echo Weick (1993: 634 - 635): "I've never been here before, I have no idea where I am, and I have no idea who can help me" which gives rise to equivocality which individuals seek to interpret.

Given that disasters often result in significant damages and losses, governments will usually establish public inquiries to make sense of them afterward. Public inquiries also make sense of disasters – through ceremonies, and rituals, from which independent appointees of government construct an authoritative account of findings, and recommendations from a series of evidence hearings (Gephart, 1984). Often, such accounts are expected to prompt changes within organisations. I am therefore interested in what happens after such inquiries

and whether they prompt learning. We know little of the ways in which emergency management organisations that respond to disasters and then participate in public inquiries make sense of their recommendations and findings. The spur to sensemaking is the extent to which bushfires cause significant damages and losses in communities, as well as how they create complex and dangerous work environments for individuals who work in emergency management organisations. Despite enduring such harrowing experiences emergency management practitioners will often be required to recount their traumas at public inquiry hearings, meaning that emotions may play an important role. We therefore need to know more about the emotions that arise from such experiences and the effects they have (cf. Maitlis, Vogue, & Lawrence, 2013).

The remainder of this chapter elaborates on sensemaking as a concept – a cluster of characteristics – and shows how it arises from equivocality with a particular focus on disasters. I then focus on the ways in which public inquiries have made sense of such inquiries before presenting my research questions, which I will explore in my study. From my review of this literature, I find that disasters have provided a basis for developing theory in relation to how sensemaking arises. Scholars examining the ways in which public inquiries make sense of highly equivocal events such as disasters have further extended sensemaking theory. I then develop my research questions that pertain to what happens afterwards: How does sensemaking occur in emergency management organisations that deal with disasters after the findings from public inquiries have been published and how do emotions influence meaning-making within these organisations? With this in mind, the next section explains sensemaking as a cluster of related characteristics, which provides the conceptual foundation for identifying my research questions.

2.1 What is sensemaking?

Sensemaking "…emerges from efforts to create order and make retrospective sense of what occurs" (Weick, 1993: 635). As such, sensemaking comprises "at least seven

distinguishing characteristics" in two broad, self-explanatory components (Weick, 1995: 16). The first component is *sensing,* comprising two characteristics – it is retrospective and is shaped by identity construction founded on the premise that people construct cognitive schemes which are built up over time from lived experience (Gioia, 1996; Helms-Mills, 2002; Weick, 1995). People use these properties to guide them in their response to stimuli such as events, triggers and surprises (Brown & Humphreys, 2003; Dutton & Dukerich, 1991; Schwandt, 2005; Weick, Suttcliffe, & Obstfeld, 2005; Weick, 1993). The second component, *making*, has five characteristics: the process is enactive of sensible environments, social and ongoing, focuses on extracted cues and is driven by plausibility rather than accuracy. In the making component of sensemaking people attempt to enact sensible environments, through "conversational and social practices" (Gephart, 1993: 1469) about specific events to arrive at an understanding about what is *plausible*, rather than objectively accurate. Questioning, framing, bracketing and storytelling enliven the social process at the heart of sensemaking (Balogun & Johnson, 2004; Brown & Jones, 2000; Maitlis, 2005; Nigam & Ocasio, 2010). Generally, the *making* properties are informed by how people ontologically and epistemologically understand their environment (Fiss & Hirsch, 2005).

Collectively, these properties enable sensemaking to materialise through "language, talk and communication" which bring "situations, organisations and environments" into existence (Weick, Obstfeld, & Sutcliffe, 2005: 409). Weick cautions that these properties should not be considered definitive but more as a guide for conceptualising sensemaking (1995: 17). These properties have given sensemaking scholars a symmetry of form through the application of which they can understand how "people develop some sort of sense regarding what they are up against, what their own position is relative to what they sense, and what they need to do" (Weick 1999: 42). The remainder of this section examines these characteristics in more detail.

Drawing on Schutz (1967), Weick (1995) highlights **retrospective thinking** as an

important property of sensemaking. Sensemaking involves the ongoing retrospective development of plausible images that rationalise what people are doing (Weick, Suttcliffe, & Obstfeld, 2005: 409). To date the literature has observed that past experience is a meaningful part of behavioural actions (Gioia & Chittipeddi, 1991; Humphreys, Ucbasaran, & Lockett, 2012; Maitlis, 2005; Maitlis & Sonenshein, 2010) and "all sensemaking processes involve some variation on the theme of retrospection or reflection on past experience" (Gioia, 1996: 1229) which implies that there can be no sensemaking without reference to the past (Gioia & Chittipeddi, 1991; Weick, 1993; 2010). Studies show that people use histories in the form of stories (Humphreys & Brown, 2002) to justify action for change or for projecting desired future states (Brown & Humphreys, 2003) which are closely related to personal experiences stored in cognitive schemes built up over time to make sense of complex reality and influence how they behave (Balogun, 2003; Louis, 1980; Louis & Sutton, 1991; Weick, 1995). Studies show how change management initiatives will often adopt a revisionist history focus with an emphasis on reconstructing, remembering and/or re-interpreting images, identities and reputations (Orton & Weick, 1990; Porac, Thomas, & Baden-Fuller, 1989) as a foundation for meaning and understanding towards a desired better future (Gioia, Corley, & Fabbri, 2002). In turn, this implies that meaning is made according to the identity adopted by the sensemaker or the sensegiver at a particular time (see Bartunek, Rousseau, Rudolph, & DePalma, 2006; Brown, & Jones, 2000; Brown, Stacey, & Nandhakumar, 2008).

Scholars have observed that an individual's identity construction plays a key role in how they make sense. The literature suggests that identity is constructed from an individual's existing cognitive schemes or mental modes which are shaped by their lived experience and their environment. Accordingly, the sensemaking literature suggests that cognitively, people's identities are inseparable from how they think about their experiences in life and from the values, attitudes and norms they live by (see Louis, 1980). Consequently, the literature posits that people will even enact different identities from mental modes to fit with

their environment (Brown, Stacey, & Nandhakumar, 2008). Over time people build ways of thinking within cognitive schemes, which have been shown to be malleable as people will often alter their identity to fit with that of their organisation at any given time (Dutton & Dukerich, 1991).

Cognitive schemes have been shown to influence the way that people make sense of their environment as individuals (Balogun & Johnson, 2004; Maitlis, 2005). While sensemaking and identity have been found to have a cognitive dimension, the literature shows that they are also socially constructed in that individuals seek to influence each other's reality about what may be occurring in organisational situations and/or environments (see Balogun & Johnson 2004 & 2005; Gioia & Chittepeddi, 1991; Mills & Weatherbee, 2006; Myers, 2007; Mullen, Vladi, & Mills, 2006).

Studies have also shown that individuals as groups socially construct their identity (for example, engineers during the space shuttle Challenger explosion) by collectively interpreting data to construct a collective and shared meaning about what is unfolding in changing environments (see Vaughan, 1990; 2006). Disaster situations have been shown to challenge individuals' identities and hence their ability to make sense (Shrivastava, Mitroff, Miller & Miclani, 1988; Vaughan, 1990; 2006; Weick, 1988; 1993) as they find their cognitive schemes have no previous cues which can enable them to interpret the equivocality which is arising in their environment. Furthermore, during disasters or times when equivocal cues are high, individuals (as well as groups) will often become so overwhelmed that socially, they lose the ability to enact and interpret equivocal cues which, under normal circumstances, would enable them to make and give sense (Dutton & Dukerich, 1991; Maitlis, 2005; Weick, Suttcliffe, & Obstfeld, 2005).

Enactment is the mechanism by which people in organisations construct their environment as they experience it (see Pondy & Mitroff, 1979). This feature of sensemaking as a social process enables people to "bring events and structures into existence and set them

in motion" resulting in new constraints and opportunities that did not exist before they engaged enactment (Maitlis, 2005; Weick, 1988: 306). Hence, through enactment, the literature suggests that when people have an organisation and environment in mind they will construct and act new expectations of the future and/or interpretations of the past (Mullen, Vladi & Mills, 2006; Weick, 1988; 1995). Such studies also demonstrate how environments can be constructed socially as individuals bracket specific moments to subjectively interpret cues within organisational routines, hierarchy and interactions (Cunnliffe & Coupland, 2012; Maitlis & Lawrence, 2007; Weick, 1988; 1995; 2010) at the micro level of the organisation (Catino & Patriotta, 2013; Rouleau, 2005).

The literature illustrates sensemaking as a **fluid, social and ongoing process** with no defined beginning or end (Weick, 1995) where people interact within their environment through stories while moving across and between existing cognitive schemes of experience to understand novel situations (Cornelissen, 2012). "Talk, discourse and conversation" (Weick, 1995: 41) are the key mediators of these social sensemaking processes (Geppert, 2003; Louis, 1980). Maitlis (2005) shows that organisationally, sensemaking is omnipresent as a means for people to understand and attribute meaning to their work lives through narrative exchanges. It provides "clear questions and clear answers" (Weick, 1993: 636), precedes and follows decisions at all levels within the hierarchy (for example see Balogun & Johnson, 2003, 2004 & 2005) while stimulating cognitive triggers that drive sensemaking (Maitlis & Lawrence, 2007) which often define the emotional response people have to situations (Maitlis & Sonenshein, 2010).

As active participants in sensemaking processes, people interpret **sensemaking cues**, which "…are simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring" (Weick, 1995: 50). These cues provide people with the basis for scanning, noticing, surveilling and framing intangible organisational phenomena. In turn, such a process enables these phenomena to be interpreted at all levels in the organisation to

make and give sense about salient events that have occurred, are occurring or may occur in the future (Weick, Suttcliffe, & Obstfeld, 2005; Vaughan, 1990; 2006; Weick, Suttcliffe & Obstfeld, 2008). Without cues there would be no basis for people to intuitively engage in sensemaking and take action in the organisational context (Dutton & Dukerich, 1991; Labianca, Gray, & Brass, 2000; Weick, 1993; 1995).

Bracketing, connecting and interpreting cues based on salient frames are central to the process of developing **plausible accounts** about what is happening in organisational situations (Colville, Pye, & Carter, 2013). Sensemaking as a subjective process can never be accurate and is, consequently, more concerned with "plausibility, pragmatics, coherence, reasonableness, creation, invention and instrumentality" (Weick, 1995: 57; see also Myers, 2007). Accounts may not always be accurate but they must be socially acceptable and credible if they are going to result in meaning, understanding and action (Brown & Jones, 2000; Brown, Stacey, & Nandhakumar, 2008). Scholars have found that stories as social constructions of individuals' lived experience (Louis, 1980) play an important part in building plausibility into sensemaking processes (see Colville, Brown & Pye, 2012; Humphreys, Ucbasaran, & Lockett, 2012) because they show the "patterns that may already exist in the puzzles an actor now faces, or patterns that could be created anew in the interest of more order and sense in the future" (Weick, 1995: 61). Such a subjective process means sensemaking can never be a rational objective science but it can create shared histories amongst groups which can result in action being taken (Gephart, 1991; Gioia & Thomas, 1996).

Scholars have suggested that sensemaking properties are best illustrated when people are compelled to ask themselves who they are within the context of their organisations and forced to understand what is going on around them in their environment (Maitlis & Sonenshein, 2010). These seven sensemaking properties have been used by scholars to show how people ascribe meaning and understanding to what is going on in their organisation (for

example see Gioia & Chittipeddi, 1991; Maitlis, 2005; Thomas, Clark & Gioia, 1993; Weick, 1993). Furthermore, these characteristics as part of a sensemaking process have also been shown to provide the basis for action such as organisational learning and / or change (Colville, Pye, & Brown, 2016).

In sum, sensemaking is a social process of face-to-face interaction amongst individuals which is ongoing until plausible meaning is made of a stimulus prompted by noticing, framing and bracketing cues emerging from within the organisation and its environment (Weick, Suttcliffe, & Obstfeld, 2005; Weick, 1995). Sensemaking cues play a complex and nuanced role in the meaning-making process and have received considerable attention in research studies. Studies suggest that cues are signifiers which enhance understanding. They include such things as fragments which exist in organisations as numerical readings from processes and systems, text from written documents or talk from conversations amongst individuals which may prompt action insofar as they provide a basis for interpretation and the creation of new meaning (Colville, Hennestad, & Thoner, 2014; Dwyer & Hardy, 2016; Maitlis, 2005).

The literature suggests that as individuals interpret cues they begin to negotiate, produce and collectively bring a new organisational reality into existence, which prompts a process of learning and sometimes, even change (Currie & Brown, 2003; Schwandt, 2005). Sensemaking and its key characteristics are often used in organisations to provide plausible explanations about why certain cues are noticed bracketed, framed and used to justify learning and change in organisations where there has been a mismatch between what is expected to occur and what actually occurs (Colville, Hennestad, & Thoner, 2014; Crossan, Lane, & White, 1999; Weick, 1995). The literature suggests that where such mismatches exist, sensemaking cues play a role in bringing a new organisational reality into existence insofar as they prompt stimulus and discussion about the re-evaluation of governing values and culture in organisations. The literature has shown that cues will prompt change and

action where an organisational experience has suggested that yesterday's assumptions may no longer serve as a guide to the present and future (Colville, Pye, & Brown, 2013; Weick, 1993).

In this way, sensemaking has been used to show how people seek to learn and implement change (Bean & Hamilton, 2006; Brown & Humphreys, 2003; Turner, 1976) while also showing how strategy creation, collective cognition, decision-making and knowledge creation unfold in different contexts. These properties give people a basis "to accept the diversity and mutation of the world…so that this changing world shall not become meaningless" (Fuentes, 1990: 49-50). This is particularly relevant for scholars seeking to build more prospective sensemaking theory in turbulent environments in which emergency management organisations operate.

Scholars have suggested that sensemaking gives rise to sensegiving, which is the process of attempting to influence the sensemaking and meaning construction of others towards a preferred redefinition of a "new organisational reality" (Gioia & Chittipeddi, 1991: 443). Sensegiving is also an interpretive process (Bartunek, Krim, Necochea, & Humphries, 1999; Gioia & Chittipeddi, 1991) in which individuals – possibly from different hierarchical echelons of the organisation – influence each other through persuasive or evocative language choices (Dunford & Jones, 2000). Scholars have shown that sensegiving is used both by organisational leaders (Bartunek, Krim, Necochea, & Humphries, 1999; Corley & Gioia, 2004; Gioia & Chittipeddi, 1991) middle managers (Balogun, 2003) and other specialists and/or employees in organisations (Maitlis, 2005). Moreover, sensegiving has been shown to influence the way in which sensemaking (Maitlis, 2005) occurs as individuals, usually managers, disseminate new understanding to individuals in the lower echelons of the organisational hierarchy – information which ultimately shapes how they understand themselves, their own work and that of others as well as their perceptions of emergency phenomena in their environment (Gioia & Chittipeddi, 1991).

2.2 Equivocality and sensemaking

Equivocality is a feature of everyday organisational life. As explained earlier, equivocality refers to organisational information that gives rise to a range of different meanings or multiple interpretations, which prompt individuals to begin sensemaking (Putnam & Sorenson, 1982). Equivocality can arise in many different ways – it may emanate events in an organisation that are very different to what has previously occurred (e.g., Weick, 1993), or it may occur because of disagreements about each other's interpretation of symbols and artefacts (e.g., Dutton & Dukerich, 1991). It can also result from factors that serve to violate expectations (e.g., Bowman & Kunreuther, 1988; Farkas, Sutcliffe, & Weick, 2009).

Circumstances that give rise to equivocality can then prompt sensemaking, whereby individuals begin to inquire, probe and challenge themselves and each other to create a shared understanding about what is occurring by questioning themselves and each other about what they are interpreting and observing in their environment (Catino & Patriotta, 2013; Maitlis, 2005). By taking such action, individuals may be able to recreate "an intersubjective sense of shared meanings through conversation and non–verbal behaviour in face-to-face settings where actors seek to produce, negotiate, and maintain a shared sense of meaning" (Gephart, Topal, & Zhang, 2010: 284 – 285) as long as they remain able to interpret the cues from their environment. In this section, I examine two important contexts of equivocality where sensemaking has been studied: disasters and post-disaster inquiries.

2.2.1 Sensemaking during disaster

A large amount of research on sensemaking has been carried out in relatively stable environments, for example in companies, orchestras, universities, utilities, hospitals and religious orders (e.g., Porac, Thomas, & Baden-Fuller 1989; Maitlis, 2005; Gioia & Chittipeddi, 1991; Labianca, Gray, & Brass, 2000; Bartunek, Rousseau, Rudolph, & DePalma, 2006; Nigam & Ocasio, 2010; Bean & Hamilton, 2006). However, sensemaking in the case of disasters has attracted particular attention from scholars because equivocality is particularly high is such settings (Billings, Milburn, & Schaalman, 1980; Weick, 2010). By

their very nature, disasters create what Colville, Pye, & Carter, (2013: 1201) refer to as "circumstances that are suffused with dynamic complexity", posing challenges for sensemaking at all levels in the organisation as individuals have to make sense from ongoing, complex surprises emerging from the regular and rapid onset of "continuous discontinuous change" (Colville, Brown & Pye, 2012: 8) that can threaten both the existence of the organisation and the lives of those managing the situation (Weick, 1993).

Studies by various scholars have shown that people enact behaviours which often cause, contribute to and/or exacerbate disasters (Christianson, Farkas, Sutcliffe, & Weick, 2009; Vaughan, 1990; 2006; Weick, 1988; 1990; 1995; 2009). Disasters thus often have their origins in human error, entrenched habits, routines and patterns which may give rise to the disaster in the first place and/or conspire to constrain people's ability to engage in meaningful sensemaking during it (Maitlis & Sonenshein, 2010; Weick, 1988; 1990), as individuals fail to observe cues and generate plausible meanings about what may be unfolding (Brown, 2000, 2004; Gephart, 1984, 1993; Turner, 1976; Weick, 1993, 2010). For example, Perrow (1967; 1981: 18) using the example of an accident at a nuclear power plant shows how centralised authority stifles peoples' ability to pick up on cues and enact sensemaking behaviours which may avert a crisis. Weick's (1990) case study of a collision between two aircraft at Tenerife Airport in 1977 shows how interruptions to routines generate false hypotheses about situations, which may create a disaster as people fail to make sense about what is happening (Termeer, 2009; Termeer & van den Brink, 2013; Weick, 1990). In the case of the NASA space shuttle Columbia, Vaughan (2006) shows that an absence of sensemaking can result in errors and misconduct with disastrous consequences.

The disaster sensemaking literature has shown that the unpredictable and rapidly changing conditions that occur during disasters affect people's ability to frame events, bracket cues and develop plausible accounts as events unfold (Leonard & Howitt, 2009; Weick, 2010). Sensemaking is required – but can be difficult to enact. This is a particularly

acute challenge for emergency management organisations responsible for managing disasters (Quarantelli, 1988), especially when the result can be large numbers of fatalities and high levels of destruction.

2.2.2 Sensemaking during public inquiries

Public inquiries are temporary organisations that bring together relevant individuals and/or groups in a facilitated manner to discuss and deliberate on matters of societal interest such as crises and disasters (Gephart, 1984; Prasser, 2006). Individuals may continue to experience equivocality following a disaster if there is no definitive account of what happened and why losses or damages were so significant (Dwyer & Hardy, 2016; Gephart, 1984; 1993). Public inquiries are often perceived as an important way of making sense of such equivocality in a plausible, if not always accurate manner (Turner, 1976; 1978; Vaughan, 1990; 2006). By bringing together different parties associated with a disaster, public inquiries involve individuals and/or groups in a deliberative process (Pascoe, 2009; Prasser, 2006), which allows for protracted debate and discussion about different aspects of disasters – reconstructing and re-interpreting what happened (Gephart, 2007). This, in turn, enables governments to create (at least perceptions of) transparency and accountability in an authoritative manner (McKay, 2009; Prasser, 2006). Inquiries are therefore mechanisms for rebuilding public confidence, and protecting organisation legitimacy where failure is evident (see Boudes & Laroche, 2009; Brown, 2000, 2004 & 2005; t'Hart & Boin, 1993; Turner, 1976).

Public inquiries range from informal 'town hall style' meetings in communities with few rules as to how their deliberations and outcomes are convened to more formal arrangements which are provided for under statute and modelled on quasi-judicial proceedings (Prasser, 2006). In the case of formal inquiries, governments will usually appoint independent commissioners who can use statutory powers to solicit testimony under oath from witnesses who may be subpoenaed (Pascoe, 2009). Where disasters are particularly

complex commissioners and witnesses will usually be represented by legal counsel (Pascoe, 2009). Government often commissions formal public inquiries as a means to provide an explanation about what happened and why in relation to high-profile disasters. These face-to-face ceremonial occasions adhere to various rituals as they assemble representatives from organisations involved in the disaster to a greater or lesser extent (Brown, 2004).

During the course of an inquiry, commissioners ask a series of questions to which witnesses respond. The ongoing questions and answers give rise to a social process of sensemaking from which rich descriptions of the disaster as built from the different perspectives in an authoritative forum (Brown, 2000; 2004). Often, the process of sensemaking is extended through a series of public consultations, formal submissions and exhibits from the community that may support or refute claims, shaping the final form of the commissioners' authoritative report of what happened and why, as well as recommendations about how organisations can improve and learn for the future (Boudes & Laroche, 2009; Bowman & Kunreuther, 1988; Gephart, 2007; Pascoe, 2009). The outcome of the inquiry is usually an authoritative report, often supported by collection of transcripts that record evidence, hearings and cross examinations. The report articulates the most significant issues in the disaster under examination (Gephart, Steier, & Lawrence, 1990), as well as recommendations for future improvements to reduce the chances of the disaster occurring again (Boin, t'Hart, & McConnell, 2009; Stern, 1997).

Many researchers argue that, despite being perceived as authoritative, public inquiry reports comprise a series of normative judgments (i.e., subjective decisions informed by pre-existing values rather than objective logic), coupled with authorial strategies of omission and selection, as commissioners seek to re-construct what happened and why (Brown, 2000; 2004; Brown & Jones, 2000). These accounts may be more plausible than accurate in relation to accountability and responsibility (Gephart, 1984; 1988; 1993; Gephart, Steier, & Lawrence, 1990; Gephart, Topal, & Zhang, 2010; Brown 2000; 2004; 2005; Brown & Jones,

2000). Scholars have suggested that they are only one construction of events (Boudes & Laroche, 2009; Gephart, 1984), and are the result of sensemaking by the authors concerned and the decisions and selections made when constructing their report (Gephart 1984; 1988; 1993) and may emphasise blame rather than transparency. Furthermore, the authors may be more concerned with protecting the system rather than with the fate of individuals (Boin & t'Hart, 1993; Brown, 2004; Gephart, 1993). Nonetheless, the authoritative nature of such reports means that they are expected to provide a basis for action, learning and change in organisations (Dwyer & Hardy, 2016; Pascoe, 2009).

2.2.3 Sensemaking and learning

Studies have shown that when organisations make sense of public inquiry recommendations they learn (Dwyer & Hardy, 2016). Learning occurs when individuals share mental modes that detect and correct errors by altering the organization's theory of action (Argyris and Schön, 1996). Such learning is triggered when actors experience:

> [A] surprising mismatch between expected and actual results of action and respond to that mismatch through a process of thought and further action that leads them to modify their images of organization or their understandings of organizational phenomena and to restructure their activities so as to bring outcomes and expectations into line, thereby changing organizational theory-in-use (Argyris and Schön, 1978:16).

Public inquiries have proved to be an important basis for learning insofar as organizational actors extract knowledge from systems at the individual and group levels of the organization (Catino & Patriotta, 2013; Buchanan, 2011) so that change can be made in an evidence-based manner through intuiting, interpreting, integrating and institutionalizing (Crossan, et al., 1999) in ways that identify and correct errors.

Argyris (1976) argues that such learning occurs in two ways. First, single loop learning occurs through error correction, but without altering the underlying governing values

of the system and/or organization. Second, double loop learning occurs when errors are corrected by changing governing values and subsequent actions. Thus single loop learning produces change within the existing organizational culture, while double loop learning leads organizations to re-evaluate governing values and, potentially, change the culture and practices more fundamentally. Moving from single loop learning to double loop learning allows organizations to adjust their culture so that they can escape the clutches of 'cultures of entrapment' which produce antilearning (Sutcliffe and Weick, 2003: 73). Antilearning occurs when an organization's members remain blind to incompetencies and inefficiencies, resulting in inadequate performance that can harm the organization and its stakeholders (Argyris, 1993; Argyris and Schön, 1996).

2.3 What happens after disaster and public inquiry sensemaking?

Despite an array of studies that have examined sensemaking (or a lack thereof) surrounding and following specific disasters, there has been little attention focused on what happens after an inquiry into a disaster has finished its deliberations, including the responses which it sparks within emergency management organisations. Given the role that these organisations play in preparing for and responding to disasters, as well as being required to provide evidence to public inquiries, their responses would seem to be important, especially as public inquiries are set up, ostensibly at least, to stimulate and implement learning from the event. There is some evidence that this occurs. For example, Bowman and Kunreuther (1988) show how a critical mass of data generated from multiple public inquiries had the effect of directly triggering safety management initiatives in a 500 Fortune chemical company to build upon lessons learned so as to produce a pro-active culture from these disasters. In this way, the findings of the inquiries come to be reflected in the lived values, attitudes and norms of the case-study organisation. Similarly, Turner (1976; 1978) systematically analysed significant disasters in the UK between 1966 and 1974 to show that cultural readjustment was necessary in state organisations to manage and alter the

institutional behaviours which preceded disasters in order to try and prevent them from happening in the first place. Disaster inquiries may provide valuable opportunities for single and double loop learning and organisational change which may prevent behaviours contributing to non-conformance, deviance and errors that may have contributed to the disaster (Ashford, 1990; Elliot, 2009; Elliot & McGuiness 2002; Lalonde, 2009).

Nonetheless, given that both disaster and inquiry are fraught with equivocality, it seems likely that the members of these organisations would need to engage in sensemaking, especially when they perceive that public inquiry findings to be unclear or contradict their lived experience of the disaster. From existing theory, we know that stable hierarchies enable individuals within different echelons to make sense of equivocal cues through the social processes of sensemaking and sensegiving, so much so that over time they can construct plausible meaning as they self reflect on their experiences (see Thackaberry, 2004; Balogun, 2003; Dutton & Dukerich, 1991; Gioia & Chittipeddi, 1991; Weick, 1995). A study by Thackaberry (2004) has found that even though self reflection comprising sensemaking and sensegiving activities within the U.S. Forest Service may engender new ways of thinking and diagnoses about firefighter safety issues, bureaucratic management may obscure cultural change. Furthermore, while studies suggest that hierarchy plays an important enabling role for senior management to give sense to people at lower levels of an organisation (e.g., Gioia & Chittipeddi, 1991) it has also been shown to contribute to disasters. For example, Vaughan (1990; 2006) has highlighted a number of ways in which hierarchical structures were found to contribute to the shuttle Columbia disintegration:

> Cultural traits and organisational practices detrimental to safety were allowed to develop, including: reliance on past success as a substitute for sound engineering practices (such as testing to understand why systems were not performing in accordance with requirements); organisational barriers that prevented effective communication of critical safety information and stifled professional differences of opinion; lack of integrated management across program elements; and the evolution of an informal chain of command and decision-making processes that operated outside the organisation's rules

(CAIB, vol. 1, 2003: 9).

This research suggests that hierarchy may have played a role in contributing to the Columbia disaster, but what part did it play afterwards as organisations sought to respond to the lessons learned from the disaster? Did the findings give rise to organisational change, which addressed the issues raised by the inquiry?

We still know relatively little about what happens within organisations – including the role of hierarchy – *after* public inquiries have concluded their work and made their inquiries known. Do individuals at different hierarchical levels in emergency management organisations make sense of and interpret the recommendations from public inquiries and, if so, does doing so enable them to ameliorate the future effects of disasters? We know that public inquiries can prompt managers to implement change in organisations (Bowman & Kunreuther, 1988; Turner, 1976: 381), even though others have claimed that the ritualised and political aspects of public inquiries inhibit learning (Buchanan, 2011). Such claims would seem to support claims that sensemaking and learning are in tension with each other (Schwandt, 2005). More exploration of this issue is particularly relevant for emergency management organisations in general and specifically for such organisations in Victoria, where a key feature of public inquiries has been to improve organisational function to ensure that planning for, responding to and recovering from emergencies is generally improved in the future. Therefore, my first research question is: *How does sensemaking occur in emergency management organisations that deal with disasters after the findings from public inquiries have been published and, in particular, does it give rise to learning?*

2.4 Sensemaking and emotion

The fact that sensemaking often takes place during disasters and also during inquiries, where individuals often experience considerable equivocality, makes it likely that these individuals will also experience emotion. The emergence of equivocality in organisations can trigger a condition referred to as cognitive loading (Sweller, 1994) as individuals seek to

interpret ambiguous cues through sensemaking and sensegiving (Gioia & Chittipeddi, 1991; Thomas, Clark & Gioia, 1993). This section discusses the influence of cognitive loading on peoples' response to changes in organisational conditions, suggesting that it gives rise to different emotions when individuals make sense of equivocality.

Cognitive loading is the use of the brain's working memory to absorb information from outside world inputs (based on Sweller, 1994). The brain's ability to attribute meaning and understanding to these inputs is determined by its amount of available working memory (Paas, Renkl & Sweller, 2003). The more working memory available, the more likely people will be able to attribute meaning and understanding from outside world inputs to experience and relate it to knowledge residing within their cognitive schemes (Sweller, 1994). Sweller (1994), Paas, Renkl, & Sweller (2003) and Van Merrienboer & Sweller (2005) identify three types of cognitive loading that, when combined, equal the sum of total cognitive loading that people experience. Intrinsic loading is the level of difficulty associated with the new experience, which will be higher if a person's brain has multiple factors to consider at once. Intrinsic loading is minimised where people can process factors progressively from simple to complex. Extraneous loading is the effect generated by the manner in which information is presented, and will reach higher levels when there are distracting factors such as noise. Germane loading is the way in which people structure outside world inputs as knowledge by drawing on previous experience already registered within their cognitive schemes.

As sensemaking continues to evolve in an ever more turbulent world it is likely that the cognitive load experienced by individuals at all levels in an organisation is likely to increase as they find the relevance of their existing cognitive schemes challenged (Camerer & Kunreuther, 1989; Christianson, Farkas, Suttcliffe, & Weick, 2009). Furthermore, cognitive load levels are also likely to increase as people anticipate and expect more frequent disaster events. For example, atmospheric scientists continue to predict that climate change will give rise to heatwaves, droughts and bushfires. These will be more frequent, more complex and

more of a threat to communities than previously (Flannery, 2013). Such threats create novel and unprecedented challenges for senior managers, middle managers and functional experts within emergency management organisations (Birkman, 2006). While such individuals regularly respond to challenging circumstances on a daily basis, they are likely in times to come to find themselves in the midst of potentially catastrophic disasters on a more regular basis. Therefore, it is likely that the cognitive loading levels of individuals working for emergency management organisations will continue to increase over time if severe natural disasters do become high impact high probability events. Moreover, the public scrutiny under which such individuals perform their duty and the likely examinations they will face from government and society through public inquiries if their performance is perceived as less than satisfactory are likely to exacerbate cognitive loads. This would likely engender increasing levels of emotional reactions such as stress, anxiety and shock amongst those working for emergency management organisations.

Scholars have provided us with numerous examples of how change triggers an emotional response in both crisis and non-crisis situations (see Weick, 1988; 1990; 1993; Weick, Suttcliffe, & Obstfeld, 2008). Fear, anxiety, panic, helplessness, vulnerability are often manifested in turbulent environments within disasters. Where change is rapid so, too, are emotions like dread, betrayal, deception and anger (Balogun, 2003; Dutton & Dukerich, 1991; Louis, 1980). Even in more stable environments, such emotions have been cast as an impediment to change in the organisational context (Balogun & Johnson, 2004; 2005; Catino & Patriotta, 2013; Maitlis, Vogus, & Lawrence, 2013). Many researchers suggest – implicitly or explicitly – that sensemaking is more effective when emotions are held in check (Elfenbein, 2007; Fineman, 2004; 2006; Huy, 1999; Maitlis, Vogus, & Lawrence, 2013; Mumby & Putman, 1992; Weick, 1993). For example, unexpected surprises trigger the arousal of the autonomic nervous system, which prompts people to react to an event that may impact on their wellbeing. This, in turn, can result in them ignoring important sensemaking

cues of which they would otherwise be aware. This in turn can inhibit their ability to make sense of changed circumstances (see Maitlis & Sonenshein, 2010; Maitlis, Vogus, & Lawrence, 2013). We know that when change events such as crises and disasters occur people frequently find their identities, routines, values, attitudes and norms are challenged by what is unfolding (for example see Cornelissen, 2012; Thomas, Clark, & Gioia, 1993; Weick, 1988; 1990; 1993). The ability to frame events, bracket cues and conclude plausible accounts can be lost (Maitlis & Lawrence, 2007; Maitlis & Sonenshein, 2010; Weick, 2010) resulting in a breakdown of sensemaking.

Despite the literature highlighting emotion as an inhibitor of sensemaking (Maitlis & Lawrence, 2007; Maitlis & Sonenshein, 2010), it is also clear that emotion can also result in the "simplicity of action" which is triggered by events during times of continuous discontinuous change, even if it is not underpinned by "complexity of thought" (Colville, Brown, & Pye, 2012: 5). Such simplicity of action may help individuals to act in complex, overwhelming situations when equivocality is high and consequences give rise to harm and even tragedy. Emotion has been shown to direct attention to certain cues which creates a shared sense of what is occurring, and enabling action in difficult situations. However, the action may not necessarily be effective or appropriate. For example, Colville, Pye, & Carter, (2013) and Cornelisson, Mantere, & Vaara, (2014) have found that communication, negative emotion and material cues gave rise to police officers framing a civilian as a suicide bomber, resulting in an accidental shooting of an innocent victim. There is, then, a question as to whether or not emotions enhance or impede sensemaking. There is, then, considerable scope to explore the way in which emotions – both positive and negative – influence how equivocal events are interpreted at the time and also afterwards, such as when individuals return to their organisations after disasters and after the inquiries.

In addition, the sources of emotion need to be examined. While disasters trigger emotions in immediate and visible ways, the ongoing emotional context is more complex. For

example, disasters often result in significant material losses and damages for communities meaning that the emotional effects may last long after the disaster ends. In the case of members of emergency management organisations, disasters created challenging and dangerous work environments on a regular basis, meaning that individuals anticipate forthcoming disasters, as well as deal with previous ones and its long term effects on the community. In addition, these individuals may then be required to respond to public inquiry questions about their actions on the day of the disaster, when their competence and judgment is likely to be called into question. Insofar as such inquiries are often associated with assigning blame (Eburn & Dovers, 2015; Gephart, 1993; 2007), it seems likely that such experiences would give rise to further emotional feelings as individuals relive the disaster and defend themselves from charges of negligence or incompetence.

When public inquiries make their authoritative accounts available, they often recommend changes to the emergency management organisations held responsible. We know from existing studies that organisational artefacts stimulate individuals to make sense prospectively (Stigliani & Ravasi, 2012). However, we know little about whether this gives rise to negative, positive or both emotional states as individuals begin the process of unlearning old routines as they seek to prepare better for the future. The emotional states associated with the original disaster and the public inquiry may shape the implementation process and outcome. It there seems likely that emotions as an important part of the sensemaking process that surround natural disasters and their inquiries as individuals seek to make sense and learn from their experiences. Accordingly, my second research question is: *How do emotions influence sensemaking in emergency service organisations that deal with crises and disasters after the findings from public inquiries have been published*?

2.5 Conclusion

This chapter has explored sensemaking as a concept, how it arises from equivocality with a particular focus on disasters and the ways in which public inquiries make sense of

these disasters afterwards. From my review of the literature, I find that disasters have provided an important basis for developing theory in relation to how sensemaking arises and occurs. Scholars examining the ways in which public inquiries make sense of highly equivocal events such as disasters have further extended sensemaking theory. Despite such advances in sensemaking theory, we still know relatively little about the ways in which public inquiry findings influence emergency management organisations. Also, there remains scope to extend our understanding of the role of emotion in sensemaking processes surrounding public inquiry recommendations. This is the rationale for my study, which is explained in the following chapter.

Chapter 3: Research methods

In this chapter I focus on the methods and methodology which I used to explore my research questions. To achieve this I used a qualitative and interpretative methodology whereby I examined a variety of documents and a series of interviews for evidence of how sensemaking and learning occurred in Victorian emergency management organisations as a result of bushfire public inquiries. I chose such an approach to my study because sensemaking and learning are usually underpinned by social processes which emerge as a result of dynamic interaction between different groups of individuals who seek to interpret equivocality in their environment. Two studies sit at the empirical core of my research.

The first study is a pilot where I examined reports of findings from public inquiries and a range of publicly available commentaries for evidence of sensemaking and learning (by using keyword searches developed from the literature) which occurred after Victoria's worst bushfires. From this study, I found that there was evidence suggesting that individuals in emergency management organisations used the recommendations from such inquiries to make sense and learn from three major bushfire events so that they can prepare better for future.

The findings of my pilot study provided the basis for my main study. For my main study, I interviewed senior managers, middle managers and functional experts in Victorian emergency management organisations to explore how they made sense and learned from the report of the Royal Commissioners after the 2009 Black Saturday bushfires. I found evidence which suggested that equivocality before, during and after Black Saturday – which continued while the Royal Commission was being conducted and afterward when the Royal Commissioners released their report of findings and recommendations – was a significant trigger for sensemaking activities amongst senior managers, middle managers and functional

experts. This sensemaking then served to generate organisational learning in emergency management organisations. I also found evidence suggesting that this equivocality was associated with accounts of negative and positive emotions by senior managers, middle managers and functional experts as they made sense of events surrounding Black Saturday, the subsequent Royal Commission and its report of findings and recommendations.

The remainder of this chapter sets out in detail the qualitative and interpretive methodology and associated methods which I used to undertake my research. I present an overview of my research setting which provided the basis for a number of decisions I made about the conduct of my studies. Finally, I present my approach to collecting and analysing my data from both studies.

3.1 Methodology

This study is qualitative and interpretative insofar as it reflects the way in which groups of individuals – senior managers, middle managers and functional experts – try to make sense and learn from their experiences (see Gephart, 1997 for a similar approach). I chose this approach because sensemaking and learning are social and interpretive processes that emerge as a result of dynamic interaction between different groups (Brown, Ainsworth, & Grant, 2012; Brown, Colville, & Pye, 2015) whose subjective interpretations of everyday life cohere into a meaningful 'reality' (Crotty, 1998; Berger & Luckmann, 1966; Hussey & Hussey, 1997). An interpretive approach thus emphasises qualitative research methods that are flexible, sensitive to the social context and concerned with understanding complex issues (Eisenhardt, 1989; Gephart, 2004; Eisenhardt & Graebner, 2007). Accordingly, I chose to study case studies of Australia's most significant bushfire public inquiries. A case study is an empirical investigation that looks at phenomena within a particular setting (Yin, 1994), allowing me to collect the rich data that I needed to explore sensemaking processes.

For my first study (the pilot study) I undertook a textual analysis of the reports of three public inquiries to explore how they might give rise to subsequent sensemaking and

learning. By comparing these three inquiries I gained more robust findings than if I had selected a single event. I then used the findings of my pilot study to focus in-depth on a single case study, the Black Saturday Royal Commission, where I interviewed senior managers, middle managers and functional experts in emergency management organisations to explore how the sensemaking conducted by individuals gives rise to learning (or otherwise) in organisations after a natural disaster such as a bushfire.

3.2 Research setting

The state of Victoria, Australia is the research setting for this study. Victoria's combination of landscape, climate and vegetation make it one of the most fire-prone areas in the world. Consequently and not surprisingly, it has had a long history of bushfires. Victoria's high bushfire risk is the consequence of a combination of factors including large areas of highly flammable dry eucalypt forest; expanses of highly flammable grassland; a climatic pattern of mild moist winters followed by hot dry summers; protracted droughts and agricultural practices where fire is used routinely. Such factors give rise to great concern for community safety amongst senior managers, middle managers and functional experts in Victoria's emergency management organisations, especially since Victoria has seen an increasing population density in bushfire-prone areas, such as in the rural-urban fringe. Consequently, a major bushfire can result in significant consequences, including loss of life, loss of infrastructure, financial losses, environment degradation and reduced services to the community.

Managing bushfire in Victoria involves a complex arrangement of plans, structures and hierarchies that have been established and refined over many years as a result of learning from a range of emergencies. The endeavours of government, voluntary and private organisations and communities play a vital role in the prevention of, response to and recovery from bushfire. Ultimately, managing bushfire is a shared responsibility involving many people and organisations in the community, though some organisations do have particularly

specialist roles. Given the dedicated role which a number of organisations have in preparing for and responding to bushfire, coupled with the frequency of its occurrence in Victoria, I felt that I would be able to discern evidence of sensemaking and learning from examining the state's most significant fire events; the way in which emergency management organisations responded to them and what emerged from the subsequent independent inquiries which were commissioned by the Government of Victoria to understand why such fires were so severe; and how emergency management organisations can learn from them in the future. I did so by conducting two studies.

I first conducted a pilot study[1] where I examined the three public inquiries – the Black Friday Fires in 1939, the Ash Wednesday fires in 1983 and the Black Saturday fires in 2009 – in order to explore whether and how they led to sensemaking and learning. I selected these three fires as case studies because they were perceived to be three of the most significant and damaging natural disasters in Victoria (as well as in Australia), during which a considerable number of lives and properties were lost (Griffiths, 2010). It therefore appeared likely that sensemaking would occur in the public inquiries that followed them, as in the case of other public inquires dealing with crises (e.g., Gephart, 1984; Gephart, Steier, & Lawrence, 1990; Brown, 2000; Brown & Jones, 2000). Equally, I felt that I would be able to discern evidence of learning (or its absence) from inquiry reports and related texts insofar as public inquiries are expected to be an important vehicle for learning in Australia (Prasser, 1985) and Griffiths (2010) argue that these reports did have a significant influence on emergency management in Victoria.

I followed up the pilot study with the main study, which involved interviews with senior managers, middle managers and functional experts in two organisations which played a key role in coordinating the response effort to the significant fire events on Black Saturday

[1] Please note that this study has been published (Dwyer and Hardy, 2016), and the material pertaining to the pilot study is taken from this paper. The author of this thesis was responsible for the ideas in this paper and provided more than fifty percent of the content. The complete, published paper is provided in Appendix Five.

in 2009. These organisations are referred to as ORG A and ORG B throughout the thesis. I chose these organisations because of the lead role they have always played and continue to play in managing bushfires in the Victorian landscape.

ORG A is responsible for the prevention and suppression of fire in the country area of Victoria (private property outside the metropolitan fire district). From its informal beginnings in the 1850s and 1860s, ORG A has grown to become one of the largest volunteer and community-based emergency service organisations in the world. After the Black Friday fire in 1939, a Royal Commission inquiry recommended that Victoria needed a firefighting authority for regional and country areas. It was not until after another Royal Commission after significant fires in 1944 that ORG A was formally established. Since its establishment, the organisational structure of ORG A has continued to be shaped by various major fires and emergencies. ORG A's workforce comprises volunteers, career firefighters and community educators who represent 1,218 brigades in 21 districts and five regions across Victoria. ORG A provides statewide fire and related emergency co-ordination in relation to bushfire suppression, structural fire suppression, road rescue, technical rescue (high angle, trench and mine operations) and other emergencies such as flood assistance. It receives its funding based on annual estimated expenditure through a fire services property levy.

ORG B is government department which plays a dual role as a public land manager as well as a manager of emergencies that occur on public land. ORG B is responsible for managing c.8.3million hectares of public land in Victoria. Its emergency responsibilities include the management of fire on public land, food/drinking water contamination, dam safety, dealing with heatwaves, tsunamis, marine pollution, whale and dolphin rescue and other emergencies in the landscape such as algae bloom. Within ORG B's emergency management portfolio is responsibility for the prevention and suppression of fire on public land in Victoria outside of the metropolitan fire district. ORG B is one of several Victorian government departments and statutory authorities with responsibilities for emergency

management, which comprises 3,000 staff in 16 fire districts and 8 regions. Like ORG A, ORG B's structure and function has also been shaped by the impact of previous bushfires and the recommendations of public inquiries. Furthermore, ORG B has often been both merged, de-merged and /or consolidated with other government departments to reflect the focus of different governments after they have been elected. Currently, ORG B resources its bushfire management function by providing training to all staff in a range of emergency management roles, seasonal staff over planned burning and bushfire seasons and a surge capacity of further staff drawn from across government departments and international partner agencies from New Zealand and North America.

ORG A and ORG B operate in accordance with emergency management legislation and regulations, which provide for a broad emergency management framework in Victoria. During bushfires such as those experienced on Black Saturday, ORG A and ORG B operate as an integrated organisation from shared incident control centres across Victoria which report into a the State Control Centre where the emergency response to fires is centrally coordinated. While ORG A and ORG B are the lead organisations for major bushfire planning and response, they rely on the support and advice of partner organisations with responsibilities for public health, local government, policing, roads, railway lines, electricity networks and water catchments.

I selected these organisations because of the prominent roles that they play in the planning for and responding to bushfires such as those witnessed on Black Saturday. Furthermore, in the aftermath of the Black Saturday fires (and bushfires more generally), both organisations came under intense scrutiny during the Royal Commission with senior managers, middle managers and functional experts being cross examined by lawyers representing the Royal Commissioners, often on more than one occasion. It therefore appeared likely that these organisations would seek to make sense of and learn from what had occurred on Black Saturday as well as the findings of the Royal Commission.

To explore how sensemaking and learning occur in organisations after a significant fire event, I conducted 62 interviews with senior managers, middle managers and functional experts in ORG A and ORG B. I felt that conducting such interviews would yield data which I could analyse for insights into many of the nuances that surrounded sensemaking and learning from the perspective of individuals at different hierarchical levels within emergency management organisations who responded to the fires on Black Saturday and were cross examined by Royal Commission's lawyers during the Royal Commission and who went on to work together to implement the recommendations and findings of the Royal Commission after it had concluded its business.

Given the interpretive nature of my study it is important to mention my previous employment experience: I was a manager of performance improvement in ORG B. As part of this role, I worked with senior managers, middle managers, functional experts and firefighters within the broader Victorian emergency management community to implement policy change based on lessons learned after each bushfire season, which begins in November and continues through to the end of March. During this bushfire season, I worked as a general fire fighter where I was involved in direct fire suppression operations on several occasions.

Many of the individuals who I had previously worked alongside were involved in key decisions made on Black Saturday. They had physically fought some of the most severe fires in the day and subsequently gave evidence to and were cross examined during the Royal Commission. Later they were responsible for implementing the Royal Commission's report of recommendations. My previous experience and existing networks meant that I could access participants in my main study who knew me from my previous professional roles. Accordingly, it is likely these participants may have disclosed information to me and shared experiences that otherwise would have been withheld and/or censored from an interviewer perceived as external to their work environment. Hence, it is likely that the trust, professional rapport with some respondents and my prior reputation meant that my interviews were more

meaningful and yielded richer text transcripts than otherwise would have been possible.

3.3 The pilot study

I first conducted a pilot study to explore whether sensemaking and learning are triggered as a result of public inquiries which occur after bushfires in which significant damages and losses have been incurred. I find that the subsequent inquiries constructed these fires as novel and equivocal, justifying the need for retrospective sensemaking and learning through deliberative public inquiry processes. My findings indicate that sensemaking and learning occurred during the inquiries, as well as suggesting how "learning cues" (Dwyer and Hardy: 56) provided a basis for the "double loop learning" (Argyris, 1976: 363) that occurred during the inquiry to extend beyond it and led to changes in organisational practices.

3.3.1 Data collection

I collected the reports of the public inquiries: the Report of the Royal Commission to Inquire into the Bush Fires of January, 1939 (Black Friday Bushfires); the Report of the Bushfire Review Committee, 16 February 1983 (Ash Wednesday Bushfires); and the Report of the Victorian Bushfires Royal Commission 2009 (Black Saturday Bushfires). I augmented these reports with other texts that were related to the three public inquiries, but produced afterwards. Using Factiva, which is a search engine for newspaper articles, TV and radio transcripts, journals, etc., I identified 20 publicly available interviews with senior fire fighters, commissioners and politicians, 17 newspaper articles and 4 web-blogs (Table 1). These texts were collected because they provided (albeit subjective) views of whether and how sensemaking and learning occurred both during and after the inquiries.

Table 1: Sources of textual data

Text source	Relevance	Number of sources
1. **Inquiry reports**	Inquiry reports provide detailed accounts of sensemaking over a period of time with input from government, emergency management and community stakeholders, and provide evidence of learning.	3 reports.
2. Publicly available interviews	Observers' comments on whether they believe the public inquiry made sense of and learned lessons from the previous bushfire, as well as whether sensemaking, learning and change have occurred subsequently.	20 interviews with politicians, fire fighters, Royal Commissioners.
3. Media articles	Media articles provide commentaries on whether the public inquiry made sense of and learned lessons from the previous bushfire, as well as whether sensemaking, learning and change have occurred subsequently.	17 newspaper articles.
4. Web-blogs	Web–blogs provide commentaries on whether the public inquiry made sense of and learned lessons from the previous bushfire, as well as whether sensemaking, learning and change have occurred subsequently.	4 web–blogs by emergency management practitioners.

3.3.2 Data analysis

An interpretive approach was used to analyse whether the texts contained evidence of sensemaking and learning and to explore the nature of these processes. Rereading the texts, and relating them to my understanding of sensemaking and learning from the literature, I was able to identify "themes, meanings and patterns in textual data" (cf. Gephart, 1997: 585; see also Shepard & Williams, 2014), from which categories were constructed.

In the first instance, I examined the public inquiry reports for evidence that the bushfires were perceived to be novel, given my interest in how sensemaking and learning occur in response to novel conditions of dynamic complexity, where meanings are equivocal. Table 2 shows how perceptions of novelty were inferred from references in the inquiry reports to the bushfires as 'unprecedented', 'previously unseen', 'catastrophic', 'new', unforeseen', 'unchartered', 'unknown'. By exploring the excerpts containing these terms, I was able to identify accounts that constructed the fires as novel and explained, as a result, that the meaning of technical and expert data, the relevance of warning 'signs', and the usefulness of existing plans and predictions were rendered equivocal – uncertain, ambiguous and open to interpretation. The inquiry reports were then examined for evidence of sensemaking.

Excerpts containing references to 'understanding', 'listening', 'review', and 'deliberations' were identified. I then explored these excerpts in more detail to see whether there was evidence that the process of receiving submissions, holding hearings, conducting deliberations and writing a report had served to make sense of the fires for those involved.

Table 2: Illustration of codes and quotes for key themes

Indicative codes	Quotes
Novelty References to a bushfire that was 'unprecedented', 'previously unseen', 'catastrophic', 'new', unforeseen', 'unchartered', 'unknown'. Analysis of excerpts from inquiry reports undertaken to discern whether and how the bushfire was constructed in relation to novelty.	***Report of Inquiry: 1939 Black Friday*** 'There had been no fires to equal these in destructiveness or intensity in the history of settlement in this State, except perhaps the fires of 1851, which, too, came at summer culmination of a long drought' (Parliament of Victoria, 1939: 6).
	Report of Inquiry: 1983 Ash Wednesday '[T]heir extent and severity, especially in terms of the truly disastrous proportions reached on 16 February 1983, constituted an unmistakable peak in the disaster record of the State' (Parliament of Victoria, 1984: 12).
	Report of Inquiry: 2009 Black Saturday 'Although the fires of January–February 2009 were catastrophic, they were not the first fires to gravely affect the State of Victoria. The outcome of these fires, however –especially the loss of life – surpassed that of past fires' (Parliament of Victoria, 2010: xvi).
Sensemaking References to the bushfire that referred to 'understanding', 'listening', 'review', 'deliberations'. Analysis of excerpts from inquiry reports undertaken to discern evidence of sensemaking.	***Report of Inquiry: 1939 Black Friday*** 'To enable a report of full effect to be made, it would be necessary to inquire into and resolve the preliminary problem of the co-ordination of control of forest lands by, and recognition and preservation of the rights of, the various persons and departments whose interests are rooted in the soil of the forests; to inquire into the constitution and administration of some of these departments;' (Parliament of Victoria, 1939: 7).
	Report of Inquiry: 1983 Ash Wednesday 'The aim of this report therefore is to consider factors relevant to the bushfires which occurred in Victoria during the 1982/83 season, particularly those of 16 February 1983, and to make any necessary recommendation for countering disaster situations in the future' (Parliament of Victoria, 1984: 4).
	Report of Inquiry: 2009 Black Saturday 'As commissioners, we concentrated on gaining an understanding of precisely what took place and how the risks of such a tragedy recurring might be reduced' (Parliament of Victoria, 2010: vii).
Single-loop learning References to 'learning / lessons', 'mistake', 'experience'. Analysis of excerpts from inquiry reports undertaken to discern evidence of single-loop learning in the form of explanations of what happened and why.	***Report of Inquiry: 1939 Black Friday*** 'Except that the summer of 1938–39 was unusually dry and that it followed what already had been a period of drought, the causes of the 1939 bushfires were no different from those of any other summer. There were, as there always have been, immediate and remote causes. The major, over-riding cause, which comprises all others, is the indifference with which fires, as a menace to the interests of us all, have been regarded …' (Parliament of Victoria, 1939: 11).
	Report of Inquiry: 1983 Ash Wednesday 'It was clear, therefore, that in spite of experience of past bushfires and the lessons learned from them, the events of the 1982/83 season needed careful analysis and evaluation' (Parliament of Victoria, 1984: 2).
	Report of Inquiry: 2009 Black Saturday 'The resultant evidence is the most comprehensive ever assembled about the circumstances of deaths in an Australian bushfire. It thus offers an unprecedented opportunity for analysis. Looking back on the experience of 7 February, it is plain that on such days, when bushfires are likely to be ferocious, leaving well before the fire arrives is the only way of ensuring one's safety' (Parliament of Victoria, 2009: 334).

Table 2 continued	
Double-loop learning References to 'learning', 'continuous learning', lessons learned', 're-evaluate', 'review' 'fundamental', 'change', 'system'. Analysis of excerpts from inquiry reports undertaken to discern evidence of double loop learning in the form of recommendations for fundamental change in bushfire management systems. Analysis of excerpts from subsequent texts undertaken to discern accounts of change and views that learning occurred.	***Publicly available interview: 1939 Black Friday*** 'Fire-fighters are now trained to know when to retreat or leave, and they have the right back–up and support. None of those systems where in place then' (Steve Bracks, past Premier of Victoria).
	Publicly available interview: 1983 Ash Wednesday 'As a nation, did we learn from the experience? Of course we did. But that was never going to be enough. [I]t is the work of our bushfire scientists over the last two decades … that has made the greatest contribution to saving lives and property' Gary Morgan, past Chief Executive of the Bushfire Co-operative Research Centre (Bushfire CRC).
	Publicly available interview: 2009 Black Saturday 'The 2009 bushfires were subject to an exhaustive Royal Commission of Inquiry. That led to a series of fundamental changes, many of which are largely invisible to the public eye. But they are fundamental' (Craig Lapsley, current Emergency Management Commissioner).
Learning cues Analysis of accounts from subsequent texts referring back to recommendations in inquiry reports to explain, justify or initiate changes in organisational practices.	***Publicly available interview: 1939 Black Friday*** '[I]t was a turning point in terms of structure and arrangement for fire prevention and fire suppression because when you look at the model [which included a state fire authority, planned burning and clearer responsibilities] which was proposed as a result of the 1939 Royal Commission …' (Russell Rees, past Country Fire Authority (CFA) Chief Officer).
	Web blog: 1983 Ash Wednesday 'The 1983 Ash Wednesday bushfires also provided a range of experiences to build upon. The suddenness, the velocity and the deadliness of those fires added considerable urgency as far as our need to know more about a range of variables such as fire behaviour and fire weather [referring to the need to model fire behaviour]. We needed better guidelines on how to manage the land for both bushfire protection and for its conservation value [referring to formalising the management of major emergencies]' (Gary Morgan, past Chief Executive of the Bushfire CRC).
	Publicly available interview: 2009 Black Saturday 'The primacy of human life is more obviously at the forefront of all of our activities. That is why the advice to leave a high bushfire area well in advance of a bushfire threat is so prominent in our communications. It is the safest option. Likewise, information and advice to the public is delivered in an integrated and varied way. The advice is as timely and relevant as it can be. The means of delivering this are improving all the time [referring to the need for a review of the 'Stay or Go' policy' (Craig Lapsley, current Emergency Management Commissioner).

The next stage of analysis was to look for evidence of learning. Building on the work of Argyris (1976), I differentiated between single loop and double loop learning. Argyris argues that single loop learning occurs through error correction, but without altering the underlying governing values of the system and/or organisation. Double loop learning occurs when errors are corrected through more fundamental organisational changes. Thus single

loop learning produces change within the existing organisational culture, while double loop learning leads organisations to re-evaluate governing values and, potentially, change the culture and practices more fundamentally.

I therefore conceptualised 'single-loop' learning in the inquiries in terms of explanations of what had happened and why during the bushfires. I identified and explored excerpts in the inquiry reports containing references to terms like 'learning' 'lessons', 'mistake', and 'experience' – looking for evidence of such explanations. I conceptualised 'double loop' learning in terms of recommendations for more fundamental change. I therefore examined excerpts in inquiry reports containing references to 'learning', 'continuous learning', 'lessons learned', 're-evaluate', 'review' 'fundamental', 'change' and 'system' to identify and explore recommendations for fundamental change. I also identified double loop learning that extended beyond the inquiries in the form of subsequent changes in emergency management organisations. To do so, I examined texts produced subsequent to the inquiries to see if they provided accounts of fundamental changes made after the inquiry and to identify independent views from experts, fire fighters, journalists and politicians as to whether such learning had taken place.

Finally, I explored the link between inquiry recommendations and subsequent changes in organisational practices. Here, I analysed excerpts from inquiry reports detailing recommendations for fundamental changes and compared them to accounts in subsequent texts detailing how these recommendations were implemented in the form of changes in organisational practices. In this way, I identified what I refer to as 'learning cues' in the inquiry reports, as texts produced after the inquiry referred back to certain recommendations in order to explain, justify or introduce changes in organisational practices.

3.4 The main study

For my main study I interviewed 62 senior managers, middle managers and functional experts from Victorian emergency management organisations who responded to the fires on

the day of Black Saturday; were cross examined by the Royal Commission lawyers; and implemented the recommendations from the findings report in their respective organisations. In conducting this study, I am aware that these individuals have selected and omitted certain details in their individual interpretation of and responses to the questions on my interview schedule. Accordingly, I do not claim that the findings in this study which relate to sensemaking and learning are 'truth; but rather a series of individual interpretations which manifest themselves in actors reflections and utterances which can be examined for in the text of their interview transcripts (Currie and Brown, 2000; Gephart, 1997).

3.4.1 Data collection

I collected data through semi-structured interviews with 20 senior managers, 21 middle managers and 21 functional experts (Table 3), which resulted in almost 65 hours of interview recordings. I chose this method of data collection because it would provide me with a range of perspectives (albeit subjective) about how public inquiries trigger sensemaking and learning within organisations following a bushfire disaster. To facilitate my analysis, I arranged for each interview be transcribed verbatim so that I could examine for evidence of how sensemaking and learning occurred at the organisational level.

Table 3: Main study interviewees

Senior Managers	Middle Managers	Functional Experts
Assistant Chief Officer ORG B	Communications Manager 1 ORG A	Brigade Captain 1 ORG A
Assistant Director 1 ORG B	Community Education Manager 1 ORG A	Community Engagement Officer 1 ORG A
Deputy Chief Officer ORG A	Community Engagement Manager 1 ORG B	Community Information Officer 1 ORG B
Deputy Chief Officer 2 ORG A	Community Engagement Manager 2 ORG A	Fire Operations Officer 2 ORG A
Director 1 ORG B	Community Safety Manager 1 ORG B	Fire Planning Officer 1 ORG A
Director 2 ORG A	Emergency Coordination Manager 1 ORG A	Fire Planning Officer 2 ORG B
Director 3 ORG B	Operations Manager 2 ORG B	Firefighter 1ORG A
Executive Director 1ORG B	Policy Manager 1 ORG B	Firefighter 2 ORG B
Executive Director 2 ORG A	Policy Manager 2 ORG A	Incident Controller 1 ORG A
Regional Director 1 ORG B	Project Manager 1 ORG A	Incident Controller 2 ORG A
Regional Director 2 ORG B	Project Manager 2 ORG B	Incident Controller 3 ORG A
Senior Executive 1 ORG B	Project Manager 3 ORG A	Incident Controller 4 ORG B
Senior Fire Officer 1 ORG A	Project Manager 4 ORG A	Logistics Officer 1 ORG B
Senior Fire Officer ORG B	Regional Manager 1 ORG A	Organizational Psychologist ORG A
Senior Operations Officer 1 ORG A	Regional Manager 2 ORG A	Project Officer 1 ORG A
Senior Operations Officer 2 ORG B	Regional Manager 3 ORG B	Public Information Officer 1 ORG A
Senior Operations Officer 3 ORG A	Regional Operations Manager 1 ORG B	Public Information Officer 2 ORG B
State Coordinator ORG A	Regional Operations Manager 2 ORG B	Public Information Officer 3 ORG A
State Operations Officer ORG B	Regional Operations Manager 3 ORG B	Regional Fire Operations Officer 1 ORG B
Weather Services Manager ORG A	Regional Operations Manager 4 ORG B	Regional Operations Officer 1 ORG B
	Senior Policy Officer 1 ORG A	Regional Operations Officer 2 ORG B

3.4.2 Data analysis

An interpretive approach was used to analyse interviewee transcripts. By reading and rereading the transcripts and relating them to my understanding of the literature on public inquiries, sensemaking and learning. Once I became familiar with my transcripts I was able to identify patterns and themes within the text of my transcripts. From these texts I found evidence of equivocality, sensemaking and learning (for a similar approach see Colville, Hennestad, & Thoner, 2014; Gephart, 1993; 1997) which I coded by using MAXQDA, which is an electronic tool for assisting with qualitative data analysis. As in my pilot study, by adopting such an approach to my analysis I recognise that many of my interview transcripts and subsequent coding of them is a product of selection strategies. The qualitative and subject nature of the research invariably means that the interviewees and researcher chose to omit some material as they presented their interpretation and understanding of events related to the Black Saturday fires, the Royal Commission's recommendations and how they moved to interpret and implement such recommendations in their respective organisations (Brown, 2000).

In the first instance, I examined the interview transcripts for evidence that the Black Saturday and the subsequent Royal Commission were perceived as novel whereby the events and circumstances that comprised them were unique and gave rise to equivocality. Table 4 shows how perceptions of equivocality were inferred from references in the interview transcripts. When analysing my transcripts, Black Saturday was repeatedly characterised as the 'worst ever' series of bushfires in Victoria and Australia. Furthermore, references to Black Saturday and the Royal Commission – its evidence-hearing processes and the recommendations – were referred to as giving rise to 'uncertainty', 'complications', 'difficulty', 'confusion', 'doubt' and creating situations which were perceived as 'insane' and 'unhelpful'. It seems that in many instances the recommendations were considered to be unclear, multifaceted and open to interpretation. In other instances, individuals disagreed over

the focus of certain findings with senior managers, middle managers and functional experts, often having contrasting and conflicting views about the intent of the Royal Commissioner's recommendations.

The next stage of my analysis involved focusing on how senior managers, middle managers and functional experts interpreted the equivocality surrounding the Black Saturday Royal Commission recommendations and how this was influenced by experiences from Black Saturday. In particular, I focused on Recommendation 1, which concerns Victoria's bushfire safety policy and about which significant evidence was submitted and heard during the Royal Commission. From this evidence Royal Commissioners concluded that this longstanding policy was no longer adequate in the light of the high bushfire threat level Victoria faces during the summer months. Consequently, the Report recommended that emergency management organisations work together to strengthen this policy and avoid a repeat of the damages and losses witnessed on Black Saturday. Having decided to focus on Recommendation 1, I examined the interview transcripts for evidence of how senior managers, middle managers and functional experts engaged in sensemaking and sensegiving to interpret the equivocality that surrounded this recommendation.

Table 4 also shows how instances of sensemaking and sensegiving were inferred from key references in the interview transcripts. I used search terms such 'sense', 'meeting(s)', 'discuss', 'interpret', 'agree', 'disagree', and 'argue' to examine for instances of sensemaking and sensegiving. I was able to identify sensemaking and learning cues, which individuals used to interpret the equivocality surrounding their experiences from Black Saturday and the Royal Commission's recommendations and from which they developed organisational change initiatives. My analysis suggested that such sensemaking cues were an important component of double-loop learning.

Table 4: Codes and illustrative quotes for key themes

Equivocality	**Illustrative quotes**
Analysis of interview transcripts from these groups undertaken to discern whether and how the actors experienced equivocality as a result of the Recommendation 1. References to in the transcript that indicated: 'worst', 'uncertainty', 'unhelpful', 'insane' 'complications', 'difficulty', 'confusion', 'doubt'.	**Senior management** Black Saturday was the worst natural disaster ever experienced in Australia. I think what they were adopting, was a fairly unhelpful model of litigation-based problem-solving during the Royal Commission which we needed to get away from afterwards if we were going to have any hope of using the findings to make lasting changes (Senior Fire Officer 1, ORG A). **Middle management** What happens when you get a Royal Commission [is] there's a heap of recommendations, which we had to figure out. We saw the same thing after '39 (Black Friday Fires), we saw it after 1983 (Ash Wednesday fires) and we've seen it now after Black Saturday (Operations Officer 1, ORG A). **Functional experts** I can remember… that they wanted things very quickly. I can remember talking to some people [from other organisations and] their deadlines were sort of insane. Sometimes we struggled to work through what we were trying to do (Public Information Officer 1, ORG B).
Sensemaking and sensegiving	**Illustrative quotes**
Analysis of interview transcripts from these groups undertaken to discern evidence of sensemaking from which sensemaking and learning cues emerged. References to the Recommendation 1 that indicated: 'sense', 'understand', 'meeting', 'discuss', 'interpret', 'agree', 'disagree' / 'argue'. Sensemaking cues from the text of the Recommendation 1, evidence heard during Royal Commission, individual experience from Black Saturday. Learning cues to create plausible meaning about how the recommendations could transition into double loop learning.	**Senior management** [T]here were lots of discussion and teleconferences with each [of the] fire officers in the regions to get them briefed up and comfortable so that they had a sense for what was in the recommendations …(Regional Director 1, ORG B). **Middle management** There was so many meetings to make sense of what was going on. Everything went through to the Senior Management Team and then they planned for how things were going to be implemented right across Victoria (Project Manager 1, ORG A). **Functional expert** [W]e established a whole team of people to support individuals and the organisation through the Inquiry, the recommendations and implementation and that's now become better practice. There were lots of arguments, lots of discussion as we interpreted the recommendations and what management wanted us to do (Logistics Officer, ORG B).
Double-loop learning	**Quotes**
Analysis of interview transcripts from these groups was undertaken to discern evidence of double-loop learning whereby change initials constructed from sensemaking resulted in organisational transformation. References to the Recommendation 1 that indicated: 'learning / learned', 'transformation', 'change / major change', 'improvement', 'reviewed'.	**Senior management** What the community warnings, recommendations did was lift any responsibilities that rested with the community for their own welfare and placed it quite squarely on the shoulders of the incident controller and consequently the Chief Officer. Everything has been transformed and I'm not sure if it's for the best (Senior Fire Officer 1, ORG A). **Middle management** If you come into the State Control Centre now, it really has been transformed. It doesn't matter what badge you wear. We've learned how to work better together … with a common goal in mind (Emergency Coordination Manager 1, ORG A). **Functional experts** [T] raditionally, up to Black Saturday, we have been focused on procedural aspects. [I]f it wasn't written you didn't do it. [T]here's a far greater appreciation of the importance of relationships across and within agencies, which has improved a lot. There's been major change (Public Information Officer 2, ORG B).

In the third stage of my analysis, I considered whether the sensemaking undertaken by senior managers, middle managers and functional experts resulted in double-loop learning in the form of organisational change initiatives. Table 4 above shows how instances of double-loop learning were inferred from key references in the interview transcripts. I examined individual transcripts for references or allusions to 'learning/learned', 'lessons', 'improvement' and 'reviewing' in relation to how individual's experiences on Black Saturday and the Royal Commission's recommendations resulted in 'transformation' and 'change' within Victorian emergency management organisations. I found that individuals in the three groups used learning cues from the text of recommendations coupled with their experiences from Black Saturday along with observations from the evidence presented at the Royal Commission to implement new practices (with new governing values) in their respective organisations. My findings regarding sensemaking and learning are discussed in more detail in Chapters 4 and 5.

Given the unprecedented damages and losses associated with the significant fires on the day of Black Saturday, I felt that senior managers, middle managers and functional experts were likely to experience a range of emotions in the context of such equivocality. Accordingly, the final part of my analysis examined evidence of emotion in my interview transcripts so that I could explore its influence on sensemaking and learning in the context of equivocality. Furthermore, many of the individuals who participated in my study were in very demanding leadership and response roles on the day itself. These same individuals then endured public scrutiny during cross-examinations conducted by lawyers representing the Royal Commissioners. Such cross-examinations gave rise to media commentaries suggesting that some of these people had been incompetent in their actions on the day of Black Saturday and neglected to protect the safety of the Victorian community in an appropriate manner.

I accordingly examined and coded for emotion in my transcripts by examining the interviews for descriptions of feelings and experiences expressed that could be interpreted as

evidence of emotion. I identified a range of different emotions before, during and after the Black Saturday fires and the Royal Commission, which I then differentiated in terms of being positive or negative. In a similar way to Maitlis & Ozcelik (2004: 378), I developed "a comprehensive set of emotions" from my transcripts which resulted in an ordered list of negative and positive emotions (see Tables 5 and 6).

When coding for emotion, I did not presume to access felt emotional states directly. I was aware that I could not access individuals' felt emotions and therefore asked individuals to retrospectively recollect the emotions they believe they had felt at particular times. I therefore infer particular emotions from interviewees' accounts which, in turn, are drawn selectively from their memories of what happened and how they felt at the time. I acknowledge that memories may not match the felt emotion at the time, and that individuals may present accounts of 'acceptable' emotions rather than admitting to how they 'really' felt. In labeling or categorising specific emotions e.g., anger, anxiety, sadness, etc., I sometimes drew on individuals' statements e.g., an individual might explicitly say: "I was angry." Sometimes, their recollections were less directly worded and I inferred that an individual had experienced anger. I am aware that other researchers may disagree with my categorisations. For example, what I describe as 'sadness', someone else may categorise as 'grief'. Similarly, I describe stress as a negative emotion based on how interviewees described it, although some researchers may see stress as positive. My analysis is not intended to identify the 'true' emotion. Rather, I seek to derive patterns from the systematic analysis of interviewees' recollections that indicate changes in how people felt at different times during the period of the study. These patterns shed considerable light on different emotions expressed during the processes of sensemaking and learning which are discussed in more detail in Chapter 5.

Table 5: Negative emotions

Negative Emotion	Description	When experienced
Anxiety	Individuals indicated that they experienced feelings of worry, nervousness, or unease about an uncertain outcome.	The days prior to Black Saturday as a result of severe fire indications. In the days after the Royal Commission was announced. When they considered the likelihood of future fires.
Stress	Individuals indicated that they experienced mental or emotional strain or tension resulting from being unable to control or manage events that are occurring.	In relation to events which occurred on the day of Black Saturday. About being cross examined by the Royal Commission. When they were undertaking recovery work with communities after Black Saturday.
Sadness	Individuals indicated that they experienced sorrow, despondency and grief as a result of the effect of the fires on others.	On the day of and after Black Saturday. During Royal Commission hearings in relation to their colleagues who cross-examined in a very aggressive manner by lawyers representing the Royal Commissioners.
Guilt	Individuals indicated that they experienced feelings of having done something wrong.	In relation to the actions that they took on the day of Black Saturday which may have contributed to or failed to prevent the damages and losses that occurred. After the findings of the Royal Commission were known. As number of fatalities from Black Saturday became known. When they saw their colleagues being cross-examined by lawyers.
Shock	Individuals indicated that they experienced feelings of alarm, trauma, disbelief surprise and injustice.	As they were being cross-examined by the Royal Commission's lawyers.
Anger	Individuals indicated they experienced feelings of indignation and displeasure.	When they reflected on how lawyers treated them during the Royal Commission and as a result opportunities missed by the Royal Commission to influence the future practice of emergency management in Victoria.
Reluctance	Individuals indicated they experienced feeling of hesitancy, hostility, averseness and a lack of enthusiasm.	On returning to work after Black Saturday. When they observed weather conditions that were similar to those on Black Saturday. After the Royal Commission.
Worry	Individuals indicated they experienced feelings of concern and being troubled.	As they considered the likelihood and severity of future fires. As they reflected on the implementation of recommendation 1 (and other recommendations).

Table 6: Positive emotions

Positive emotion	Description	When experienced
Trust	Individuals indicated that they experienced closer bonds and improved working relationships with each other.	When they began to work together to implement change initiatives, which were related to the recommendations and findings of the Royal Commission. When the new processes and systems enabled them to work more effectively as individuals and in teams during fire events after Black Saturday.
Confidence	Individuals indicated that they experienced feelings of self-assurance, self-regard and empathy.	As they worked together and learned new routines in a collaborative manner associated with new systems. When they felt that their knowledge, skills and the learning from Black Saturday helped them to plan for and respond to fire events more effectively for fire events after Black Saturday. In relation to their ability implement change and operate newly created systems.
Happiness	Individuals indicated that they experienced feelings of contentment and pleasure.	When they found that recommendation 1 (and other recommendations) identified issues that they knew needed to be resolved but had previously had no political or organisational profile. When they felt that they were planning for and responding to bushfire events in a more effective and meaningful manner as a result of what they had learned from Black Saturday.

3.5 Conclusion

This chapter has presented the methods and methodology used in this study. The following chapters will present the findings of my pilot and main studies. Chapter 4 presents the findings from the pilot study which suggests that sensemaking from public inquiries can give rise to learning in emergency management organizations after disastrous bushfires. The pilot study provides the basis for my main study the findings of which I present in chapters 5 and 6. Chapter 5 presents the first set of findings from the main study which further explores the relationship between sensemaking and learning. It shows how equivocality extended into the organisational environment from the 2009 Royal Commission as senior managers, middle managers and functional experts sought to interpret its recommendations through ongoing sensemaking and sensegiving activities amongst organisational actors. As the level of equivocality diminished, sensemaking was replaced by learning as the recommendations were implemented within the two organizations.

Chapter 6 presents the findings on the emotions experienced by senior managers, middle managers and functional experts during this process. I find that individuals were

already conscious of negative emotions *before* they had to grapple with the equivocality associated with the recommendations. My findings show that negative emotions were eventually replaced by positive emotions during the subsequent sensemaking and learning processes to deal with Recommendation 1. It appears that there was a reciprocal relationship insofar as sensemaking and learning may have helped individuals feel more positive about the equivocality they faced and, in turn, positive emotions facilitated sensemaking and learning. However, I conclude by noting that, even after the learning associated with the organisational changes required to implement Recommendation 1, senior managers, middle managers and functional experts continue to experience some negative emotion because of their concern about the unknown form of prospective bushfire events.

Both these chapters provide the basis for my theory development about how sensemaking and learning occur in organisations after experiencing a period of protracted equivocality.

Chapter 4: Sensemaking and learning from public inquiries

This chapter shows how the inquiries that followed three of Australia's worst bushfires – the Black Friday Fires in 1939, the Ash Wednesday fires in 1983 and the Black Saturday fires in 2009 – gave rise to sensemaking and learning afterward. My findings suggest that the inquiries which followed each of these bushfire events constructed them as novel, justifying the need for sensemaking and learning through deliberative public inquiry processes. While my findings suggest that sensemaking and learning occurred during each of the three inquiries, I also find that "learning cues" provided the basis for the double loop learning that occurred during the inquiries to extend them beyond and lead to changes in organizational practices. These findings are important insofar as they suggest that both sensemaking and learning can occur through the process of holding public inquiries. This is an important basis for my main study. Most of the theoretical focus on public inquiries has been in relation to sensemaking; we know far less about whether and how inquiries engender learning. Accordingly, I conclude this chapter that with a general model that sets the stage for my main study (and indeed future) research on how new organizational practices come into being after inquiries have concluded their work.

4.1 Findings of the pilot study[2]

The findings of the pilot study indicate that the three bushfires were portrayed during the subsequent inquiries as novel events that required sensemaking, and that sensemaking and learning occurred during these inquiries. In this section, I first show evidence of equivocality which prompted sensemaking. I then show that once sensemaking occurred both single and double loop learning occurred after all three inquiries.

4.1.1 Equivocality and sensemaking

The analysis of the inquiry reports suggests that all three bushfires were interpreted as

[2] Please note that this study has been published (Dwyer and Hardy, 2016), and the material pertaining to the pilot study is taken from this paper. The author of this thesis was responsible for the ideas in this paper and provided more than fifty percent of the content. The complete, published paper is provided in Appendix Five.

representing novel conditions that had not been experienced before, which in turn gives rise to equivocality. The reports conveyed this novelty by drawing attention to unprecedented antecedent conditions before and during the major fires. In all three cases, inquiry reports constructed the fire as so overwhelming that individuals could not make sense of it at the time. Such was the unprecedented nature of all three fires that actors struggled to frame what was going on, recognise cues and bring their existing knowledge to bear on the situation. All three reports concluded that these particular bushfires were novel, unprecedented events, based on witness accounts and expert assessments of conditions at the time of the bushfire:

> The speed of the fires was appalling. Balls of crackling fire sped at a great pace in advance of the fires, consuming with a roaring, explosive noise, all that they touched. Houses of brick were seen and heard to leap into a roar of flame before the fires had reached them. Some men of science hold the view that the fires generated and were preceded by inflammable gases, which became alight (Parliament of Victoria, *Report of Black Friday Inquiry*; 1939: 5).

Inquiry reports argued that, because of the equivocal meanings that these novel events engendered, existing procedures failed to contain the fires, allowing them to escalate significantly and detrimentally. The resulting loss of life and damage to property was so great that it should never be allowed to happen again,

> Black Saturday wrote itself into Victoria's history with record-breaking weather conditions and bushfires of a scale and ferocity that tested human endurance (Parliament of Victoria, *Victorian Bushfire Royal Commission Final Report Volume 1*, 2010: v).

If equivocality had made it difficult for emergency services to respond adequately to the fires at the time, then sense needed to be made retrospectively, through the submissions, hearings and, ultimately, the inquiry report.

> [T]he truly disastrous proportions reached on 16 February, 1983, constituted an unmistakable peak in the disaster record of the State. It was clear, therefore, that in spite of experience of past bushfires and the lessons learned from them, the events of the 1982/83 season needed careful analysis and evaluation. To this end, in conjunction with other initiatives, the government decided to establish a Bushfire Review Committee (Parliament of Victoria, *Report of the*

Ash Wednesday Inquiry, Parliament of Victoria, 1984: 2).

The inquiries helped to make sense of the past – the apparent novelty of the bushfire meant that it could only to be fully understood through a post-hoc inquiry. However, this attempt at comprehension of past events was clearly made with a view to safeguarding the future.

> We have seen the pain people have endured and continue to bear and we know it will be a long road to full recovery for many. Bushfire is an intrinsic part of Victoria's landscape, and if time dims our memory we risk repeating the mistakes of the past. We need to learn from the experiences of Black Saturday and improve the way we prepare for and respond to bushfires (Parliament of Victoria, *Victorian Bushfire Royal Commission Final Report Volume 1*, 2010: v).

In this way, the inquiry reports adopted a prospective outlook in relation to future learning.

> I am determined that this Royal Commission report is never allowed to gather dust. It is crucial that we grasp the opportunity now to make our State safer. I am equally determined that the path forward unites all Victorians in one commitment to do all we can to preserve human life in the face of the threat of bushfires (Premier of Victoria, quoted in Department of Premier and Cabinet, 2010: para.10).

4.1.2 Single-loop and double-loop learning

In making sense of the bushfires, the inquiry reports also provided accounts that indicated single-loop learning in the form of explanations of what had happened during each of the bush fires and why it had happened.

> Except that the summer of 1938-39 was unusually dry and that it followed what had already been a period of drought, the causes of the 1939 bushfires have been immediate and remote causes. [I]t will appear that no one cause may properly be said to have been the sole cause. The major, over-riding cause, which comprises all others, is the indifference with which forest fires, as a menace to the interests of us all, have been regarded (Parliament of Victoria, *Report of the Black Friday Inquiry*, 1939: 11).

There was also evidence of double loop learning insofar as some inquiry recommendations identified a need to re-evaluate systems that had been considered adequate before the unprecedented nature of fires exposed their limitations. The inquiry reports suggested that preparing for and responding to future bushfires on the scale of those recently

experienced would require new practices, routines and, in some instances, new systems.

> [W]e need to learn the lessons so that problems can be avoided in the future. The Commission therefore examined the policies, systems and structures needed to 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 (Parliament of Victoria, *Victorian Bushfire Royal Commission Summary Report*, 2010: 4).

The inquiries were, then, a first step insofar as recommendations argued for a need for fundamental changes in the system of bushfire management that, in turn, would require changes in the practices of specific organisations.

> A legacy for governments or a legacy for a fire leader I think will be to introduce these recommendations over time to avoid, as best we can, these sort of events that occurred on the seventh of February (Jack Rush, Queens Counsel assisting the Black Saturday Inquiry, interviewed by Fyfe, 2010).

Double loop learning extended beyond the inquiries as changes were implemented in organisations responsible for bushfire management. For example, a Park Ranger who had witnessed the Ash Wednesday fires commented on changes that followed the public inquiry:

> Ash Wednesday had jolted firefighting services to re-examine how they tackled bushfire. From communications, to the way we transport people, to the way we use aircraft, dozers, the way we configure people across the landscape. It made us look hard at that. It made us look at how we configure our incident management teams, how we train people (McAloon, 2008: para. 15-16).

Similarly, changes were announced following the Black Saturday Royal Commission, including: 'reducing fuel load on public land while monitoring and carefully managing the ecological consequences of such action; maintaining strategic fire breaks to protect communities and their critical assets, such as water; limiting known fire-starting activities on days with a dangerous fire risk; and encouraging individuals living in unacceptably high bushfire risk areas to relocate to safer environments' (Victoria's Emergency Services Minister quoted in Department of Premier and Cabinet, 2011: para.10).

In tracing links between inquiry recommendations for fundamental changes and

accounts of changes being implemented subsequently, I identified what I refer to as 'learning cues'. Like sensemaking cues, learning cues are key fragments of information that serve as 'stimuli that gain attention and engender action' (cf. Colville, Hennstad, & Thoner, 2014: 217). They are not pre-determined or pre-existing but, rather, are constructed as actors draw on particular fragments of text from inquiry recommendations to explain, justify and initiate subsequent changes in organisational practices. In this way, learning cues appear to help extend the double loop learning that occurs during the inquiry to the wider setting, providing a basis for subsequent changes in organisational practices.

4.1.3 Sensemaking and learning in the three bushfires

The three bushfires involved both sensemaking and learning. In the case of Black Friday (1939), sensemaking constructed the bushfire as Australia's worst natural disaster – a novel event compounded by a chronic drought and a lack of accountability (Table 7). In making sense of this novelty, I interpreted the inquiry as engaging in single-loop learning by offering explanations as to why the fire occurred and escalated to such a seemingly unprecedented extent. These explanations included the lack of fire-related organisations with responsibility for managing risk in regional areas, an absence of forest management and conflict amongst various organisations. Recommendations included the need for a State fire authority, new guidelines for planned burning and clearer responsibilities for land and forest management. Proposals from the inquiry served as learning cues in that they were referred to in subsequent texts discussing changes in organisational practices. These changes included the establishment of the Country Fire Authority (CFA) whose jurisdiction included fires on private land in regional areas; the institutionalisation of planned burning and the introduction of the 1939 Forest Act, giving the existing Forest Commission complete control of fire management on public land. I interpreted these changes as double loop learning insofar as they changed the assumptions of emergency management in Victoria in ways that continue to the present day.

Table 7: Summary of findings from Black Friday 1939

Novelty & equivocality	*Sensemaking and single -loop learning*	*Learning cues*	*Double loop learning and new organisational practices*
Australia's worst natural disaster.	The fire occurred and escalated because no fire-related organisations had responsibility for managing risk in regional areas.	Recommendation for a State fire authority to educate citizens about the risk of fire in regional areas and to co-ordinate training of volunteer fire fighters.	The CFA comes into existence in 1945 to manage fire in regional areas on private land.
Chronic drought.	The fire occurred and escalated because there was an absence of forest management.	Recommendation for new guidelines for planned burning off of growth to reduce fuel hazards.	Planned burning is instituted as a fire management strategy.
Absence of organisational accountability.	The fire occurred and escalated because of intra–organisational conflict.	Recommendation for clearer responsibilities amongst land and forest managers.	The 1939 Forests Act gives the Forest Commission complete control of fire management on public land in Victoria.

In the case of Ash Wednesday (1983), I again observed that sensemaking constructed the bushfires as novel – the worst natural disaster to date owing to the early onset of summer and irregular fire behaviour (Table 8). Single-loop learning occurred insofar as explanations in inquiry reports explained the damage caused by the fire in terms of conservative planning on the part of the community, the need for more effective responses from emergency management organisations and the need for better understanding of fire behaviour. Recommendations regarding new education programs, new partnership arrangements and formal modelling of fire typologies served as learning cues in that they were referred to in subsequent texts discussing changes in organisational practices. These changes included a new 'Stay or Go' policy, which was an education program to assist communities living in high bushfire risk areas in their preparation for the fire season. Other changes involved new partnership arrangements and the institutionalisation of fire modelling. I interpreted these changes as double loop learning insofar as the 'Stay or Go' policy was developed collaboratively as a result of new partnership arrangements introduced through legislation. It remained the cornerstone of Victoria's bushfire safety program for more than 25 years, while the new fire management strategy became established practice.

Table 8: Summary of findings from Ash Wednesday 1983

Novelty & equivocality	*Sensemaking and single -loop learning*	*Learning cues*	*Double loop learning and new organisational practices*
Australia's worst natural disaster.	The fire caused losses because the community had become conservative about planning for the risk of bushfire.	Recommendation for new education program to educate people about fire risk and bushfire preparedness.	The 'Stay and Defend or Go Early' policy is adopted.
Early onset of summer.	Fire losses and damages may have been less if fire management organisations were able to respond more effectively to the rapid onset of bushfires.	Recommendation for new partnership arrangements between fire management organisations.	The 1986 Emergency Management Act implements a formal partnership approach to managing major fires.
Irregular fire behaviour.	The fires highlighted a need for a better understanding of fire behaviour.	Recommendation for formal modelling of fire typologies in different terrains to improve planning and preventative action against bushfire.	Fire modelling is instituted as a fire management strategy.

Inquiry sensemaking in the case of Black Saturday (2009) constructed these fires as the country's worst natural disaster resulting from a severe heatwave and an absence of leadership in the line of command and control authority (Table 9). Single-loop learning explained the severity of the fire in terms of individuals lacking bushfire safety plans, the build-up of fuel, and the lack of clarification regarding the line of command and control authority. Recommendations regarding fire warnings, planned burn-offs and a review of the co-ordination of fire management organisations served as learning cues in that they were referred to in subsequent texts discussing changes in organisational practices. These changes included new forms of warning, defined burn-off targets and legislation for a new position of Fire Services Commissioner. Again, I interpreted these changes as double loop learning insofar as they involved radical changes to existing policies and changes in the organisation of the overall fire management system.

Table 9: Summary of findings from Black Saturday 2009

Novelty & equivocality	*Sensemaking and single -loop learning*	*Learning cues*	*Double-loop learning and new organisational practices*
Australia's worst natural disaster.	The actions of many people living in high fire danger areas on the day of 7 February 2009 showed that they did not have a robust bushfire safety plan.	Recommendation for a review of the 'Stay or Go' policy and implementation of new technology to provide timely and relevant information to communities potentially at risk.	Warnings are now issued to correspond with potentially harmful fires on severe fire days.
Severe heatwave.	The fires were exacerbated by a build-up of fuel such as desiccated flora communities and vegetation growth.	Recommendation for fire management organisations to burn a rolling target of 5 per cent minimum of public land.	There is now a defined target of land, which must be burned each year with an appraisal of how this activity is contributing to mitigating bushfire risk.
There was an absence of the authority and leadership and command and control.	The severity of the fires showed that emergency management command and control structures needed role clarification.	Recommendation for a review of how fire management organisations activities are coordinated and controlled.	The 2010 Fire Services Commissioner Act established a new Fire Services Commissioner whose role is to coordinate and oversee the activities of fire management organisations.

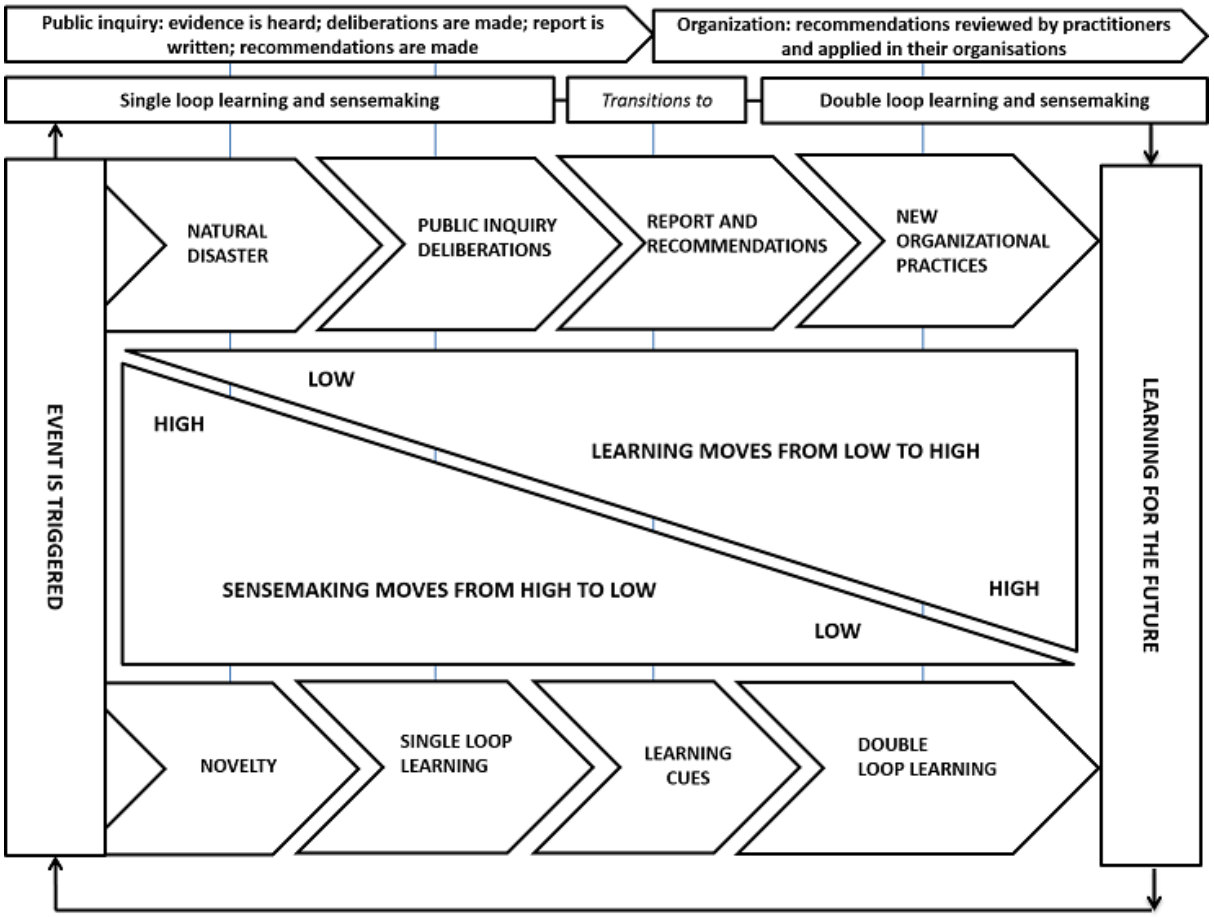
Sensemaking and learning were thus embodied in the deliberative processes of the three public inquiries. Single-loop learning resulted in explanations of what happened and why, in inquiry reports, while evidence of double-loop learning was found in the form of recommendations for more fundamental changes. Learning cues in the recommendations appeared to gain attention and engender action insofar as they were referred to in relation to subsequent changes in the practices of organisations responsible for bushfire management.

The pilot study thus suggested that sensemaking and learning occur during – and after – public inquiries as events move from a natural disaster, through the public inquiry deliberations and report, to the aftermath of the inquiry, which resulted in a preliminary model (Figure 1). It suggests that when a natural disaster, such as a bushfire is seen as a novel event, it represents equivocality for emergency management organisations. Furthermore, when significant damages and losses arise from such events, governments will usually commission a public inquiry which is effectively charged with resolving this equivocality. Such inquiries give rise to single-loop sensemaking and learning insofar as they produce an

account of what occurred. These accounts provide learning cues which signify the basis for meaningful action and play an important role in assisting members of emergency management organisation to engage in sensemaking and double-loop learning insofar as they make recommendations for organisational changes so as to ameliorate the effects of future disasters.

Figure 1: Sensemaking and learning from public inquiries

Taken from Dwyer & Hardy (2016: 60)



In sum the pilot study made a number of important contributions that helped to guide my main study. First, in all three public inquiries, novelty was attributed to particular circumstances in the natural environment that accounted for these 'unprecedented' natural disasters, although all three inquiries clearly indicated that similar conditions could be expected to occur again in the future. According to inquiry reports, these novel conditions had taken emergency management practitioners by surprise. The resulting equivocality meant

that individuals could not make sense of conditions at the time, leading to the need for a public inquiry to provide retrospective sensemaking in order to resolve the equivocality and manage future conditions more effectively. Second, sensemaking during the inquiry appears to have reduced the equivocality associated with novel bushfires by creating shared understandings and making it possible to construct plausible explanations of what happened and why. This sensemaking provided the basis for single-loop learning to occur during the inquiry, as well as potential double-loop learning in the form of subsequent organisational changes.

4.2 Conclusion

This chapter has presented the findings of the pilot study which suggests that sensemaking from public inquiries can give rise to learning in emergency management organizations after disastrous bushfires. The pilot study suggests then that, for inquiries to lead to changes in organisational practices, double-loop learning must extend *beyond* the inquiry. It would appear that this process is facilitated by learning cues – stimuli that gain attention and engender action, signifying to others a need for a specific change, and allowing actors to move from a state of disorder about past events to a new order about future events (cf. Colville, Hennestad, & Thoner, 2014) which, in turn, aids the introduction of changes in organisational practices following the inquiry. Accordingly, I now turn to the main study where I explored the ways in which individuals in two emergency management organisations made sense of public inquiry recommendations in relation the Black Saturday fires in order to learn more about post-inquiry sensemaking and learning.

Chapter 5: Sensemaking and learning in emergency management organisations

This chapter shows how three groups of individuals – senior managers, middle managers and functional experts – within Victorian emergency service organisations experienced equivocality when the findings and recommendations of the Black Saturday Royal Commission became known. It finds that these individuals used sensemaking and sensegiving to interpret the equivocality that surrounded the Royal Commission recommendations. By focusing on Recommendation 1, which was related to Victoria's bushfire safety policy, I show that individuals in all three groups used sensemaking cues drawn from the text of the recommendations, their interpretation of the evidence heard during Royal Commission deliberations, and their experiences of responding to the fires on the day of Black Saturday to interpret the equivocality. As sensemaking and sensegiving activities progressed, the level of equivocality they reported experiencing in relation to the recommendations decreased. Consequently, individuals began to rely on learning cues to create plausible meanings about how the recommendations could be implemented in the operational practices of their organisations. In this way, my findings suggest that as sensemaking diminished the level of equivocality which individuals experienced, learning started to occur. This learning resulted in organisational change, which I refer to as double-loop learning, as well as an even more reflective form of learning as some of the unintended consequences of Recommendation1 were taken into account.

The remainder of this chapter provides an overview of Recommendation 1. I then provide an in-depth examination of how each group of senior managers, middle managers and functional experts interpreted the equivocality associated with Recommendation 1, and how they engaged in sensemaking, sensegiving, and, subsequently, learning. Finally, I

discuss similarities and differences amongst the three groups.

5.1 Recommendation 1: Victoria's bushfire safety policy

Thursday 27th May 2010 marked the end of the Black Saturday bushfires Royal Commission, which had involved 155 hearing days with evidence heard from 434 expert witnesses, 100 lay witnesses and two expert panels which resulted in over 900 exhibits and around 20,000 pages of transcripts. Supplementing these hearings was a community consultation process, which yielded more than 1,700 submissions. Black Saturday was Australia's worst ever natural disaster. Deputy Prime Minister Julia Gillard referred to it as "one of Australia's darkest days" (Gillard, 2009: para. 1). On 7 February 2009, bushfires razed homes, businesses and livestock across 14 communities in the state of Victoria. Most poignantly, 173 lives were lost. Following the fires, the Premier of Victoria announced the establishment of a Royal Commission to investigate the causes of, the preparation for and the responses to the most damaging bushfires ever witnessed in Australia. The Royal Commissioners constructed three key questions, which guided them in their inquiry and shaped their recommendations to the Victorian government:

> Why did the bushfires of 7 February 2009 in Victoria take so many lives? Why were those bushfires so extreme, so feral, so catastrophic so devastating? What can be done to ensure that so many lives are not lost, that so much devastation is not caused, in such bushfires in the future? (Parliament of Victoria, *Opening Remarks, Chair of the Victorian Bushfires Royal Commission*, 2009: 1).

The report of the Royal Commission observed that the emergency services did "their best under extraordinary circumstances". However, it also noted that there were perceived "shortcomings" in the State's emergency management operations in relation to its preparation for and response to the fires witnessed on the day of Black Saturday. In particular, the commissioners had concerns about whether Victoria's bushfire safety policy was appropriate in lieu of the complexity and ferocity of the fires. The report noted that the loss of life on Black Saturday from five particular fires far exceeded that from any previous bushfire in

Australia. Consequently, "policies, systems and structures needed to ensure that government, the fire and emergency services agencies and individuals make informed, effective decisions about their response to bushfires in a way that protects life and minimises losses" (Parliament of Victoria, *Victorian Bushfire Royal Commission Summary Report*, 2010: 4). In particular, there was a need to review the bushfire safety policy:

> A bushfire safety policy must capable of dealing with the fact that every fire is different and must differentiate potential firestorms from other bushfires. The most fierce fires call for a different approach to community safety, for different advice, support and responses from fire agencies. On such days, if the initial attack fails to contain a fire, the operational focus and mindset of fire agencies should move to providing information and attending to community safety rather than fire suppression (Parliament of Victoria, *Victorian Bushfire Royal Commission Summary Report*, 2010: 5).

The report suggested that Victoria's bushfire safety policy had failed when challenged by the complexity surrounding the fire events of Black Saturday, especially in relation to the strategy known as 'Prepare, Stay and Defend or Leave Early' more commonly known throughout Victoria as 'Stay or Go'.

5.1.1 Victoria's bushfire safety policy

Prior to Black Saturday, 'Stay or Go' had been the cornerstone of Victoria's bushfire safety policy. It encouraged people to make an early decision about whether they were prepared to stay at home and defend their property during a bushfire *or* whether they would evacuate before the predicted fire arrived in their community. In relation to those who decide to stay, the policy advises that householders have appropriate strategies in place to give themselves every opportunity of survival in the event of a. Conversely, if people decide to leave their home, the policy recommends that they leave no later than 48 hours prior to the predicted arrival of fire in the area to reduce the possibility that people might come to harm because they have left it too late to leave.

The Royal Commission's report argued that the Black Saturday fires severely tested the stay or go policy and exposed weaknesses in its application. The policy did not provide

sufficient options for emergency management organisations to provide meaningful warning and information to people when they faced such complex and ferocious fires. Prior to the Black Saturday, it was assumed that people in the community had a bushfire preparation plan and were clear about what they would do in the face of fire, but the evidence collected during the Royal Commission suggested otherwise. Furthermore, the Royal Commission found that warnings and information from emergency management organisations to people in fire-affected communities were too narrow – the policy needed to be revised to accommodate a level of complexity greater than simply "stay or go". The policy needed to cover a range of fire typologies with particular recognition of the heightened risk associated with the most harmful ones on the most severe fire danger days.

The Royal Commission also found that emergency management organisations needed to provide more prescriptive warnings with better quality and availability of advice on fire behaviour. It recommended that people who were potentially in harm's way during a fire should be informed that staying to defend their property (and not leaving it 48 hours beforehand) posed a threat to their life. Further, information and warnings to individuals, households and communities needed to be delivered through a range of modes and different media. Recommendation 1(Parliament of Victoria, *Victorian Bushfire Royal Commission Summary Report*, 2010: 23) thus proposed a significant revision of the State of Victoria's bushfire policy (see Figure 2).

Figure 2: Recommendation 1

Recommendation 1: Victoria's bushfire safety policy
The State revise its bushfire safety policy. While adopting the national Prepare. Act. Survive. framework in Victoria (commonly referred to as Stay or Go), the policy should do the following:

- *enhance the role of warnings—including providing for timely and informative advice about the predicted passage of a fire and the actions to be taken by people in areas potentially in its path*
- *emphasise that all fires are different in ways that require an awareness of fire conditions, local circumstances and personal capacity*
- *recognise that the heightened risk on the worst days demands a different response*
- *retain those elements of the existing bushfire policy that have proved effective*
- *strengthen the range of options available in the face of fire, including community refuges, bushfire shelters and evacuation*
- *ensure that local solutions are tailored and known to communities through local bushfire planning*
- *improve advice on the nature of fire and house defendability, taking account of broader landscape risks.*

5.2 The organisational sensemaking and learning process

Drawing on my pilot study findings, this section shows how three groups of individuals at different hierarchical levels – senior managers, middle manager and functional experts – in Victorian emergency management organisations made sense of and learned from the equivocality that was introduced by Recommendation 1. I find that they used a series of sensemaking and learning cues to interpret the equivocality that they reported experienced after the content of Recommendation 1 became known. I also find that the process of interpreting equivocality is underpinned by the social processes of sensemaking and sensegiving which cascade from senior management to middle management to functional experts. These findings suggest that sensemaking and sensegiving are initially high amongst these individuals as they seek to understand multiple sources of equivocality that emerged from Recommendation 1. However, as they progress through episodes of sensemaking and sensegiving, relying on sensemaking cues that enabled them to interpret Recommendation 1, equivocality diminished which, in turn, led to increased learning.

5.2.1 Senior management

Senior managers appeared to be the first group to begin making sense of the equivocality. Evidence from interviews with senior management (e.g.: departmental

secretaries, executive directors, directors, chief officers and deputy chief officers) about Black Saturday revealed that senior management experienced equivocality after the findings of the Royal Commission became known – the main source of which was the different content areas embodied in the recommendations.

5.2.1.1 Equivocality

After Recommendation 1 was released, senior management were unsure how to interpret what its content would mean for their organisation. This triggered an initial episode of sensemaking and sensegiving amongst senior managers.

> After actually understanding what the problem was, the intention of the public safety recommendations were not quite clear [nor was it clear] how practical some of these things were (Director 1, ORG B).

Senior managers also indicated that equivocality was heightened because the Royal Commissioners who developed Recommendation 1 failed to acknowledge the risks inherent in Australia's landscape and its geographic location, which mean that bushfires constantly pervade Victorian communities. They noted that Recommendation 1 was a direct response to the damages and losses that occurred on the day of Black Saturday but without due regard for the complexity of Victoria's bushfire risk profile. As a result, there was a perception amongst senior managers that the Royal Commission missed an opportunity to develop recommendations to encourage communities to be more cognisant of the fire danger within Victoria's natural environment.

> The reality is we can't change the environment. Eucalypt forests have evolved and we've been messing around [with] it for 200 years and made a bit of a hash of it. So I do think that the Royal Commission was a missed opportunity to have a debate with … people … about what it is to live in this physical environment (State Coordinator 1, ORG A).

Accounts indicated a third source of equivocality in the Royal Commission's lack of understanding about how emergency management organisations had to respond on the day. Senior managers complained that the commissioners had developed Recommendation 1 with retrospective knowledge collected during the Royal Commission which created a perception

that the Black Saturday fires could have been managed better. However, senior managers had had to make decisions on Black Saturday without perfect information and against the backdrop of the most ferocious and unpredictable fires ever witnessed on the Australian landscape.

> [L]ook, if I had my time again I'd do [some things] differently, but if you are involved in emergency management, it's a very, very dynamic environment, and you have to make decisions quickly based on the information you've got. When you get to a Royal Commission stage they've got months and months to find out the information that was available that you didn't have [on Black Saturday] (Deputy Chief Officer 2, ORG A).

A fourth source of equivocality was the need to translate Royal Commission recommendations into organisational change i.e., senior managers experienced equivocality because they would need to embark on changing their organisation.

> [W]e couldn't fix all these problems in four years because it [was] culture problems … from my point of view it takes 5 – 10 years to change culture properly (Senior Operations Officer 1, ORG A).

> So the hardest thing … was that a lot of recommendations challenged the way we did business and challenged our traditions (Director 1, ORG B).

My findings suggested that there was a perception amongst senior managers that the Royal Commission's recommendations generally and Recommendation 1 specifically failed to adequately incorporate the experiences of those individuals who had responded to the fires on Black Saturday. Consequently, it appears that recommendations resulted in equivocality for the senior managers.

5.2.1.2 Sensemaking and sensegiving

As a result of the equivocality described in the previous section, senior managers engaged in sensemaking and sensegiving. In the first instance, they needed to adopt a new way of working together in order to deal with the equivocality.

> [W]e needed to find a way to work a lot more closely together in a more integrated way (Senior Operations Officer 1, ORG A).

As a result, a number of meetings were held to discuss the equivocality. An example of one

such meeting was a working group set up to interpret what the text of Recommendation 1 meant by a *timely and informative warning message* when transmitting emergency management information to communities at risk form a bushfire. Working group meetings were attended by senior managers such as assistant/deputy chief officers, middle managers such as regional fire managers and functional experts such as firefighters, public information officers, community engagement specialists and graphical information specialists.

> [W]e had our team of chiefs, our regional level committees … the way it worked was various agencies were given responsibilities for implementing different things. Some of them were really good at it some were not so good so that's been a factor (Deputy Chief Officer 1, ORG A).

In doing so, sensemaking and sensegiving started to occur.

> Sensemaking had to occur, so in a lot of the discussions that I was part of were maintaining the business, improving the business, taking on board change but also battling the legal front with the Royal Commission (Executive Director 1, ORG B).

Sensemaking and sensegiving was a product of collaborations amongst multiple senior managers, which allowed shared meaning to emerge from the richness of multiple interpretations of Recommendation 1. Over time senior managers were able to interpret the equivocality surrounding Recommendation 1 (and other recommendations) through dialogue.

> We saw from [the recommendations] was that figuring things out is actually about getting key people [senior managers] into the room and encouraging those different organisations and departments to make this part of your core business because it's going to have impacts (Director 2, ORG A).

5.2.1.3 Sensemaking cues

To reflect on how Recommendation 1 could be interpreted meaningfully within their organisation, senior managers drew on sensemaking cues. Sensemaking cues are sources of stimuli that emerge from equivocality within an organisation's environment. They took three different forms: the text from Recommendation 1, their own insights from having participated in the Royal Commission and their experiences of managing the fires on the day of Black Saturday. So although the equivocality presented difficulties for senior managers, it also

provided them with sensemaking cues in the form of key questions that they needed to consider as part of their sensemaking endeavours.

> [A]lthough it was a pretty harrowing experience, being in the Royal Commission, the thing I like about it [was at] least we had influence on the future arrangements, which worked pretty well. Questions they were asking, and actually helped shape what the actual outcome would be (Senior Operations Officer 1, ORG A).

By considering the sensemaking cues that emerged from equivocality, senior managers were able to take action, interpret equivocality and move from a position of uncertainty around how Recommendation 1 would affect their organisation to knowing which business processes would need to be changed to provide for improved systems around community information and warning. For example, the content of submissions from the Victorian community contained a diverse range of perspectives, views and opinions that were perceived as important cues by senior managers as they made sense of the equivocality that surrounded Recommendation 1.

> There would be findings come through in submission …so we'd already have to start to take that stuff into the business of the Department … (Executive Director 1, ORG B).

Hence, it appears that senior managers used sensemaking cues to signify how and why existing practices would need to be reshaped. Also, when senior managers considered the implications of sensemaking cues for their organisation, they were able to give sense to middle managers and functional experts about how new forms of work practice could be developed within their organisational hierarchy.

To explore these cues and make sense of them senior managers established dedicated project groups comprising different individuals from across and between different organisational hierarchies. It was hoped that these project groups would enable cultural change whereby senior managers would give sense to middle managers and functional experts, while also leveraging their collective expertise to appropriately interpret the

equivocality surrounding Recommendation 1. For example, there was a perception amongst fire operations departments across Victorian emergency management organisations that warning and informing the community about fire risk was secondary to extinguishing such risk. Senior managers hoped that project groups would build awareness amongst operational fire management staff about the value of keeping the community informed and warned about bushfires.

> [We established] a massive project working to [Recommendation 1] around warnings. At the operations level there really wasn't the respect for giving the community information. It was about putting water on the fires. So there was a whole load of work that needed to happen around change management initiatives that just wasn't part of the organisation (Director 2, ORG A).

At the outset of such project work, sensemaking activity was high with the emergent sensemaking cues from interpersonal, interfunctional and interorganisational tensions all contributing to the process of making sense. Over time such cues enabled senior managers to reach a shared understanding with middle managers and functional experts about different aspects of Recommendation 1.

> We had to get working together regardless of what uniform people are wearing or where they're from (Senior Operations Officer 1, ORG A).

Evidence suggests that as senior managers engaged in face-to-face meetings and dialogue with each other, sense began to emerge. As sense was made of the equivocality that related to Recommendation 1, plausible meaning emerged which senior managers were able to use to interpret Recommendation 1 in a meaningful way. For example, after senior managers had facilitated dialogue amongst middle managers and functional experts they began to reflect on the Royal Commission findings and see value in changing the culture within their organisations that may have prevented them from managing the fires in a more strategic manner on the day of Black Saturday.

> I reckon the Commission was correct in that we were very operationally focused on putting the fire out at all costs and that bit that the Commission picked up on about not adequately keeping the community informed, pre and

during and post the event (Regional Director 1, ORG B).

5.2.1.4 Learning

Once senior managers had interpreted equivocality in a meaningful way amongst themselves and with middle managers as well as functional experts, they began to reflect on how they could make meaningful change in their organisations. To do so, they drew on learning cues as senior managers noticed, framed and bracketed the different processes in their organisation which they believed would need to be changed based on their interpretation of the equivocality that surrounded Recommendation 1. For example, they began to notice that individuals within their organisations had been working within functional silos. By noticing such silos, senior managers were able to identify learning cues from their tacit organisational knowledge, which indicated how processes needed to be changed to align with their interpretation of Recommendation 1.

> [T]he business of the joint agency space – joint standard operating procedures started to be reconsidered and changed (Senior Operations Officer 1, ORG B).

In this way, senior managers were able to use learning cues to frame different processes so that they could consider how they needed to be changed organisationally. By using Recommendation 1 to reflect on the operating processes within their organisations, senior managers were able to construct a shared meaning about how Victoria's bushfire safety policy could be managed more effectively in the future.

> We've learned a lot. There's no question about that. The next sort of philosophical shift if you like is to move from bushfire to all emergencies. For example the way information warnings are given out during a fire should be the same as how they're given out during a storm [but it's] a huge leap but in an institutional sense to shift thinking [and develop joint procedures and standard operating procedures] (Executive Director 2, ORG A).

Such was the level of transformation that occurred as a result of sensemaking and learning, the role of community information and warning became integrated in all aspects of fire management operations.

> A lot of very good things have come from the [community information and warning] recommendations. It's debatable whether this would have happened without the Royal Commission. We now have a really good warning system. We are both online and on phones (State Operations Officer 1, ORG B).

In summary, accounts from senior managers suggested that that equivocality triggered sensemaking and sensegiving, using sensemaking cues to interpret what the equivocality meant for their organisation. Over time, as senior managers made sense of the equivocality, they were able to use learning cues from their tacit knowledge and the content of Recommendation 1 to notice, bracket and frame the processes in their organisation that would need to be changed. Consequently, a new and improved approach to issuing community information and warning during a bushfire emerged from the social processes of sensemaking and learning.

5.2.2 Middle management

Interviews with middle managers suggested that, like their senior management counterparts, they too experienced equivocality as a result of the Recommendation 1 (and other recommendations). Like their senior management counterparts, middle managers also made sense of recommendations through multiple face-to-face meetings. Sometimes middle managers would meet informally to make sense of senior management sensegiving and exchange views on their interpretation of different recommendations. Other meetings were formal. The combination of informal and formal meetings resulted in considerable movement of thoughts, ideas and opinions across and amongst individuals and triggered numerous episodes of sensemaking. This resulted in a shared understanding regarding how recommendations should be implemented in their organisations. Middle managers also engaged in sensegiving to functional experts about the recommendations, usually in general staff meetings in the format of presentations followed by questions and answers before co-opting them to work alongside management to implement recommendations. Again, following sensemaking and sensegiving, there is also evidence of learning.

5.2.2.1 Equivocality

The first source of equivocality emerged from the Royal Commission and its findings which created considerable disruption for middle managers who were required to implement changes from recommendations, whether they agreed with them or not.

> So the Royal Commission comes along, makes the recommendations it makes and government accepts all of those. So the minute that happened of course that forces us into a process of change (Regional Operations Manager 1, ORG B).

Interview accounts indicated that a second source of equivocality was inter-hierarchical tensions across different management groups who were unclear about whose responsibility it was to implement Recommendation 1.

> [W]e locked ourselves into this sort of 'who's to blame process' which doesn't necessarily deliver what the organisation wants so you chop someone's head off and someone's else's head pops out. What guarantee is there that you can actually change culture and the systems? (Senior Policy Officer 1, ORG A).

In this regard, middle managers experienced equivocality as a result of sensemaking and sensegiving at the senior management levels. For example, there were instances where one unit was given responsibility for implementing different parts of Recommendation 1. This created tension and dissatisfaction where other operational areas in the same organisation felt that they should be responsible for implementation.

> One area was given ownership of the implementation process though it seems that there was disharmony around which [functional] area should have responsibility. It was essentially the community safety area of the organisation that carried the implementation. I don't think the operations people were too happy but nobody made a strong enough fuss (Project Manager 1, ORG A).

Furthermore, it appears that equivocality was intensified by the functional orientation of individuals, many of whom were concerned only with recommendations that related to their own individual and/or group roles.

> If I stand up in front of our operations guys and point out that the Royal Commission made 67 recommendations they'd be able to tell you about recommendations relating to incident control centres and aircraft, and all that

> sort of thing but they're not going to be too interested in much else so it makes it difficult to implement change (Project Manager 2, ORG B).

While equivocality surrounding Recommendation 1 seemed to created disruption to routines for individuals in each group, evidence suggests that middle managers became more aware of how such routines were limiting their ability to function in the most effective manner during a bushfire. Hence, as time went by middle managers became more aware of how the Royal Commission and its findings could facilitate a more effective work organisation during a bushfire such as Black Saturday.

> There's been a really big shift. When we were doing focus groups I sat with a number of operational people [and] asked them what their priority was and most answered, "warn the community", and somewhere down the middle was "put the fire out". And I thought: "Wow! We're learning!" Through this whole process (Black Saturday and the implementing the Royal Commission recommendations) we've adjusted the way we fight fires [during a bushfire or emergency] that has been done a certain way for generations (Community Engagement Manager 1, ORG B).

While middle managers became aware of the need to develop an integrated approach to community information and warning, they still needed to construct a way of doing so that was meaningful and relevant for their organisation. One way that middle managers sought to do this was through sensemaking and sensegiving.

5.2.2.2 Sensemaking and sensegiving

The equivocality described in the previous section led to sensemaking and sensegiving amongst middle managers.

> There was a need for people to think outside the box and learn how to become project managers working to tight deadlines because at the time it all needed to be implemented for the beginning of 2010 fire season (Community Education Manager 1, ORG A).

The need to make sense of Recommendation 1 in a timely fashion was constrained by competing organisational work priorities. This meant that middle managers needed to put in place structures to ensure that sense was made of recommendations at the same time as core operations continued.

> What you had was everyone doing their normal jobs and then you had people doing the projects. It was really difficult to get clarity around what we needed to do (Project Manager 1, ORG A).

Consequently, a number of middle managers were asked by senior managers to dedicate their time to coordinating an organisational effort that involved sensemaking and sensegiving in relation to the equivocality that surrounded Recommendation 1. While it was initially thought that this role change would be short-lived, the evidence suggests that co-ordinating sensemaking and sensegiving efforts took considerable time.

> It [Recommendation 1] changed my role in a major way. I remember a senior manager coming to me and saying that they were anticipating a lot of change in the warning and information area. [S/he] wanted to know if I wanted to be involved for a couple of months – that was five years ago (Project Manager 3, ORG A).

Evidence from interviews suggests that the process of sensemaking and sensegiving amongst middle managers was characterised by differences of opinion regarding how Recommendation 1 should be interpreted. For example, it seems that tensions emerged amongst middle managers who worked in functional silos and in different organisations. Initially, differences of opinion arose when there was a perception that one organisation was favoured over another, such as when resources were allocated for conducting project work. However, as middle managers made sense of this, they began to interpret and manage the equivocality surrounding Recommendation 1.

> ORG A were given all of the money but ORG B weren't – even though they had been doing a lot in the information space and they had taken the lead in a lot of the development. We needed to take on board what they were saying. (Community Engagement Manager 1, ORG B).

Sensemaking and sensegiving required middle managers to work across a range of different functions to enable them to interpret the equivocality that surrounded Recommendation 1. However, sensegiving from middle managers to both senior managers and functional experts in different organisational silos was often met with resistance.

> If I stood up in front of our ops guys (senior managers, middle managers and functional experts that work in fire operations) and point out that the Royal Commission made like 67 recommendations they'd be able to tell you about recommendations relating to incident control centres and aircraft, and all that sort of stuff but they're not going to be too interested in much else so it makes it difficult to implement change (Assistant Chief Officer, ORG B).

In order to facilitate sensemaking and sensegiving middle managers often used informal meetings.

> When it comes to these types of things we've got very open, frank, trusted relationships, so if we are not happy with someone or something you can have the chat and they go 'yeah fair enough', and we go have a beer and you get it sorted so people don't go hiding in the corner or try and think of way to stab you in the back (Regional Manager 1, ORG A).

Middle managers identified sensemaking cues, which enabled them to interpret the equivocality that surrounded Recommendation 1. As middle managers made sense of this equivocality, it became clear to them that individuals would need to build new skills to enable them to deliver information and warnings to communities in a more integrated manner.

> Certainly a greater focus on training and exercising together and competencies of our people for the new roles has been important in creating a new way of working as well as the whole multi-agency standards [around] warnings and public information where there's been significant change (Community Engagement Manager 2, ORG A).

5.2.2.3 Sensemaking cues

Sensemaking cues were provided by middle managers' experiences of Black Saturday and appearing in front of the Royal Commission, in addition to its report. In many instances, middle managers occupied key incident management roles on Black Saturday where they witnessed at firsthand what had happened. Consequently, middle managers were called before the Royal Commission to be cross-examined about the many aspects of how the Black Saturday fires had been managed, including the function of public information and warning deliver to the community. It seems that this experience was a key source of sensemaking cues when trying to interpret the equivocality surrounding Recommendation 1.

> [W]e've sort of got to a point where they [lawyers representing the Royal Commissioners] were looking to us for answers and when it [the Royal Commission] was all finished we got to reflect on how Recommendation 1 [could be] implemented and whether there's more that can be done now to make sure that we're really meeting the needs of vulnerable people (Emergency Coordination Manager 1, ORG A).

The Royal Commission report also provided sensemaking cues for middle managers, in so far as it was clear that the commissioners expected the emergency management organisations to share the responsibility of warning the community about bushfires. To achieve an integrated approach to warning and informing the community about future bushfires, middle managers acknowledged that they would need to work across hierarchical boundaries.

> [T]he Royal Commission and its findings actually brought it home to all of the other agencies in the other states as well. We can't be seen to operate separately. We have to be better at our warnings (Project Manager 4, ORG A).

However, despite their experience and the Royal Commission's report, middle managers were still unclear about what Recommendation 1 (and other recommendations) meant for their organisation. For example, as middle managers followed sensemaking cues in the pursuit of meaning there was a concurrent shift in the focus of the project work associated with Recommendation 1.

> The name of the project changed so many times and it was being driven by the Royal Commission recommendations 1.1 and 15.3 all around warnings [and information] (Project Manager 3, ORG A).

Over time, sensemaking cues were interpreted by middle managers to help them make sense of Recommendation 1. Even though they were somewhat uncertain about how to interpret Recommendation 1, the sensemaking process surrounding its content gave rise to important signifiers which suggested that they needed to develop warnings and information about future fires in a manner that specifically sought to protect people's lives.

> [T]here [was] a range of things that [Recommendation 1] was obviously going to change and the facts around the public warnings and the messaging to the community being a paramount one … it wasn't absolutely stated about protection of human life being paramount in all our things we had prior to that,

> but it certainly was after [recommendation 1 became known] (Community Engagement Manager 1, ORG B).

As middle managers began to interpret sensemaking cues, they identified who within the hierarchical structures of the various emergency management organisations was best placed to take responsibility for implementing it.

> [W]hen it moved into operations it got the grunt that it needed. They put the emphasis on what was needed to go into [the content of] messages and brought this into the AIIMS [Australasian Interservice Information Management System] which meant that it was very much in the heart of operations (Project Manager 1, ORG A).

Overtime, as middle managers made sense of the equivocality that emerged from Recommendation 1, they began to rely less on sensemaking cues and more on learning cues.

5.2.2.4 Learning

Learning cues derived from middle managers' experiences of Black Saturday (and other bushfires) and the textual content of Recommendation 1. They were fragments of experiences, which they noticed, framed and bracketed when making sense of equivocality that they used to implement Recommendation 1 in their organisation. These cues helped middle managers to identify shared experiences and agree on the most appropriate way to implement changes in their organisation based on their interpretation of Recommendation 1. For example, based on their experience of Black Saturday (and other fire events) middle managers had learned that communities are diverse and people respond differently upon receiving information and warning about a bushfire in their area. Consequently, middle managers developed implementation plans that were relevant in relation to the content of Recommendation 1. While the implementation of such plans resulted in a new approach to informing and warning the community about bushfires, there was some concern amongst middle managers that it also resulted in a lost opportunity to have a broader philosophical debate about the practice of providing information and warnings during a bushfire.

> We know that people do not necessarily behave in one particular way during fires – so it's hard to reach a point of agreement quickly. In the end we decided to only focus on what was in the scope of the implementation plan so there was some lost opportunity for a broader debate (Policy Manager 2, ORG B).

Learning cues also provided the basis for individuals to implement changes relating to the practice of issuing community information and warning during a bushfire. The evidence suggests that the experience of the Black Saturday fires along with the findings and recommendations from the Royal Commission highlighted the importance to some middle managers of implementing Recommendation 1. Consequently, in the following fire season (2010/11), learning cues enabled middle managers to initiate the development of information and warning messages that were more dynamic, relevant and specific to communities most at risk on days of high fire danger.

> The focus was on timely advice, which meant it [the warning] needed to be 2 hours beforehand. A lot of it was about using simple language and telling people exactly what was happening. Previously it had been all about [standard messages in a template] but we learned that you can't template things in such a dynamic environment. There was a need for messages to be tailored. Given the nature of the deaths we needed to really look the messages and warnings, particularly for those who don't speak English. What we ended up doing was translating a range of messages into different messages (Regional Operations Manager 2, ORG A).

In addition, learning cues appeared to play a key role in transforming the professional roles of people in the emergency management hierarchy in relation to issuing information and warnings to the community during a bushfire event. For example, the experiences of middle managers in their operational roles on the day of Black Saturday and their observations of the findings from the Royal Commission enabled them to realise that there was a need for close collaboration between emergency management individuals during fire events like those witnessed on Black Saturday.

> There was a time I would've said that an Incident Controller's right hand man is his operations officer, now I'd say it's his information person. In days gone by we would have put the fire out and then told the community but now we

keep them informed (Regional Manager 3, ORG B).

In summary, the evidence from middle manager interviews shows that the equivocality introduced by Recommendation 1 triggered a process of sensemaking and sensegiving. Such sensemaking resulted in middle managers using sensemaking cues, such as fragments of text from the findings and recommendations from the Royal Commission, to interpret what the recommendation meant for their organisation. Learning cues, in the form of observations from their experiences of Black Saturday and the Royal Commission, enabled them to implement new (and seemingly) improved practices based on organisational experiences from Black Saturday.

> Public information wise, since Black Saturday, [communications are] miles ahead. I think Victoria probably leads the world in that space (Emergency Coordination Manager 1, ORG A).

5.2.3 Functional experts

Functional experts indicated that they experienced equivocality after the recommendations became known from the Royal Commission's report of findings. There was a general perception amongst functional experts that their role would change over time as new ways of delivering community information and warning were implemented in the emergency management organisations. Thus equivocality was manifested in different views and opinions about what the Royal Commission's recommendations meant for their roles, as well as the different interpretations they had in relation to senior management and middle management sensegiving. To interpret and overcome such equivocality, functional experts worked within pre-existing work groups or were co-opted into newly created committees by middle managers. Exchanging ideas, views and opinions in these committees resulted in sense being made by functional experts of the equivocality, enabling them to work in partnership with middle and senior managers about the most plausible format for implementing Recommendation 1.

5.2.3.1 Equivocality

Equivocality manifested itself in the accounts of functional experts in three ways. First, like their management counterparts, the Royal Commission and its subsequent findings created considerable disruption to their normal routines. For example, there was a perception amongst functional experts that the Royal Commissioners only sought to appease the community in the aftermath of significant damages and losses, without understanding why systems around community information and warning failed. There was also a feeling that the Royal Commission caused unnecessary disruption to organisational routines and created confusion in terms of how the recommendations could be implemented in their organisations.

> Commissioner(s) become the actors in what society kind of wants … so we can put that away neatly and carry on with our lives but it's a lot more complicated when it comes to making change (Incident Controller 1, ORG A).

Second, evidence suggests that functional experts experienced equivocality as result of decisions made by their senior managers and middle managers about how they interpreted recommendations (including Recommendation 1) and subsequently, how they gave sense to functional experts about how they should be implemented. For example, some functional experts were concerned that senior managers and middle managers were overly focused on understanding how recommendations would impact on changes to fire operations and less on the strategic aspects of Victoria's bushfire safety policy.

> [I]f you think of the Chief Officers … these people aren't out there articulating a vision. It's pretty grim. The stuff they crapped on about, and that's not to say that there's not this operational side that requires a huge amount of energy, but the inability to couch the operations into some sort of deal about a safer State is just sad (Fire Planning Officer 1, ORG B).

A third source of equivocality for functional experts was the sudden availability of significant financial resources released by the government to emergency management organisations to implement the Recommendation 1 (and other recommendations). Ironically, these organisations did not have the requisite governance structures or project management systems in place to spend the additional funding. Furthermore, there was a perception that

some of the changes made to Victoria's bushfire safety policy were motivated by a short term outlook.

> [A]n enormous amount of money was thrown at bushfire following the release of the recommendations – more than the agencies had the capacity to spend really. They dragged a whole lot of people into them that knew nothing about bushfire or warnings. They were all funded for a certain number of years with everything running to a timeline and a date and ticking an implementation box without necessarily talking to the safety policy program that was running next to them or the future (Logistics Officer 1, ORG B).

Some functional experts felt that Recommendation 1 put them in an impossible situation of being responsible for prescribing information and warning to a community when they knew from the Black Saturday experiences that this was not always possible.

> [T]here were a number of operations people and operations leaders within ORG A who said that this approach [prescribed by recommendation 1] made them uncomfortable (Public Information Officer 1, ORG A).

Consequently, Recommendation 1 created considerable equivocality for functional experts, which they needed to interpret in order to overcome the uncertainty they had about Recommendation 1 and how it could be integrated into their roles.

> [F]or incident controllers, the previous focus had been on suppression tactics. There was a fear of the unknown. They didn't know what they should be communicating and what is their liability was for getting messages wrong (Community Information Officer 1, ORG B).

A fourth source of equivocality emerged from the different outlook that groups had in relation to whether emergency management organisations should be responsible for providing prescriptive warnings to the community. For example, Fire Operations Officer saw their role as extinguishing the fire, whereas public information officers felt that Recommendation 1 offered them an opportunity to make a more meaningful contribution to emergency management.

> At the operations level there really wasn't the respect for giving the community information. It was all about putting water on the fires so there was a whole load of work that needed to happen around change management initiatives. It just wasn't part of the organisation. And the only way this

> changed was as a result of the recommendations around warning and information. The Royal Commission was the only thing that was big enough to tell us all what we needed to do (Project Officer 1, ORG A).

> It was very challenging … because you're forcing two groups together [one which was responsible for putting the fire out and one which was responsible for issuing information to the community]. [Each group] had very fixed views about who was supposed to be doing what ... for a long time it was trying to fit a square into a circle (Fire Planning Officer 2, ORG B).

To interpret the multiple sources of equivocality, functional experts engaged in their own process of sensemaking and sensgiving.

5.2.3.2 Sensemaking and sensegiving

In the first instance, sensemaking and sensegiving was triggered through dialogue amongst functional experts who occupied different roles within the organisational hierarchy.

> [W]e needed to get dialogue happening around the [community information and warning] issues. What we do is not engineering or building which has scientific principles – it's more nuanced and perception-based. People were being told they have to deliver and there was a lot of different arguments about how things should be (Community Engagement Officer 1, ORG A).

Sensegiving dialogue emerged within the interdisciplinary steering groups and committees comprising senior managers, middle managers and functional experts, which were established.

> [W]e had a steering committee, which established a community fire emergency information unit that was headed up by SENIOR MANAGER 1. We then had to look at all these changes that [recommendation 1 said we needed to implement] after Black Saturday (Incident Controller 2, ORG A).

Sensemaking and sensegiving activities appeared to start in these steering committee meetings, but then transitioned as individual agents worked across organisational hierarchies to facilitate sensemaking and sensegiving activities amongst individuals.

> [W]e established our key champions. [T]hey were our most experienced personnel across the State within ORG A and ORG B, so any of the changes or improvements that we were looking at making was done in consultation with all of the regional people, and that group still exists today (Incident Controller 3, ORG B).

5.2.3.3 Sensemaking cues

One source of sensemaking cues for functional experts was the content of Recommendation 1, which allowed functional experts to reflect on the implications for their individual work practices. As functional experts began to make sense of Recommendation 1, they began to reflect upon how they would need to expand the duties within their emergency management role.

> [T]here has been a lot of change in terms of new levels in the system of emergency management. We [are] a lot more adaptive when it comes to working together and that's actually helping our decision-making when it comes to warnings and how we manage fires more generally (Incident Controller 3, ORG A).

Furthermore, sensemaking cues emerged from their observations of the operational culture within emergency management organisations, which matched with those of the Royal Commission findings. As time passed, some functional experts recognised and acknowledged that the Royal Commission's recommendations provided ideas about how to improve the practice of keeping communities informed about potentially harmful fires.

> Understanding and implementing the recommendations around warning and information has required a new way of thinking. There was a need for people to think outside the box and learn how to become project managers working to tight deadlines [which has helped us to keep the community informed] (Regional Fire Operations Officer 1, ORG B).

5.2.3.4 Learning

As plausible meanings emerged from equivocality, functional experts began to rely on learning cues as a mechanism for translating recommendations into organisational practices. For example, once functional experts had interpreted the equivocality surrounding Recommendation 1, they were able to agree that the process of information and warning to the community during a bushfire needed to be more efficient and more effective.

> [What we] probably learned about information and warnings to communities, as a result of Black Saturday, was really the importance of timely, relevant and tailored information. And the communities must receive warnings and

> information by multiple channels, not rely just on one source (Public Information Officer 3, ORG A).

Learning cues provided the basis for functional experts to implement meaningful organisational changes such as using technology to assist them to plan better for bushfires and, as a result, provide information and warnings in a more meaningful way to communities at risk. One example of such technology was e-mapping which enabled functional experts to use technology to consider and electronically map the risks associated with predicted fire.

> E-mapping is really assisting us to consider the likely impact of [an event], assess what the likely threats and risks are so we're much better at the predictive side of things. We're getting on the front foot and that's really helpful (Incident Controller 4, ORG B).

Learning cues helped functional experts to frame specific components of the process associated with community information and warning, enabling them to increase their capacity and capability to develop accurate information and warnings during a bushfire.

> I would suggest the development of 'one source one message' was the main change from the Black Saturday Royal Commission recommendations. [With] the use of that base tool, public information section personnel [we] were able to issue warnings and information to emergency broadcasters (Fire Planning Officer 2, ORG B).

Furthermore, learning cues enabled functional experts to identify and reflect upon organisational practices prior to Black Saturday and consider how they could be improved. Prior to Black Saturday, the emergency services were authorised to relay information and warnings about a bushfire through one radio station only. However, after functional experts interpreted the equivocality surrounding their experiences from the day of Black Saturday, they were able to recommend to senior managers and middle managers that, in future, other radio stations be permitted to broadcast information and warnings about a bushfire.

> [P]re-Black Saturday, ABC Radio was pretty much the designated emergency broadcaster, after Black Saturday commercial radio, community radio and some other localised radio stations, that were extended to be part of the [emergency broadcasting] Memorandum of Understanding [to issue warnings during a bushfire event] (Regional Operations Officer 2, ORG B).

Functional experts also clarified where individuals needed to work together to restructure key processes and systems so that they were better integrated and likely to be more effective in the future.

> I guess, the other thing that's been shaped [by Recommendation 1] is the increased capacity and capability of the Victorian Bushfire Information Line, the development of the warnings and advice through one source one message templates, the different levels of warnings for different fire threats. We now have different messages from emergency watch and act to [special] advice messages and an all-clear message as well as a recommendation to evacuate. [This has led to] the introduction of emergency alert, which is a national alerting system (Public Information Officer 3, ORG A).

Finally, by re-examining their experience of Black Saturday and reflecting on the Royal Commission's findings, functional experts (in collaboration with senior managers and middle managers) were able to implement a more prospective community information and warning system. Instead of issuing information and warning about bushfires retrospectively from the fire ground, they came to see the value of mobile telecommunications in assisting them to deliver meaningful and relevant information about the predicted path of bushfires on severe fire danger days.

> Since Black Saturday and the Royal Commission we've developed some fantastic means of communicating that are forward looking. We've got telephone applications and telephone warning systems where your mobile phones get rung during a period of high bushfire danger (Regional Operations Officer 1, ORG A).

In summary, functional experts indicated they experienced significant equivocality as a result of Recommendation 1. Over time, sensemaking cues played an important role in harmonising diverse views about what it meant. Once functional experts had reached agreement about the most appropriate interpretation of Recommendation 1 they began to reflect more on how they could learn from their experiences, enabling them to make significant changes in practices of warning and informing the community about potentially harmful bushfire.

5.3 Double-loop and reflective learning

The discussion above indicates that senior managers, middle manager and functional experts, in facing equivocality as a result of Recommendation 1, engaged in a process that transitioned from sensemaking and sensegiving into learning. This learning took the form of organisational change – which I refer to as double-loop learning – enabling the implementation of Recommendation 1. For example, functional divisions between different operational arrangements became blurred as individuals within and across organisational hierarchies adopted new ways of working together.

> [T]here have been some absolutely good things that came out of tragedy in the way that we work much more closely together now, and it's a much more co - ordinated approach (Emergency Coordination Manager 1, ORG A).

Another example of such organisational change was a more prominent role for the public information officer in organisational arrangements following the implementation of Recommendation 1.

> I think it's now clearer that information officers are front line (emergency management officers) because they're in a role where they are sending information that has an impact on entire communities (Regional Manager 3, ORG B).

Similarly, functional experts noted the adoption of more sophisticated statewide systems and processes of communication.

> Public information-wise, since Black Saturday, [we are] miles ahead. I think Victoria probably leads the world in that space (Firefigher 1, ORG B).

Senior managers observed that double-loop learning created an environment whereby organisations were able to respond to a range of emergency management incidents (not just bushfires) more effectively than before Black Saturday. For example, a more holistic way of warning communities was adopted by enacting the new operational arrangements constructed from sensemaking and learning cues surrounding Recommendation 1. Such arrangements fostered new ways of working together which meant that they could manage a greater range

of emergency events (e.g., flooding, toxic chemical spills, transport infrastructure incidents) in a more sensible manner.

> We've learned a lot. Everything has changed since Black Saturday in terms of how we manage [an emergency] event. We now have the same operating rules and standard operating procedures for warning across [Victorian emergency management organisations]. It doesn't matter what the event is, information and warnings are given out in exactly the same way - exactly the same things happen (Director 2, ORG A).

Middle managers noted that they were now able to deliver information to communities in a more timely, integrated and holistic manner than before Black Saturday. For example, the sensemaking and learning cues from Recommendation 1 enabled Victorian emergency management organisations to adopt available smartphone technology to share warning advice about bushfires with communities that could potentially be at risk. Double-loop learning from Recommendation 1 enabled organisations to use available technology to send warning information about risk to communities in a more sensible, modern and targeted way.

> Since Black Saturday we have developed some fantastic means of communicating that are forward looking and let us reach people in new ways. For example we now use telephone applications as part of a telephone warning system where mobile phones inside a polygon get rung at the same time … so that people can make decisions about their safety (Regional Operations Manager 4, ORG B).

Finally, in the case of functional experts, double-loop learning from Recommendation 1 created a more structured working environment for processing information and warning during a bushfire event. For example, the redefinition of operational roles enacted as a result of sensemaking and learning cues from Recommendation 1 resulted in public information officers working alongside other incident control staff with an emphasis on equal partnership. The evolution of such a partnership facilitated a smoother transition of information between all relevant individuals with a responsibility for managing bushfire events. Consequently, functional experts were able to develop public information messages about emergency

situations in a more structured, meaningful and sensible way during an emergency.

> A lot of it now is about using simple language and telling people [in the community] exactly what was happening. Previously it had been all about [putting standard messages in a template] but we learned that you can't template things in such a dynamic environment and the role of public information is a very important part of any incident control centre (Public Information Officer 2, ORG B).

There was also evidence of a more reflective form of learning as the three groups identified some unintended outcomes as a result of implementing Recommendation 1. For example, senior managers (and individuals more broadly) were concerned that implementing Recommendation 1 created a misguided perception within communities that the new approaches to warning and informing the community absolved people living in fire-prone areas from being responsible for managing their own safety.

> [W]hile there's been clear improvements around how to warn community and whatever, and how we work together, I think the end result is – has been quite destructive. I'm not sure where we are now, but it's fundamentally about individuals' responsibility for themselves, and I think the Royal Commission … absolved a lot of people of their personal responsibility. [I]t kind of just destroyed the notion that if you are going to stay in the bush, or you're going to live deep in the bush, then you have to have a plan (Director 2, ORG A).

They argued that the Royal Commission had lost a valuable opportunity to develop an integrated approach to bushfire safety which would enable emergency management organisations to work in partnership with people living in fire-prone communities to ensure that they are as prepared as they can be during a significant fire event.

Middle managers expressed concerned that the structures and processes implemented as a result of Recommendation 1 had heightened the expectations of people in the community that emergency service organisations could now accurately advise them on what to do on the day of an event such as Black Saturday. This was not the intended effect of implementing Recommendation 1.

> [Y]ou do wonder will…the change actually make a difference if we get another day like Black Saturday. I suppose the Royal Commission has left a

> legacy now where people are expecting more in terms of warning and that's bound to be difficult … (Communications Manager 1, ORG A).

As such reflective learning occurred, the implementation of the Recommendation 1 re-introduced equivocality. While new levels of sophistication were introduced into processes and systems operate in the emergency management organisations, functional experts indicated they were worried about an additional administrative burden.

> There's just layer upon layer upon layer upon layer upon layer of new process around the warning stuff. What you have now is a situation where we're putting out warnings before we even know the kind of fire we're dealing with! (Firefighter 1, ORG A).

The experience of Black Saturday (as well as Ash Wednesday and Black Friday) served as a reminder to individuals in this study that double-loop learning, while it allows for fundamental organisational changes, is likely to be challenged by future bushfire. In other words, individuals could apply what they learned from Recommendation 1 by making changes to their organisation, but they acknowledged that the high level of equivocality triggered by events such as Black Saturday is likely to continue, limiting the application of any conventional wisdom.

> We've learned and there are better systems in place now for warning the public [but] I reckon if we had another Black Saturday we'd still be in a lot of trouble. We'd probably have a better outcome, but it still wouldn't be good. I still think you'd have a lot of houses lost and I suspect you'd still end up having people being killed (Regional Operations Manager 1, ORG B).

Overall, my findings suggest that double-loop learning has occurred in emergency management organisations as a result of the sensemaking and sensegiving which occurred amongst senior managers, middle manager and functional experts. Furthermore it seems that sensemaking and learning cues observed by individuals from events which occurred on and around Black Saturday, the evidence which was submitted and heard at the Royal Commission (and indeed previous public inquiries) and the report of the findings and recommendations from the Royal Commission all played a role in transitioning and shaping

change within Victorian emergency management organisations.

5.4 Discussion and conclusions

Overall this study finds that equivocality was experienced by senior managers, middle managers and functional experts from three sources: the Royal Commission's recommendations; their experiences as they gave and heard evidence at the Royal Commission, or observed others doing so; and their experiences of having been part of events on Black Saturday. This equivocality led to sensemaking and sensegiving by these groups, who drew on different sensemaking cues to interpret equivocality. As equivocality was reduced, sensemaking was replaced by learning, with actors drawing on various learning cues in a meaningful way to identify how organisational processes needed to be transformed to enhance to process of community information and warning. Both double-loop learning occurred in the form of organisational changes that allowed the implementation of Recommendation 1, as well as a more reflective form of learning that identified the limitations of this Recommendation. In this section, I consider the differences and similarities amongst different groups in relation to these processes.

Table 10 shows that senior managers, middle managers and functional experts experienced equivocality in a broadly similar fashion, but with some differences. Senior managers were concerned that there was a lack of governance structures to make sense of Recommendation 1 and implement it in their organisation. For middle managers, there was concern that the functional orientation of emergency management organisations would not facilitate the integrated orientation that Recommendation 1 was prescribing. Functional experts were unsure about what Recommendation 1 would mean for their role. In the case of both senior managers and functional experts it seems that there was concern that the recommendations were too simplistic when considered against the nuances of emergency management. Finally, in the case of middle managers, there was a level of equivocality, which emerged as a result of senior management sensemaking activities. Similarly, functional

experts experienced equivocality as a result of both senior management and middle management sensemaking activities.

Table 10: Sources of equivocality

Senior Managers	Middle Managers	Functional Experts
Equivocality emerged from: Recommendation 1 which was perceived as normalising the inherent risk of bushfire that pervades the State of Victoria. Perceived oversimplification of the complex issues which surrounded the informing and warning the communities about the fires on the day of Black Saturday. Findings and recommendations were written by the commissioners, which showed that they did not understand Victoria's bushfire risk profile. A lack of governance structures to facilitate sensemaking and implement changes from recommendations.	***Equivocality emerged from***: Tensions created by different interpretations of Recommendation 1 by middle managers within and across hierarchical structures. Uncertainty amongst different middle manager around whose responsibility it was to implement recommendation 1. Functional orientation of business units within the hierarchy unwilling to take shared responsibility for engaging in sensemaking activities relating to Recommendation 1. Senior management sensemaking and sensegiving activities.	***Equivocality emerged from***: Uncertainty about how Recommendation 1 would change functional expert roles. Perceived oversimplification of the complex issues which surrounded the informing and warning the communities about the fires on the day of Black Saturday. Disruption to routines caused by the need to interpret Recommendation 1 which was written by Royal Commissioners who were perceived to not understand the issues surrounding community information and warning. The sensemaking and sensegiving activities of senior managers and middle managers. The scope and content of Recommendation 1.

Table 11 shows that there were shared characteristics across senior managers, middle managers and functional experts as to how they made and gave sense to each other about Recommendation 1. Inter-hierarchical meetings, which were usually facilitated by senior managers and middle managers, played a key role in moving ideas, opinions and expertise across different groups to interpret the equivocality that surrounded Recommendation 1. Given the scale of equivocality that Recommendation 1 introduced to emergency management organisations there was significant change to middle manager and functional expert roles whereby both sets of individuals in each organisation played a key role in managing and facilitating sensemaking and sensegiving processes.

Table 11: Characterisation of sensemaking and sensegiving

Senior managers	Middle managers	Functional experts
Sensemaking and sensegiving involved: Facilitating dynamic interactions within inter-hierarchical meetings between senior managers and different organisational actors. Passing their understanding and interpretation of recommendation 1 to middle managers provide sense to functional experts about what recommendation 1 means for business practice.	***Sensemaking and sensegiving involved:*** Facilitating new thinking paradigms within inter-hierarchical meetings between different organisational actors. Asking senior managers what the work priorities were in relation to balancing business continuity with meaning making activities around Recommendation 1. Seeking expressions of interest from other middle managers and functional experts to see if they would be willing to take responsibility for sensemaking and sensegiving activities surrounding different aspects of Recommendation 1. Facilitating dynamic interactions amongst partnerships of different senior managers, middle managers and functional experts.	***Sensemaking and sensegiving involved:*** Facilitating new thinking paradigms within inter-hierarchical meetings between different organisational actors. Facilitating dialogue exchange between middle senior managers and middle managers within steering committee groups to interpret how Recommendation 1 could be transitioned into organisational practices. Appointing champions to facilitate dialogue about the most appropriate interpretation of Recommendation 1 for their organisation.

Table 12 shows that for senior managers, middle managers and functional experts, sensemaking cues emerged from their interpretation of: the Royal Commission's report of recommendations, witness hearings/submissions during the Royal Commission and their own experiences from the fire events of Black Saturday. The textual fragments from Royal Commission artefacts and lived experiences of Black Saturday provided the basis for ongoing dialogue exchange between senior managers, middle managers and function experts as they sought to make sense of the equivocality that surrounded their organisations after the Royal Commission had concluded its business. Furthermore, in the case of middle managers they also received sensemaking cues from the sensemaking activities of senior managers above them in the hierarchy and functional experts beneath them. Similarly, functional experts received sensemaking cues from both senior managers and middle managers above them in the hierarchy.

Table 12: Description and source of sensemaking cues

Senior managers	Middle managers	Functional experts
Sensemaking cues emerged from:	***Sensemaking cues emerged from***:	***Sensemaking cues emerged from***:
The Royal Commission's report of findings and recommendations.	The Royal Commission's report of findings and recommendations.	The Royal Commission's report of findings and recommendations.
The individual and shared experiences of Royal Commission hearings.	The individual and shared experiences of Royal Commission hearings.	The individual and shared experiences of Royal Commission hearings.
Individual and shared experiences of Black Saturday which senior managers used to facilitate sensemaking and sensegiving.	Individual and shared experiences of Black Saturday.	Individual and shared experiences of Black Saturday.
	Senior manager's meaning making activities, which surrounded Recommendation 1.	Senior manager's meaning making activities, which surrounded Recommendation 1.
	Functional expert's feedback on senior management and middle management meaning making activities.	Middle manager's meaning making activities, which surrounded Recommendation 1.

Finally, Table 13 shows that learning cues were a key enabler for senior managers, middle managers and functional experts to implement Recommendation 1 based on their interpretation of the equivocality it evoked. Learning cues enabled individuals to identify different organisational processes relating to emergency warning and information that could be improved by implementing Recommendation 1. After individuals had interpreted the equivocality surrounding Recommendation 1 they were able reflect on their experience in a manner that enabled them use their tacit knowledge of organisational process to implement change in a meaningful way.

Table 13: Description and source of learning cues

Senior managers	Middle managers	Functional experts
Learning cues enabled senior managers to: Notice, bracket and frame different processes, which needed to be changed. Use their tacit knowledge to inform the best approach to implementing change based on their subjective judgment about how organisational processes should be changed.	***Learning cues enabled middle managers to***: Leverage tacit knowledge from their experiences on the day of Black Saturday in conjunction with their interpretation of equivocality to develop a plan for implementing the different components of Recommendation 1. Identify where processes need to be changed based on the interpretation that surrounded the different sources of equivocality. Identify new behaviours that would be required to work in a less functional and more integrated manner when the components of Recommendation 1 were implemented.	***Learning cues enabled functional experts to***: Frame different aspects of the process of information and warning and recommendation 1 which created a shared basis for implementing change. Identify how innovations (e.g.: technology) could be used to facilitate change which would enable emergency management organisations to issue warning and information about fire in a more efficient and meaningful manner in the future. Bracket different aspects of the information and warning process, which were perceived to have failed on Black Saturday and use the different components of recommendation 1 to implement process improvements. Reflect on the content of Recommendation 1 in a shared manner so as to reach collective agreement around how change would affect their individual roles.

In sum, I have shown how senior managers, middle managers and functional experts made sense and learnt from Recommendation 1 from the Royal Commission within Victorian emergency management organisations. Each group engaged in sensemaking and sensegiving to interpret the equivocality that emerged from the release of Recommendation 1. In the initial stages of sensemaking and sensegiving each group relied on sensemaking cues which were found to play an important role in triggering dialogue exchange within project boards and steering committee meetings towards making sense of Recommendation 1. Over time, as sense was made by each group, the equivocality surrounding Recommendation 1 decreased

and each group began to rely on learning cues to implement changes to organisational practice. The movement from sensemaking to learning played an important role in returning the Victorian emergency management organisations to a sensible environment after the protracted equivocality, which emerged the fire events on Black Saturday. However, given the ongoing nature of fire and its associated risk it is likely that a sensible environment will only ever be temporary for Victorian emergency service organisations.

Chapter 6: Emotion and sensemaking

Black Saturday had resulted in significant and tragic losses for many in the Victorian community. It was also a traumatic event for the individuals who participated in this study. The volatility, complexity and unpredictability of the conflagration constrained and, in some instances, nullified the ability of individuals to control the fires on Black Saturday. Moreover, after the worst of the fires had passed, many of the individuals working on the day itself were the first to become aware of and even encounter at first hand in communities the poignant loss of life. Also, a significant number of the participants in the study live in or close to the communities that were affected by the fire. Some lost their home, some lost friends, some lost colleagues, and some knew colleagues who lost family members to the fires. Even when the worst fires had passed, there was still an ongoing threat to communities as many fires continued to burn. Many of the individuals in this study continued to work relentlessly in incident control centres and on firegrounds across Victoria in the weeks and months after Black Saturday in an effort contain and manage the ongoing fire activity during that season.

Even after the worst of the fires had passed on Black Saturday, many Victorian communities remained under threat from fires for months afterward. Despite this, just two days after Black Saturday, on 9 February, Victoria's Premier announced that a Royal Commission would be established to inquire into the causes and consequences of the fires on Black Saturday. This gave rise to considerable concern for many of the interviewees for two reasons. First, they were in the midst of an extremely busy fire season and the Royal Commission would mean that many key people would be called away from fire-fighting duties to provide submissions and evidence. Second, individuals in the emergency management organisations knew from previous experience that such inquiries bring individual actions under heavy scrutiny which, in the past, had given rise to fingerpointing,

blame and, in some instances, vilification. Furthermore, many of the interviewees were aware that the Royal Commission would make recommendations to change emergency management practices which had been crafted and shaped over many years of experience. Participants in the study indicated they had been concerned about making changes to such practices based on one unique event which had occurred under very unusual circumstances. However, the authoritative nature of the Royal Commission meant that Victoria's emergency management organisations would be required to change even if, in some circumstances, they disagreed with its recommendations.

Black Saturday and its aftermath was, not surprisingly, fraught with emotion. In this chapter, I examine recollections of emotional experiences by senior managers, middle managers and functional experts during the sensemaking and learning processes associated with Recommendation 1. The qualitative and interpretive nature of my study does not enable me to access individuals' emotions directly. However, I am able to analyse interviewees' recollections of their emotional experiences during this time. I find that individuals in each of the three groups recounted experiencing a series of emotions, which they associated with the equivocality that arose from – and even before – Black Saturday, as well as the Royal Commission that followed it. I have categorised these emotions as mainly negative insofar as individuals' accounts of them portrayed their feelings in negative ways (see Chapter 3 for a discussion of how I coded for emotion). Individuals were thus already experiencing negative emotions *before* they had to grapple with the equivocality associated with the Commission's recommendations, and their effect on the organisation.

Interviewees recounted experiencing other emotions as the subsequent sensemaking and learning processes to deal with Recommendation 1 progressed. These emotions were portrayed by participants as more positive. It appears that there was a reciprocal relationship insofar as sensemaking and learning may have helped individuals feel more positive about the equivocality they faced in interpreting and implementing recommendations and,

particularly, Recommendation 1. In turn, these positive emotions facilitated sensemaking and learning. However, as I conclude, interviewees recounted experiencing negative emotions once more, as they reflected more deeply on the unintended outcomes of the changes made in light of Recommendation 1 and the unknown form of prospective bushfire events.

6.1 Emotions and the bushfires

In this section I examine the emotions that senior managers, middle managers and functional experts recollect experiencing in relation to the Black Saturday bushfires. Individuals indicated that they experienced a series of emotions as a result of the equivocality created by the severity of the fire weather predictions prior to Black Saturday, and that these emotions increased significantly as the fires took place during Black Saturday. I have categorised these emotions as predominantly negative.

6.1.1 Leading up to the bushfires

Senior managers, middle managers and functional experts indicated they experienced negative emotions even before the fires of Black Saturday fires ignited. Initially, it seems that individuals in each group reconstructed their emotional experience as anxiety, as in feelings of worry, nervousness, or unease about an uncertain outcome as they saw the weather predictions for 7th February. For 11 straight days prior to Black Saturday temperatures between 40 and 43 degrees centigrade, coupled with the cumulative effect of 13 years of drought resulted in an accumulation of desiccated flora, creating combustible fuel in parks, gardens and forests. Given the weather forecasts preceding 7th February 2009, all three groups within Victoria's emergency service organisations were fearful about the prospect of catastrophic bushfires. These weather predictions created considerable equivocality for individuals as they realised that the temperatures and wind speeds were likely to be more severe than those experienced on the days of Ash Wednesday 1983 and Black Friday 1939. Furthermore, in the months leading up to 7 February, severe drought meant that moisture deficits were at an all-time high while forests and grasslands were at their driest since Ash Wednesday.

> [I]f you look at the weather conditions and if you look at the fire danger indices, they far exceeded Black Friday and they far exceeded Ash Wednesday by a very considerable margin. So when we analysed that data in the week leading up to [Black Saturday] it exceeded everything we had known before. Everything about that day was going to be worse (Senior Fire Officer 1, ORG A).

As a result of the weather predictions and the resulting equivocality, senior managers indicated that they became anxious about the growing threat of significant and damaging fires. If a fire were to be ignited on the day of Black Saturday, senior managers said they knew that it would most likely to be impossible to control, which led to them recounting feelings related to a high degree of stress as in feelings related to mental or emotional strain or tension resulting from being unable to control events.

> I was a scared of the potential impact of an outbreak [of a fire because] … it would be very hard to control – impossible to control. The consequences would have been huge. The physical conditions were extreme. There were reports of extreme winds – winds howling and lumps of stuff flying through the air. I just realised that we had a lot of trouble that we could be potentially in (Senior Operations Officer 1, ORG A).

Middle managers also reported that the weather conditions in the lead-up Black Saturday were a source of unease. Like senior managers, they were very concerned about the extreme readings recorded by weather prediction instruments in the week prior to Black Saturday.

> The fire danger rating was classed as "extreme". And as part of that process, we did give advance warning so that by the Friday before the Saturday, there were big media releases (Weather Services Manager 1, ORG A).

Hence middle managers indicated they became anxious about the potential harm that fires could do if they were ignited on Black Saturday. Furthermore, they said they had been aware of a collective feeling of anxiety across emergency management organisations as warnings reached unprecedented levels.

> We had the kind of thing where they had the Chief Fire Commissioner, the Premier, and the two chiefs saying it was going to be a bad day, which usually only happens when things are serious … but what happened on the day was

beyond “extreme” (Weather Services Manager 1, ORG A).

Functional experts similarly reported that the weather conditions before Black Saturday gave rise to unease. While these individuals understood the fire threat, they recalled having felt concern that some people in leadership roles would be reluctant to disrupt their normal operations despite the weather predictions. For example, while the weather conditions were indicating that 7th February would be a severe fire weather day, there was reluctance amongst some leaders to escalate the threat beyond normal.

Consequently, there were instances when fire operations officers indicated they needed to *induce* stress into conversations with senior managers in order to convey the seriousness of the fire threat during the lead-up to Black Saturday.

> We were working with our emergency management partners, and I can recall a conversation with a [local government CEO] the day before Black Saturday asking us why council staff were being asked to prepare for road closures, and I said we’re planning for a catastrophic day tomorrow … that got them going (Regional Fire Operations Officer 1, ORG B).

Thus, the weather patterns prior Black Saturday gave rise to negative emotions – predominantly anxiety and stress – amongst functional experts, who experienced feelings of anxiety because they feared that there would be a high likelihood of fatalities in Victorian communities if fires were ignited under the conditions that were being predicted in the lead-up to Black Saturday.

> We felt that the weather patterns were telling us something terrible was going to happen on the Saturday and people would die, and that was basically what – what we all felt about the day (Fire Operations Officer 2, ORG A).

6.1.2 During the bushfires

On Black Saturday, the worst fears were realised as Victoria experienced a natural catastrophe when temperatures soared to a record high of 47 degrees centigrade, with north-westerly winds gusting at storm force, a tinder dry State, lightning strikes and arson attacks conspiring to ignite numerous fires. A fire storm characterised by rapid moving fire columns

on the ground and blazing forest fires above the tree line rendered the efforts of fire crews futile as they, like the citizens they were battling to protect, scrambled to extinguish embers travelling through the skies and causing further fires when they landed. People panicked, leaving their properties only to find fallen trees blocking their escape. Conditions were further exacerbated when the wind changed direction, which further increased the fire front. The ferocity and complexity of the fires on Black Saturday gave rise to grave concern amongst individuals in each of the groups. For example, one senior manager observed that the weather conditions of 7 February had been worse than predicted, leading to unique and complex fire behaviour after the conflagration had been ignited. This meant that the series of blazes were extremely difficult to manage.

> Well we had never had numbers [concerning wind speeds and temperatures] predicted like they were. [F]or a particular hour-and-a-half period in that afternoon, the conditions were worse than what even the forecast said. If you analyse the data, the fire was travelling an hour-and-a-half ahead of the weather front and that's when all the damage was done, and then we had the wind change, which nobody predicted. Everyone had been working on the predictions but the fires arrived an hour-and-half earlier (Senior Fire Officer 1, ORG A).

Senior managers indicated that this created feelings of stress as they struggled to manage the escalating fire danger on Black Saturday. Over the course of the day, their efforts to manage the fires were frustrated because of the difficulties in knowing where the fires were occurring. As the day progressed, senior managers became anxious because many of the fire outbreaks had occurred in highly populated areas, which meant that there was a high likelihood that many lives would have been lost over the course of the day.

> It was obviously a really harsh fire day, which drained us all, because you sort of knew where the fires were, but it was frustrating because it wasn't quite clear where exactly. I looked at the map where we knew fires had occurred and [and realised that] many thousands of people lived there and you just feared that there would be lots of people that are gone (Senior Fire Officer 2, ORG B).

Middle managers also recounted that they experienced feelings of unease on the day

of Black Saturday as weather conditions comprising higher temperatures and moisture deficits raised the level of fire danger across the State of Victoria. Consequently, when fires were ignited on the day of Black Saturday, they felt overwhelmed.

> I remember the weather was beautiful, but it didn't rain, it just got drier, drier and drier. Then we had the heatwave. We started to get fires late in the season and were starting to have trouble, but then the Black Saturday day came. It was horrific. We were still having trouble with fires from the previous week and the heatwave, so it was getting out of control (Operations Manager 2, ORG B).

As fires burned out of control on Black Saturday, middle managers also indicated that they experienced feelings of stress as they lost control of fires across the state of Victoria. Their ability to bring their training and previous experience to bear on the fires was impaired by the events which transpired on the day.

> The phone lines were over-run. We were still getting phone calls saying that we can still see the fires so we were receiving this information through to the incident control centre. When I went to the Incident Controller he just looked at me with a blank face. Everyone was just in shock. This was a disaster and there was nobody in a position where they knew what they were doing. He was trying to work out what to do but everyone's face was just in shock (Community Engagement Manager 1, ORG B).

Initially, on the day of Black Saturday, functional experts indicated that they felt able to manage the fire threat created by the extreme weather conditions as part of routine operations. However, as time passed, they realised that key communication systems had failed, with the result that a co-ordinated response to the fires became impossible.

> I was rostered in the Situation Unit on the day of Black Saturday itself. It was all a pretty normal, pretty routine day up until about 3pm. Then we noticed we weren't getting any callbacks or information from the regions or district. You know it's bad when you're not getting call backs from incident control staff because it's their job to gather and share information (Public Information Officer 1, ORG A).

Accordingly, these individuals talked about experiencing feelings of stress as events unfolded on Black Saturday and as a result of the decisions they had to make. For example, on the

fireground, fire brigade captains needed to evaluate who from their team was to be sent to fight fires. While such decision-making is part of a Brigade Captain's role, one such captain indicated that it caused him considerable stress, knowing the dangers the team would face – the fact that they might not survive and, if they did, how the experience of fighting the fire would affect them. It seems that a number of fire-fighters were already carrying residual stress from previous fires, which made brigade captains anxious about the impact their decision-making could have on their colleagues' health.

> One of the hardest things I had to do [on Black Saturday] was pick a crew to go on the truck. You know they're going to see things and have experiences that will leave an impression on them for the rest of their lives – you hope that they're not going to be severely affected. Your last thought as you send them off is: "Am I ever going to see these people again?" One of the people I sent off had been through Ash Wednesday. You wonder later if your decision is adding layers of trauma [onto] residual trauma they have from 30 years previously (Brigade Captain 1, ORG A).

In the afternoon of Black Saturday, the weather patterns across Victoria became more favourable, which enabled operational emergency management officers to access communities which had been affected by the fires. The worst fears of senior managers, middle managers and functional experts were confirmed as the extent of the damage and losses became known. Fifteen significant fires and more than 300 grass fires had devastated the State – as many as 2,000 homes and 10,000 kilometres of fencing were destroyed or damaged, 430,000 kilometres of land was burned, with the townships of Marysville, Flowerdale and Kinglake almost completely razed. The most heartfelt and sad consequence of this disaster was the loss of 173 lives from five major fires. However, each group needed to continue to fight fires that were threatening communities while coming to terms with the trauma caused by the damages and losses on Black Saturday. Hence individuals indicated that they continued to experience negative emotion.

6.1.3 The immediate aftermath

In the case of senior managers, individuals needed to manage an array of extra duties

which immediately arose as a result of the Black Saturday fires. For example, the disaster was followed by an unprecedented demands for facts, which meant senior managers had much more media duties than normal. Senior managers were required to escort government ministers to the various sites of recovery, while also fulfilling leadership roles in response to ongoing fires.

> I did so many interviews through that night for Australian TV, Al Jazeera, American TV, Canadian TV – the whole lot, right through the night. Then I came in to do the next night, Sunday night, and was stood down to come back on the Monday and go to Marysville with the Premier, and then I had to go to Beechworth with the Premier on Tuesday. When I came back on the Wednesday I was rostered on as State Controller and in other roles, so that went on for about four weeks, so you're talking early March, before that high level operational activity finished (Senior Operations Officer 2, ORG A).

In the interviews, senior managers spoke about the negative emotional impact as they learned of the losses which had occurred in Victorian communities. Given the broad array of portfolio responsibilities held by senior managers it was not uncommon for senior managers to have previously worked with people who lost their lives on Black Saturday and this gave rise to feelings of sadness when individuals experienced sorrow, despondency and grief as a result of the effect of the fires on others.

> This is [name of person] – wife and [name of person] – husband (*interviewee points to a photograph)*. I knew them. They died in Black Saturday, which was very sad. That was at Lower Steels Creek. PERSON 1 came in here in the early 2000 and worked with PERSON 3 and myself to write the Biodiversity Planning Practice Note and update the planning provisions. It's just really sad that somebody who cared so much for our environment was killed by it (Assistant Director 1, ORG B).

Middle managers also indicated that they had felt sad when undertaking recovery work within communities that had been affected. They said they felt that some communities held emergency management officers responsible for the damages and losses which had occurred despite their best efforts to work with them to prepare for the threat of bushfires. There was a great deal of anger in the fire-affected communities which gave rise to stress for

middle managers as they sought to assist communities to recover.

> People [in the community] were very angry afterwards. We had a public nagging a week later. They were angry about our activities in the lead up to Black Saturday, angry about why didn't we know, why weren't we told. But what I found was interesting was that we held a community meeting 3 weeks before Black Saturday. 27 people attended. And we had a meeting a week after Black Saturday where 350 people came (Community Engagement Manager 2, ORG A).

Middle managers experienced sadness in the hours and days after Black Saturday. There were accounts of individuals being moved to tears as they learned of new fatalities from the fires. Those who had had an operational fire role on Black Saturday said they felt sorry that they had been unable to prevent fatalities in their professional capacity as fire-fighters. Furthermore, Black Saturday was only one day in the context of a full fire season, which meant that middle managers were dealing with their sadness while trying to manage the ongoing fire threat communities.

> Each day there'd be new updates about the number of deaths. You'd basically get into your car at the end of each shift and just cry. There was a lot of fear everywhere that the fires could blow up again. I think everybody just turned off their televisions in the end. It was absolutely horrible and I think we all felt the guilt even though it wasn't [us who had caused the fires] (Project Manager, 3 ORG A).

> For many people, working in a fire role had been quite benign. For two years [prior to Black Saturday] there had been no major fires. People felt safe. But after Black Saturday, people were just absolutely shocked and shattered. There were a number of instances where people didn't want to work in their roles any more, which created difficulties because we were still in the middle of a very busy fire season and we needed people to do shifts (Logistics Officer 1, ORG B).

Functional experts also reported feelings of sadness after Black Saturday. In some cases individuals said they felt personally responsible for the fatalities which occurred in their community and this seemed to exacerbate their sadness and give rise to concern for their own health and well-being. For example, a recurring issue noted by an organisational psychologist from ORG A was brigade captains feeling that they should have done more to ameliorate the

effects of the most harmful fires. Such was the level of sadness experienced by brigade captains that it seemed to act as a pre-cursor to feelings of guilt whereby individuals indicated that they experienced feelings of having done something wrong about fatalities caused by the fires.

> At the community meetings I was often told that they (volunteer firefighters) were very worried about their local fire chief, who was carrying a lot of sadness, guilt and personal responsibility for people's deaths and so on. And I think really that was probably framed for many people in terms of the way they see their [role], the way they conceptualise their function, which is to suppress fires (Organisational Psychologist, ORG A).

Despite being trained to prepare for and respond to fires, senior managers, middle managers and functional experts indicated that each group experienced stress as they became increasingly concerned about the potential severity of the fire threat. When the Black Saturday fires transpired, individuals in each group experienced feelings of stress as the complexity and ferocity of the blazes meant that they were unable to use their professional skills and experience to prevent significant damages and losses across Victorian communities.

6.2 The Royal Commission

Just two days after Black Saturday, the Premier of Victoria announced that there would be a Royal Commission. Individuals recollected that the government's announcement also gave rise to negative emotions as they began to anticipate being cross-examined by the Royal Commission's lawyers. These emotions were then exacerbated during the Commission, particularly by the antagonistic way that the Royal Commission's lawyers conducted their cross-examination of individual senior managers, middle managers and functional experts

6.2.1 In anticipation of the Royal Commission

Interviewees from all three groups recounted feelings of anxiety because they were concerned that they could be called before the Commission to provide evidence and answer questions about decisions that they made on the day of Black Saturday.

In the case of senior managers, the anticipation of the Royal Commission also gave rise to anxiety as they began to anticipate a high likelihood that they would be called before it to be cross-examined. So, as they began to come to terms with the sadness that emerged from Black Saturday and resign themselves to the likelihood of future fire events, they confronted the need to focus on the Commission.

> I don't think there is anything more profoundly sad than to be confronted by the facts of what happened on the 7th of February in 2009. It's an inescapable reality. The second most confronting thing is to have to equip yourself for the Royal Commission process (Senior Executive 1, ORG B).

Middle managers indicated they also experienced anxiety as they began to anticipate that a Royal Commission into the causes and consequences of the fires was going to take place. They recognised that the impact of Black Saturday was likely to change the practice of emergency management in Victoria and that this would give rise to a considerable workload. Accordingly, individuals within emergency management organisations began to prepare for future fire events, which seemed to help them to move beyond anxiety towards acceptance of the likelihood of change in their organisation.

> Given the nature of what happened there was always going to be a Royal Commission. In the early stages I was collecting a lot of information in anticipation. The whole experience was just horrible. I remember sitting across from the lawyers who came into work with us who said that we shouldn't be surprised if this Royal Commission changed EVERYTHING about emergency management. I think at that point the sheer scale of what we were dealing with hit home that this could be very big. I was a bit freaked out. I remember we met with a former police commissioner who had been through a Royal Commission and he used the analogy to describe a Royal Commission as something that is like a bulldozer going through a high-rise building and it completely levels it. And I suppose that's what happened (Communications Manager 1, ORG A).

While accepting that a Royal Commission was inevitable, functional experts indicated they had been stressed by the prospect of responding to the additional workload that would be involved. Senior and middle managers would have to begin preparing their evidence statements to the lawyers representing the Royal Commissioners. The functional experts thus

had the dual stress of providing information to support manager's evidence statements and submissions to the Royal Commission, while still being required to manage ongoing bushfires coupled with post–traumatic stress from Black Saturday.

> Given what had happened, a Royal Commission was always going to be the political thing to do. When I think back to that period it all seems like just a blur. We had come through Black Saturday and you just knew the Royal Commission would demand changes. Some fairly tough people arrived into the organisation to make sure we got our submissions prepared for the Royal Commission. It was to go to the organisation and direct that things get done in a timely fashion. All the [senior managers] had project managers helping them get ready for the Royal Commission but it was different for us. We were still dealing with the stress of managing fires and responding to their [project managers' and Royal Commission administrative officers'] information requests. It wasn't uncommon during those times to go into the ladies [restroom] and find people in tears. On top of that people were dealing with the stress of the fire season and had post-traumatic things going on (Community Engagement Officer 1, ORG A).

The announcement of a Royal Commission to inquire into the causes of the most significant fires and make recommendations for the future practice of emergency management gave rise to further negative emotions for each group. To a certain extent, senior managers and middle managers were able to put in place mechanisms to help manage their input into the Royal Commission, which they anticipated would happen in the future. However, the nature of functional experts' roles meant that these individuals continued to experience stress in the aftermath of Black Saturday and before the Royal Commission.

6.2.2 During the Royal Commission

Circumstances during the Royal Commission continued to give rise to negative emotions for senior managers, middle managers and functional experts. Individuals from each group indicated they experienced guilt. In addition to the guilt that had emerged because of the losses and damages that occurred on Black Saturday, senior managers felt guilty as a result of their colleagues being treated unfairly because of the questions being asked by Royal Commission lawyers during cross examinations. For example, the extreme conditions on the day of Black Saturday meant that individuals in operational roles needed to make decisions

quickly and often with limited information, but the lawyers failed to recognise this. Given the ferocity and complexity of the fires on Black Saturday, individuals expected lawyers to be more sensitive to the extent to which operational fire fighters were hindered in their ability to provide communities with meaningful information that may have prevented damages and losses.

> It seemed to me that the Royal Commission questioning was unfair in the way that they tackled people. They'd go down a line of questioning about a particular event that was going on at the time but ignore the whole context of other stuff that was happening as well. They would ask the Incident Controller about what he did to warn the community at Marysville but they completely ignored everything that was going on around that person, which created a false impression about what was happening. I felt that [by] going down particular paths, the Royal Commission actually missed some of the main points (Community Safety Manager 1, ORG B).

Individuals also became angry and some indicated how they experienced feelings of indignation and displeasure as a result of the approach adopted by the Royal Commissioners and their lawyers when cross-examining people who found themselves in operational roles.

> [I]t made me so angry. They were crucified because they didn't get messages out on time and the information – they couldn't have done any better but they were absolutely slaughtered by this Royal Commission (Senior Fire Officer, ORG A)

Middle managers indicated they experienced negative emotions during the Royal Commission as a result of the adversarial approach adopted by the lawyers. It seemed to middle managers that the lawyers had little regard for the welfare of the people being questioned, which resulted in many individuals experiencing shock as well as feelings of alarm, trauma and injustice. For example, many of the people who managed and/or fought the fires on the day of Black Saturday were people who lived in fire-affected communities, and had been directly and indirectly affected by the damages and losses caused by the fires. Despite such experiences, many of these people had continued to fight the fires in an effort to protect their community and, yet, this seemed to be ignored by the Royal Commission

lawyers.

> The Royal Commission was a very adversarial process and I think a lot of us were quite shocked by that. We thought it was about trying to find out what had happened and how we could make it better. It could have been done in a way which didn't damage so many people, because a lot of these people had already been into incredibly traumatic events. Some of these people had lost their houses. They'd lost people they knew. They'd lost family members. But they still continued firefighting and then they had to give evidence. It wasn't very sensitive at all (Policy Manager 1, ORG B).

Individuals indicated they had experienced shock and anger as a result of a blame-oriented approach that had been adopted during the enquiry.

> I, like others, still feel very bruised over the Royal Commission process. We were treated with contempt and disdain and were never given the opportunity to have an open and frank discussion. We were interrogated like potential criminals. In my view the recommendations and findings by the Royal Commission were shaped under this poisonous process of blame and vilification (Regional Director 1, ORG B).

Middle managers also said they experienced feelings of sadness as they watched their colleagues being questioned and probed about the events that were largely out of their control on Black Saturday.

> I think, looking on, it was really sad to watch those people being pretty much hauled over the coals by the lawyers (Manager, Public Information, ORG B).

> I certainly had to go through a whole lot of statements but I didn't end up having to be grilled by [Jack] Rush (counsel assisting the Royal Commission) or others, but I saw some of my very close friends and peers have to go through that, and it's not the ideal having such an adversarial approach where people either push back or clam up and don't share (Regional Manager 1, ORG, A).

Functional experts also indicated that the actions of the Royal Commissioners gave rise to negative emotions. For example, as part of their work the Royal Commissioners visited some incident control centres that were operational on the day of Black Saturday. However, evidence suggests that the commissioners did not speak to the incident controllers in charge at the time of the fires. This created a perception amongst some individuals that the

Royal Commission was flawed in how it collected its evidence when informing the scope and content of its recommendations, which in turn led to anger.

> At times the focus was wrong. I remember they [the Royal Commissioners wanted to do a case study on the functionality of the Kangaroo Ground incident control centre so they could make recommendations about incident control, but to my knowledge they never spoke to any real key players in that space on the day, so the scope of their evidence would have been fairly limited and I don't think they would have got anything worthwhile to help them make their recommendations (Incident Controller 1, ORG A).

Functional experts indicated they experienced feelings of indignation and injustice as a result of other ways in which the Royal Commission was conducted. They argued that individuals were questioned about events that occurred on Black Saturday, which they did not expect to discuss. For example, a number of incident controllers reported that they were narrowly questioned about why and how information and warnings were released to the community on the day of Black Saturday. This gave rise to feelings of anger because they had not prepared themselves to give evidence on such subject matter. Furthermore, the provision of information to the community was only one part of a much more substantive and complex set of duties that comprise the incident control function.

> I was called before the Royal Commission to give evidence on my role as an Incident Controller and how the function operates but essentially I was questioned almost exclusively to the provision of warnings and advice information [to communities on Black Saturday]. So you know, the context in which I was questioned, and gave evidence was purely around that and not too many other facets or elements of what occurred on the day (Incident Controller 2, ORG A).

In sum, senior managers, middle managers and functional experts indicated they experienced negative emotions, such as sadness, guilt, shock and anger, during the Royal Commission because of the adversarial approach used by the Royal Commission's lawyer to cross-examine individuals, and the Commission's failure to acknowledge the complex sequence of events that unfolded on Black Saturday.

6.2.3 The aftermath of the Royal Commission

After 18 months, the Royal Commissioners concluded an extensive investigation into the causes of, the preparation for, the response to and the impact of the Black Saturday fires. During this period the commissioners held 26 consultation sessions in the communities, which were affected by the Black Saturday fires and received 1,700 written submissions. The Royal Commissioners conducted 155 days of evidence hearings in a courtroom environment, which included eight days of regional hearings. Furthermore, the commissioners heard evidence from 434 witnesses, including 100 lay members of the public affected by the fires. Upon conclusion of its business, the Royal Commission produced 53 internal research papers, received more than 17,000 documents, photos, maps and audio visual material as exhibits as well as two interim reports and the four-volume final report.

Senior managers, middle managers and functional experts became concerned as they reflected on the process used by the Royal Commissioners to collect their findings and develop their recommendations. According to interviewees' accounts, this gave rise to negative emotions. One reason for these emotions was the perception amongst some senior managers that the Royal Commission missed a valuable opportunity to capture key insights and learning about fire-fighting practices which protected many communities and critical State infrastructure from being damaged by fires. Even though the damages and losses from Black Saturday were extreme, there was a possibility that the situation could have been a lot worse but for the fire-fighting techniques used by fire-fighters before, during and after Black Saturday.

> The Royal Commission ended up being about prosecution and blame. Every time you have that blame it's a driver for the things like guilt so you won't have a proper discussion and actually get to the real things that matter. They never looked beyond the day itself that saw that some of the best firefighting you would see anywhere in the world. [There was] a massive amount of work done [by fire crews] to prevent more damage being done to communities – in particular around our water catchments. Can you imagine what the situation would have been like if four million people across Victoria were left without drinking water [for the next 20 or 30 years]? The damage could have been

> catastrophic. It was so close and it never came out [in cross-examinations] (Assistant Chief Officer 1, ORG B).

Many senior managers felt that the judicial and antagonistic approach adopted by the Royal Commission prevented meaningful discussions about the facts on Black Saturday, which meant that the opportunity to develop evidence-based findings and recommendations may have been lost.

Middle managers also indicated that they experienced negative emotions when the Royal Commission released its report because the final report of the Royal Commission unfairly blamed the senior managers for the way in which they coordinated the response effort of emergency management organisations on Black Saturday. This resulted in a sense of collective guilt amongst middle managers (and functional experts) across organisations. In particular, in ORG A, many people felt that the failures attributed to the Chief Officer in the Commission's report reflected negatively on their own professional competence, and decided that they no longer wanted to work in emergency management. Consequently, middle managers were left with a shortfall of experienced staff to manage emergencies because of the reluctance of managers, some of whom suffered from feelings of hesitancy, averseness and a lack of enthusiasm about continuing in roles where they might be blamed for damages and losses in the event of future fires.

> [The Royal Commissioners] didn't understand that the role of the Chief Officer at ORG A is a profoundly important one, one that volunteer fire brigades really look up to. They failed to realise that an attack on the chief was an attack on individuals. The consequence now, of course, is that we've got about 60% of the incident management capability today that we had on the 6th of February 2009, and a vast number of senior, very experienced volunteers who are now very reluctant to step into incident control roles (Emergency Coordination Manager 1, ORG A).

Middle managers also argued that a different style of cross-examination by the Royal Commission lawyers would have been less stressful for those called to give evidence and may have resulted in more meaningful recommendations.

> Disappointingly, and sadly for the inquiry more broadly, the outcomes didn't tell us anything we didn't really know. There were so many other approaches that the Royal Commission could have taken that would have given us better outcomes and recommendations but it was really sad that individuals were accused [during cross-examination] when really they did their best [on Black Saturday]. There were a better ways … we could have used a panel or a peer review committee which I've seen work quite well in Tasmania (Regional Manager 1, ORG A).

Functional experts also indicated concern about how the Royal Commissioners developed their recommendations. They argued that their lack of expertise meant that the Royal Commissioner had been unable to integrate many of the nuances that surrounded the decision-making on Black Saturday into recommendations for the future. Consequently, they indicated feelings of anger about the recommendations.

> I really didn't get an opportunity to put my role in any kind of context and all the rest. So from that perspective, it's one of the things that's left me angry – a bit of a sour taste in my mouth over the whole thing – and tainted my view, I suppose, of the Royal Commission and its outcomes (Incident Controller 2, ORG A).

My analysis so far has shown that the Royal Commission gave rise to negative emotion for senior managers, middle managers and functional experts as they anticipated its formation, lived through being cross-examined by its lawyers and reflected on the outcomes after it had concluded its business. Ironically, these events were attributed, in many cases, to the emotional nature of the Black Saturday fires. Interviewees suggested that the approach adopted by the Royal Commission was largely a response to the emotions of grief and anger within the fire-affected communities after Black Saturday. These emotions, in turn, gave rise to an emotional response from the Royal Commissioners who then instituted a judicial approach and blame-seeking approach in order to find senior managers, middle managers and functional experts, to a greater or lesser extent, guilty of having failed to deal effectively with the events of Black Saturday.

> The first thing they [the Royal Commissioners] asked was for a fricking courtroom to be built because it's familiar for the legal fraternity. I think

> there's a case for a Royal Commission when there has been an attempt to subvert the cause of justice. What the courtroom and their quasi-judicial approach did was make people [who had done their best] look like liars. We could have had a Royal Commission without a judge, jury and executioner. They just gave the community what they wanted. They wanted to think that warning and information would have made a difference on the day (Senior Fire Officer 1, ORG A).

Interviewees felt that the Royal Commission was an emotional response to the tragedy that surrounded Black Saturday. If the Royal Commissioners had not got caught up in the emotion, maybe the procedures that subjected many members of the emergency management organisations to a pattern of ongoing negative emotion could have been avoided.

> I don't doubt that the commissioners had the best of intentions. Although I personally suspect they were captured by the emotion of the event and the emotion of the tragedy, as we all were. We all carry bruises and scars and will do for the rest of our lives. After Black Saturday, what I believe the Victorian community needed was a person who could sympathetically but dispassionately say, well what's really going on here? (State Coordinator 1, ORG A).

There was a widespread view among managers that the Royal Commission would have been more useful if, instead of finding individuals "wanting" and maintaining that senior management "ought to have done more" to manage the fires more effectively, it had focused on the needs of the future and upon making recommendations which would provide better ways to respond to and prepare for extreme fire events.

6.2.3.1 Positive emotions start to emerge

Despite the backdrop of negative emotions it appears that, as individuals made sense of and learned from their experiences in relation to Black Saturday and the Royal Commission, they started to experience more positive emotions. I describe and explain the emergence of more positive emotions in this section

The Royal Commission helped senior managers, middle managers and functional experts to focus on particular issues that caused them problems when planning for and responding to major fire events. For example, it showed that fire management responsibilities

should be delegated to middle managers and functional experts on days of significant fire activity. Individuals were then able to use the recommendations from the Royal Commission's report to implement clearer accountability in relation to managing significant fire events.

> I think there's much clearer accountability now with the formation of the Fire Services Commissioner role and the new State Emergency Co-ordination Centre (Senior Operations Officer 1, ORG A).

As senior managers started to work with middle managers and functional experts to inform the Victorian government about how the new position of Fire Commissioner would operate in the event of a significant fire event, they indicated that they felt more confident in that they reported feelings of self-assurance, self-regard and empathy that this and other organisational change initiatives could enable them to fulfil their fire operational response roles in a more meaningful way. Senior managers began to feel assured that the creation of the Fire Commissioner's role in the hierarchy would provide a reliable way of taking and seeking direction from one source within the hierarchical structure of command and control during a bushfire, which previous to Black Saturday, did not exist.

> With the Emergency Management Commissioner we see that there's one person who is in charge. Before there were several people who were in charge and you'd spend a lot of time going to try find out what was happening (Communications Manager 1, ORG A).

Second, it seems that working closer with colleagues across different hierarchical structures also enabled senior managers to foster greater trust – individuals indicated that they experienced closer bonds and improved working relationships when working together when responding to significant bushfires.

> There's one person [a Fire Commissioner who is now the Emergency Management Commissioner] who is accountable at that state level back down through the region and to the incident controller. So we have that line of control from the incident, to the region, to the state so we now know who is controlling fires around the State. So that's a direct outcome of the Royal Commission and that's been a good thing (Senior Operations Officer 3, ORG

B).

Similarly, in the case of middle managers, interviewees indicated that organisational changes following the Royal Commission provided a basis for individuals to work more closely together. For example, middle managers' experience of Black Saturday (and previous fire events) had highlighted the importance of using an integrated approach to managing complex bushfire events. Consequently, many welcomed the recommendations made by the Royal Commission which related to incident control and management.

> Look, I actually welcomed some of the interoperability changes – we needed to get better at working together in incident management teams, particularly at the large campaign fires (Regional Operations Manager 1, ORG B).

As middle managers (along with senior managers and functional experts) began to make sense of and implement the recommendations relating to their organisations, they indicated that they began to experience more positive emotions. The lessons learned from implementing recommendations gave rise to greater levels of trust amongst individuals working at different levels within the organisational hierarchy when responding to complex fire events. Some individuals even said they experienced happiness insofar as they felt contented and pleased about being able to work together more effectively.

> I'm actually a big fan of those changes. 2009 showed that we needed to improve working together and it's hard to know if we would have got there without the Royal Commission (Regional Fire Operations Officer 1, ORG B).

Functional experts also indicated they were pleased that the Royal Commission expedited the consideration of key issues.

> It's catalysed things. The Royal Commission brought so many things forward that we felt and knew should be looked at whether we liked it or not (Regional Operations Officer 3, ORG A).

While there was a perception that the Royal Commission did not solve all the key problems relating to Black Saturday, functional experts indicated that the process of implementing the recommendations gave rise to growing confidence as individuals indicated that they

experienced feelings of self-assurance, self-regard and empathy amongst functional experts.

> It [the Royal Commission] missed many things, but as we implemented many of its findings and as we did that our confidence and knowledge grew in our ability to deliver changes… (Regional Operations Officer 3, ORG B).

6.2.4 Worries return

As senior managers, middle managers and functional experts began to consider the prospect of future bushfires, they began to reflect on whether the organisational changes made as a result of the Royal Commission would make a difference if Victoria experienced another day like Black Saturday. By considering the future, individuals began to experience negative emotions once again.

First, there was some anger that the Royal Commission had missed opportunities for change. For example, it had missed a 'once-in-a-generation' opportunity to have bushfire education included on the school curriculum, providing an opportunity to educate people about the threat of bushfire and, hence, improve community safety outcomes through a more proactive approach to planning for bushfire season.

> [W]e've spent a lot of money on community education and engagement programs but, from my perspective, there were opportunities lost in terms of getting our education campaigns more entrenched in the State curriculum (Community Education Manager 1, ORG A).

Accordingly, individuals berated the Royal Commission's for having what the critics regarded as a retrospective focus and preoccupation with operational improvements which had not been matched by a corresponding focus on community behaviour. If the Royal Commissioners had better understood the issues relating to bushfire they might have concentrated more on educating future generations of children so that emergency management organisations could work in a more meaningful way with communities to help ameliorate and safeguard their wellbeing in the face of future fire.

> I would have thought, given the scale and magnitude of the event, that [the Royal Commissioners] would be targeting appropriate education campaigns for kids in schools and we'd be able to get some sort of programs happening in

> a similar way to road safety campaigns which have had a big impact in reducing road tolls (Regional Operations Manager 2, ORG B).

Second, although senior managers acknowledged that the Royal Commission's recommendations had resulted in a range of improvements within emergency management organisations, they were also concerned with whether the community would change their behaviour based on their experiences from Black Saturday. For example, research following Black Saturday had shown that the Victorian community would most likely remain indifferent to a warning message on severe fire danger despite – or even because of – the improvements. Hence, the enhanced capability of emergency service organisations to send warnings to communities during an emergency might not be enough to reduce the numbers of lives lost if or when Victoria experienced another major bushfire.

> I don't think anyone can actually say that the outcome would be any different if we had another day like Black Saturday. Phone surveys tells us that 70% of the people still say that they will wait until they see the flames before they would do anything and with that response from the communities then people are sure to die. The outcome will still be pretty ugly (State Coordinator 1, ORG A).

This concern gave rise to negative emotion amongst senior managers (as well as middle managers and functional experts) as they started to worry that individuals probably would not take the necessary precautions to prepare for a severe fire, despite receiving ample and detailed warnings.

> We have a really good warning system now. Yes, we can send them the messages, but if they don't understand the message, or have a fire plan, then they're going to panic and jump in the car at the last moment, which is going to result in deaths … it's a bit of a worry (Senior Operations Officer 1, ORG A).

Providing communities with more detailed warnings might lull them into a false sense of security, leading them to become passive rather than proactive in the face of danger.

> Now we have so many ways of communicating with people, and people have

> very varied preferences, that it's much harder to get that message across really quickly to everybody, consistently. They also think that they're going to receive messages – particularly in light of the findings of Black Saturday, but that just shows how passive the community is about living with risk (Policy Manager 1, ORG B).

These feelings of concern and worry are likely to be ongoing for functional experts (and possibly senior managers and middle managers) insofar as community behaviour hasn't changed.

> The Royal Commission told us we didn't warn people enough on Black Saturday and of course a lot of the feedback we have each year is that, "You over-warned". Evidence has shown that people still don't have fire plans. So, really, behaviour hasn't changed. It's still the attitude that somebody's going to knock on my door and tell me what to do (Logistics Officer 1, ORG B).

Third, Black Saturday and the Royal Commission has left its mark insofar as negative emotions are associated with its memory. Senior managers indicated feelings of anxiety because they were fearful that their decisions when managing bushfires might result in them being criticised by a future public inquiry. Some individuals indicated they continued to experience stress each time that they returned to the State Control Centre which triggered unpleasant memories of Black Saturday. Such anxiety resulted in some individuals continually reflecting on their ability to fulfil emergency response roles so much so that some people never returned to such roles.

> Some people haven't stepped back into [emergency co-ordination] … because they were hammered by the Royal Commission. Every time you go into the State Control Centre, it's like you walk past a ghost. I get anxious just walking in there, and doing my role. Every time I go in there, I think am I going to be back in that ugly space again, so there's a little bit of post-traumatic stress that translates into anxiety where I find I double check to make sure I've got all the information just to make sure I'm doing the job right, because I don't want to be criticised [by a another inquiry] about doing it (Deputy Chief Officer 1, ORG A).

Similarly, middle managers recounted feelings of anxiety, particularly on the anniversary dates of Black Saturday or when weather patterns indicate the potential for serious fire

danger. Such signifiers gave rise to memories about Black Saturday, which triggered anxiety for some individuals in operational response roles.

> I remember on one of the anniversaries of Black Saturday I was mentoring another State Duty Officer and we became very obsessive about preparing and knowing what was going on and making sure everyone knew how things were looking and making sure the State Emergency Control Centre had enough people and was gearing up. Now in that case as it turned out, the day was [a] bad [fire danger day] – particularly bad, but it wasn't like it was looking like things would flare up, but I did notice some people thinking these people are over-reacting, but I don't think we were, it's just we knew what can happen and I suspect now there's a lot more people now know what could happen (Operations Manager 2, ORG B).

Functional experts also indicated that they started to worry when they considered their role in the context of future fires as they had become more fully aware that their decisions could directly influence the behaviour of the community during a bushfire. It seems that the trauma experienced by some individuals meant that they became ill or never returned to operational response fire roles.

> I think it's now clearer that information unit officers are front line because you could be sending a message where you realise that many people in the community could be affected so people are definitely feeling the effects [of extra responsibilities in their role]. [However], some people may never be better as a result of having lived through the experience of Black Saturday, the Royal Commission and the implementation [recommendations]. A number of people actually just fell under the pressure of implementation (Public Information Officer 1, ORG A).

In sum, despite the fact that many interviewees experienced positive emotions as sensemaking and learning progressed, my findings suggest that individuals in all three groups began to experience more negative feelings once they started to reflect more deeply on the Royal Commission and consider the future fire threat.

6.3 Discussion and conclusion

This chapter has shown how senior managers, middle managers and functional experts within Victorian emergency service organisations experienced emotion before and during and after Black Saturday. In the first instance, novelty and equivocality gave rise to

negative emotions even before Black Saturday because of the unique conditions that were predicted and which then unfolded during the day itself as senior managers, middle managers and functional experts struggled to contain the fires. Accounts of negative emotions were also associated with the announcement of the Royal Commission and having to participate in it, and with the challenge of wrestling with what its recommendations mean for changes in the emergency management organisations.

Table 14 shows that before the bushfires each group became anxious as they considered the severe fire weather predications in the lead-up to Black Saturday. When the fires ignited, each group became stressed. Senior managers became stressed because the weather was worse than predicated, making the fires more volatile and unpredictable. This meant that emergency management organisations were struggling to control the fires. Middle managers also became stressed as the fires, which had begun before Black Saturday, burned out of control. Like senior managers and middle managers, functional experts became stressed as when they were unable to fight the fires because information systems became overloaded and failed, which meant that they had no data to devise firefighting plans. Moreover, the stress of functional experts was exacerbated as they realised they would be sending crews to fight fires with little or no knowledge of what was occurring. The stress of each group continued to escalate on the Black Saturday as individuals realised that there was nothing they could do to stop the fires burning out of control. In the case of senior managers and middle managers they also became anxious as they began to consider the potentially deadly and devastating effects of the fires on communities.

Table 14: Sources of emotion by group

Senior managers	Middle managers	Functional experts
Leading up to the bushfires		
Anxiety because of the weather predictions prior to Black Saturday.	Anxiety because of the weather predictions prior to Black Saturday.	Anxiety because of the weather predictions prior to Black Saturday.
During the bushfires		
Stress because the weather conditions were worse than predicted on Black Saturday and fire was ignited in Black Saturday and as fires burned out of control.	Stress when fires sporadically occurred on Black Saturday as they were trying to manage ongoing fires from the previous week and as fires burned out of control.	Stress about the lack of knowledge coming through from regional incident control centres about the fire situation because communication systems had become overloaded.
Anxiety knowing that fires were occurring in highly populated communities.	Anxiety because of the system overload which was occurring.	Stress when they realised they had no information to develop a response strategy to the fires.
Stress as the fires burned out of control.	Stress as the fires burned out of control.	Stress about decision-making and fire crew welfare.
The Immediate Aftermath		
Stress as government, communities and media demanded facts about the fires.	Stress as they needed to deal with community anger and outcry in the days after the fires.	Sadness and guilt that they could not do more to prevent losses from the fires.
Sadness about the loss of their colleagues lives to the fires	Sadness as each day revealed further loss of life.	Shock that bushfire could have such a devastating effect
Stress because the fires had overwhelmed them despite their training and experience.	Stress because the fires had overwhelmed them despite their training and experience.	Stress because the fires had overwhelmed them despite their training and experience.
In Anticipation of the Royal Commission		
Anxiety because they knew they may be called before a Royal Commission.	Anxiety because they knew they may be called before a Royal Commission.	Anxiety because they knew they may be called before a Royal Commission.
Stress in relation to the excessive information demands of the Royal Commission.	Stress in relation to the excessive information demands of the Royal Commission.	Stress in relation to the excessive information demands of the Royal Commission.
Worry that they may be called before the Royal Commission to give evidence and be cross-examined	Worry that they may be called before the Royal Commission to give evidence and be cross-examined.	Worry that they may be called before the Royal Commission to give evidence and be cross-examined.
During the Royal Commission		
Guilt that their colleagues were called before the Royal Commission and cross- examined in an unfair manner.	Guilt that their colleagues were called before the Royal Commission and cross- examined in an unfair manner.	Guilt that their colleagues were called before the Royal Commission and cross-examined in an unfair manner.
Anger at the way lawyers vilified and blamed their colleague for occurrences on Black Saturday.	Shock due to the unfairness of the questions asked by lawyers representing the Royal Commissioners.	Sadness that the Royal Commission was conducted in such an adversarial manner.
Stress as a result of the way they were cross-examined by the lawyers representing the Royal Commissioners.	Sadness that their colleagues were treated harshly by the lawyers representing the Royal Commissioners.	Sadness at the way their colleagues were treated during cross-examinations.
Anger at the way the Royal Commissioners focused questioning on only some aspects of what occurred.	Anger at the way the Royal Commissioners focused questioning on only some aspects of what occurred.	Anger at the way the Royal Commissioners focused questioning on only some aspects of what occurred.

Table 14 continued		
The Aftermath of the Royal Commission		
Anger in relation to the content and focus of some of the recommendations.	Anger that the Royal Commission's report blamed senior managers for failures on the day of Black Saturday.	Anger that the Royal Commissioners made recommendations which reflected their lack of knowledge about bushfires
Anger as they continued to reflect on the way that they and their colleagues were treated during the Royal Commission.	Sadness because the Royal Commission's chose such an adversarial approach to cross-examining witnesses during the Royal Commission.	Anger because they felt that the some of the findings of the Royal Commission did not represent their recollection of occurrences on Black Saturday.
Emergence of positive emotion		
Confidence as senior manager responsibilities during high fire danger became more transparent by legislation enacted as a result of Royal Commission recommendations.	Confidence because of changes made as a result of the recommendations made reporting lines during bushfires clearer.	Trust because of changes to hierarchical structures which fostered closer working relationships between individuals.
Happiness at knowing that an Emergency Management Commissioner assumes responsibility for co-ordinating response and suppression on days of high fire danger.	Happiness at knowing there is greater trust amongst colleagues as a result of the improved working relationships which arose from implementing the Royal Commission recommendations.	Confidence because individuals experienced the benefits of a positive change in their working lives.
Trust because the Royal Commission recommendation enabled individuals to work in a more transparent manner.	Happiness because the Royal Commission recommendations prompted individuals to re-evaluate and improve the nature is their working relationships.	Happiness because the Royal Commission recommendations provided a basis for resolving known problems in an expeditious manner.
Return of negative emotions		
Reluctance to believe that the changes implemented would actually make a difference if Victoria experienced another day of fire behaviour like Black Saturday.	Anger that the Royal Commission missed the opportunity to make 'once-in-a-generation' change' to make bushfire education part of school curriculum.	Worry that the community has become more passive as a result of the changes which arose from recommendations.
Anxiety as spaces and situations continue to remind individuals of the stressful events which occurred on Black Saturday.	Anxiety as extreme weather patterns during bushfire season evoke memories of Black Saturday and prompt a heightened sense of urgency amongst individuals.	Stress as some roles have more responsibility for making decisions which could impact on the community on high fire danger days.

In the immediate aftermath of Black Saturday, each group continued to experience negative emotions. In the case of senior managers, stress continued as government placed incessant demands on individuals for facts about what had happened. In a similar manner, many middle managers experienced stress as communities began to express anger about what had occurred and to demand explanations about why the fires were so totally out of control. Furthermore, each of the groups became stressed as they realised that, despite their best preparation and collective experience and expertise, they were unable to manage the bushfires. Members of all three groups were stressed when they realised the scale of the

devastating damages to property and the poignant loss of life caused by the fires. All three groups became sad as each day after Black Saturday brought more news about fatalities from the fires. Furthermore, senior managers reported knowing colleagues who had perished in the fires while functional experts felt guilty about not being able to use their skills to assist communities and prevent them from experiencing significant damages and losses.

While dealing with stress from the immediate aftermath of Black Saturday, feelings of anxiety resurfaced as individuals began to anticipate a Royal Commission and became concerned that they would be called before it to provide evidence and be cross-examined. Moreover, feelings of stress continued when the Royal Commission materialised and began to make extraneous demands for information from each group. Over time they began to experience worry as they became increasingly anxious about what the commission involved.

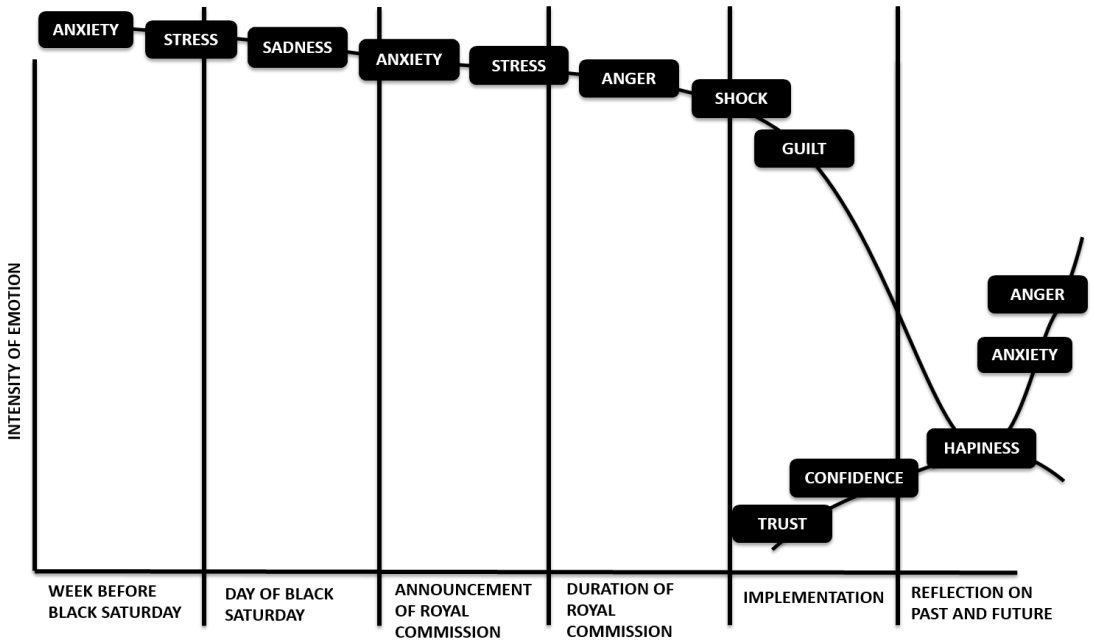
During the Royal Commission feelings of guilt returned as individuals observed the difficult cross-examinations that their colleagues endured. Over time senior managers became increasingly angry about the ways in which the lawyers representing the Royal Commissioners began to apportion blame and mete out what some managers perceived as vilification. Middle managers became shocked that the same lawyers could conduct their cross-examinations in such a manner. For functional experts sadness resurfaced because the Royal Commission was conducted in a manner that was needlessly adversarial. Furthermore, the adversarial nature of the cross-examination process gave rise to stress for senior managers while middle managers and functional experts became sad that the cross-examination process took such an emotional toll on their colleagues. Overall, each group experienced anger because the lawyers' cross-examinations focused on very specific aspects of Black Saturday without consideration of the broader context of the unprecedented conditions which occurred on the day.

In the aftermath of the Royal Commission each group experienced anger. Senior managers and functional experts directed their anger towards the Royal Commissioners'

report and recommendations which they believed reflected the Commissioners' lack of bushfire expertise. The managers and experts believed that this lack of practical experience had led the commissioners to omit important aspects about strategic and operational firefighting. Anger also seemed to linger for senior managers who remained upset about the manner in which their colleagues were cross-examined. Middle managers became angry when the read explicit comments in the final report, which identified senior management decisions as a contributing factor to some of the damages and losses which arose on Black Saturday.

My findings suggest that there were some differences in the sources of emotion amongst the groups, but they are largely similar. It is possible, as a result, to depict the emergence of and transitions in different emotions over time. Figure 3 shows how individuals transitioned between different negative emotions. It seems that they experienced negative emotion in a highly intensive manner as they sought to make sense of equivocality before, during and after both Black Saturday and the subsequent Royal Commission.

Figure 3: Transitions of emotion



Despite their experiencing negative emotion in relation to the Black Saturday and the Royal Commission, senior managers, middle managers and functional experts recounted the rise of more positive emotion as they engaged in sensemaking and learning and implemented changes in their organisations. Senior managers began to experience greater confidence in their ability to deliver community safety outcomes during bushfires. While each group did have reservations about the recommendations, it seems that they did provide them with a mandate to implement changes which, in turn, enabled them to resolve problems. In the case of functional experts, it seems that individuals developed more trust in the systems that they developed which gave rise to greater confidence in their enhanced ability to manage significant fires. Over all, it seems that trust and confidence in systems and closer working relationships gave rise to a greater sense of satisfaction as the groups were able to use the recommendations to mediate learning and transformation in their organisation. These more positive emotions appear to have facilitated further sensemaking and learning as managers, middle managers and functional experts implemented the Royal Commission's recommendations in their respective organisations.

However, as individuals began to reflect on the prospect of future fires, they began to once again experience negative emotions. Senior managers started to question whether the newly created systems and processes would generate an improved community safety outcome if Black Saturday conditions were to arise in the future. They also reported rising anxiety upon returning to physical spaces associated with the trauma of Black Saturday, such as incident centres. Middle managers were angry that the Royal Commissioners did not take the opportunity to mandate major and significant change in emergency management that would have an intergenerational impact. They were also became anxious when they noticed fire weather predictions with similar characteristics to those observed prior to Black Saturday. For functional experts, feelings of anxiety re-emerged because they believed that the community had become more passive after Black Saturday because of perceptions that the

emergency management organisations now bore responsibility for their safety as a result of the implementation of Recommendation 1. Furthermore, some of the organisational changes increased their stress because they had become more aware of how their decisions could influence the how the community responded to the threat of severe fire danger.

Chapter 7: Discussion and conclusions

Significant and damaging fire events occur regularly in Victoria. This study has examined three inquiries into Australia's worst bushfire disasters, and it seems inevitable that we will see another Black Friday, Ash Wednesday and Black Saturday (Dwyer, 2015). Indeed, climatologists continue to claim that these huge fires can no longer be considered as once-in-a-generation events (Leonard & Howitt, 2010). Today's climate conditions increase the likelihood that we will experience more major bushfires as well as other natural hazards more regularly, which suggests that emergency management organisations will continue to find themselves seeking to make sense of and learn from unprecedented events which most likely will have only a partial resemblance to what has happened before (Flannery, 2009). Therefore, it seems that emergency management organisations will need to become more adept at prospective sensemaking as they seek to ameliorate the harmful effects of natural hazards and disasters in the future.

My study examines how emergency management organisations make sense of and learn from public inquiries that occur after major bushfires. Whether public inquiries have meaningful benefits for these organisations and for society more generally has been a subject of great debate. Accordingly, I have sought to understand how emergency management organisations make sense of public inquiry recommendations and whether they give rise to learning and organisational change. To do so I used a qualitative and interpretative methodology. I chose such an approach because sensemaking is underpinned by social processes, which emerge as a result of dynamic interaction between different groups of individuals who seek to interpret equivocality in their environment. Two research questions sit at the empirical core of my research and provide the basis for my theoretical contributions.

My first research question was: *How does sensemaking occur in emergency management organisations that deal with disasters after the findings from public inquiries*

have been published and, in particular, does it give rise to learning? In answering this question, my study showed how equivocality arising from the Royal Commission's recommendations prompted sensemaking and sensegiving between individuals in the emergency organisations. The recommendations also gave rise to sensemaking and learning cues that were important mechanisms in helping these individuals to collectively make meaning of the recommendations before using them as the basis for organisational learning. It was clear from my findings that each group, despite their different functional outlook as senior managers, middle managers and functional managers, was actively involved in the sensemaking and sensegiving processes surrounding Recommendation 1 as they interpreted sensemaking cues to create a shared meaning. Moreover, once shared meaning was created, learning cues enabled the groups to notice and frame different organisational processes for change. In this way, my study contributes to the understanding of sensemaking and equivocality, sensemaking and learning, and the role of hierarchy during sensemaking and learning.

My second research question was: *How do emotions influence sensemaking in emergency management organisations that deal with crises and disasters after the findings from public inquiries have been published?* In answering this research question, my study shows that individual recollections of negative emotion from Black Saturday and the Royal Commission permeate sensemaking and sensegiving processes in emergency management organisations as individuals made sense of Recommendation 1. I find that negative emotion is balanced, albeit temporarily, with positive emotions as individuals re-evaluate organisational systems and processes which enabled them to adopt new practices from what they learned from their experiences. Yet, when individuals begin to consider the likelihood of future fires they begin once more to experience negative emotion as they become concerned about future equivocality. My study therefore makes a contribution to the understanding of relationships between sensemaking and emotion, as well as to prospective sensemaking.

In the remainder of this chapter I explore these contributions in more detail. First, I develop a model, which brings the previous two findings chapters of this thesis together. I use this model as the basis for exploring my research questions in depth and discussing my theoretical contributions. I then turn my attention to the practical implications of my study which will, I hope, provide a basis for governments to consider their reasoning closely before appointing a Royal Commission after a significant natural disaster. My hope is that this study can contribute to the development of a review process which is better aligned to and focused on learning for future bushfires rather than anchoring our focus on blaming, vilifying or scapegoating individuals whose skills are so critical to preparing for the equivocal challenges which will likely arise with the bushfires of the future.

In the remainder of this chapter I explore these contributions in more detail. First, I develop a model, which brings the previous two findings chapters of this thesis together. I use this model as the basis for exploring my research questions in depth and discussing my theoretical contributions, as well as discussing the limitations of my study and suggesting some directions for future research. I then turn my attention to the practical implications of my study which I hope will indicate the importance of sensemaking and learning cues that individuals can derive from organizational experiences and leverage to broker change in their organization which helps to prepare them better for the future. I also hope that my study will provide a basis for governments to consider their reasoning closely before appointing a Royal Commission after a significant natural disaster. My hope is that this study can contribute to the development of a review process which is better aligned to and focused on learning for future bushfires rather than anchoring our focus on blaming, vilifying or scapegoating individuals whose skills are so critical to preparing for the equivocal challenges which will likely arise with the bushfires of the future.

Bushfire history has a tendency to repeat itself, albeit in novel ways. The need to

continue to make sense of and learn from bushfires is as relevant now as it is ever has been. Indeed, it may be of even greater importance in a globally warmed future. With such challenges come promising avenues for future research. The final part of this chapter reflects on some potential future research proposals. It is my hope that this study will provide the basis for research that will challenge some of the assumptions at the core of sensemaking and learning by tackling new research problems and developing a greater understanding of sensemaking.

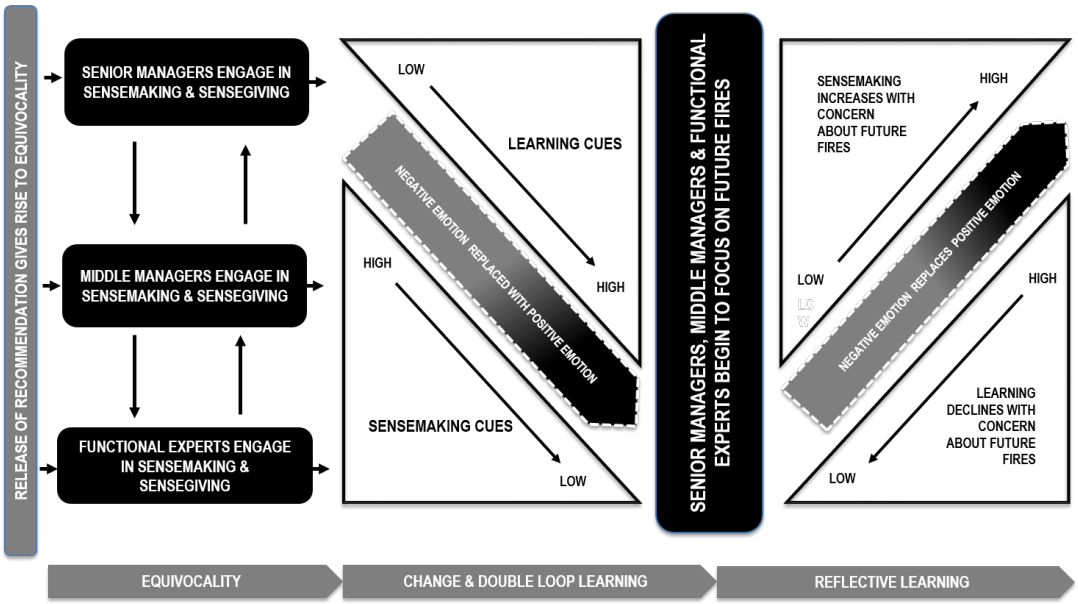
Finally, I consider some of the limitations of my study before concluding with my personal reflections on how my work experience, coupled with my doctoral research, may provide a basis for extending the notion of engaged scholarship whereby I seek to return to the organisations which contributed to the study to create a meaningful praxis of knowledge transfer between theory and practice (Bansal, Bertels, Ewart, MacConnachie, & O'Brien, 2012). While my engaged scholarship journey so far has comprised extending organisational theory based on practitioner experience, I believe that the next stage in the journey is to extend practice which is based on newly developed theory. Scholars have suggested that building theory from practice and practice from theory is a somewhat fraught exercise (McKelvey, 2006). However, in the case of my study the benefits of seeking to create change based on practice informing theory may just prompt the development of a more dynamic model for conducting the public inquiries of the future.

7.1 A model of post-inquiry sensemaking

My findings allow me to propose a model (see Figure 4) regarding sensemaking, learning and emotion in organisations after public inquiries have concluded their work. Figure 4 shows that the release of an inquiry's findings, in this case the Royal Commission's recommendations, gives rise to equivocality for individuals situated in different levels in the hierarchy – in this case senior managers, middle managers and functional experts. This equivocality prompts processes of sensemaking and sensegiving among these groups. My

model suggests that initially sensemaking and sensegiving activities are high, as individuals draw on sensemaking cues to interpret the equivocality surrounding the recommendations. At this stage, negative emotions appear to be high as individuals struggle with equivocality, while organisational learning is low because insufficient sense has been made of the recommendations to allow individuals to conceptualise and implement the necessary organisational changes.

Figure 4: Sensemaking and learning in organisations



Over time, as sensemaking reduces equivocality, individuals draw on learning cues and negative emotions are replaced by positive ones as individuals make sense of the recommendations, as learning increases and as double loop learning results in (successful) organisational changes. However, with more reflective learning and as individuals begin to consider the likelihood of future disasters, equivocality begins to re-emerge – previous learning is seen as inadequate and further sensemaking is deemed necessary – and negative emotions replace positive emotions.

My model stresses the importance of understanding how individuals within different hierarchical echelons of the organisation make sense of public inquiry recommendations and shows the manner in which sensemaking provides the basis for learning. It also proposes that

individuals experience different emotional states as they make sense and learn. Accordingly, I propose that emotions play an important role in sensemaking and learning retrospectively *and* prospectively as individuals in emergency management organisations start to reflect on what the future might hold. In the following sections, I discuss these contributions in more detail.

7.2 Theoretical contributions

My first research question was: *How does sensemaking occur in emergency management organisations that deal with disasters after the findings from public inquiries have been published and, in particular, does it give rise to learning?* As I explain below, my findings show that sensemaking occurs in organisations as a result of equivocality generated by public inquiry recommendations and that both learning and sensemaking occurs amongst and between different hierarchical levels. In this way my study contributes to the understanding of the relationships among sensemaking, equivocality, learning, and hierarchy.

7.2.1 Sensemaking and equivocality

Sensemaking is known to play an important role in the way that individuals and organisations interpret equivocality (Gephart, 1984; Weick, 1993; Maitlis, 2005; Sandberg & Tsoukas, 2015). Indeed, scholars generally agree that sensemaking "emerges from efforts to create order" because of the ongoing equivocality which seems to suffuse organisational life in both sensible but more noticeably in non-sensible environments, such as disasters (Weick, 1993: 16; Colville, Pye, & Carter, 2013). Such scenarios have been the subject of considerable research where scholars have shown that individuals find it difficult to make sense and act upon equivocality during (and sometimes leading up to) disasters e.g., the 1949 Mann Gulch Fire (Weick, 1993), the 1966 Aberfan Mine Collapse (Turner, 1976), the 1984 Bhopal Gas Explosion (Weick, 1988) and the 2003 Shuttle Colombia Explosion (Vaughan 2006). In each of these studies, discrepant cues inhibited individuals' ability to make meaningful sense of what is happening around them. Consequently, there is a well-developed body of knowledge informing on how sensemaking occurs during disasters where equivocality is particularly high (e.g., Colville, Brown, & Pye, 2012; Cornelissen, 2012).

Similarly, numerous studies have examined the way in which public inquiries make retrospective sense of disasters in constructing a report of findings and recommendations which are often perceived as authoritative, even though they have been shown to be artefacts of selection and authorial strategies to present one version of truth (Brown, 2000; 2004; Boudes & Laroche, 2009 Gephart, Steier, & Lawrence, 1990).

Given that sensemaking has been shown to arise during disasters and afterward within public inquiries it seemed likely that sensemaking would play an important role in organisations afterwards – as individuals seek to interpret what public inquiry recommendations mean for their present and future preparation for disasters. There are, however, fewer studies of how individuals make sense of inquiries' findings and recommendations after they have concluded their work, despite some evidence suggesting that the authoritative nature of such reports means that they do prompt action, learning and change (Dwyer & Hardy, 2016). It is important to understand this latter part of the process insofar as scholars have repeatedly spoken of the future as being one where unprecedented events will occur on a recurring basis (Colville, Pye, & Brown, 2013) and that such events will owe little to what has occurred before (Farjourn, 2010).

My findings make two contributions. First, studies to date characterise public inquiry reports as authoritative insofar as they are artefacts from public inquiries with prescriptive intent and a statutory basis (e.g., Brown, 2000; 2004; Prasser 2006). While my study does show that Recommendation 1 was authoritative insofar as the emergency management organisations were required to make changes to the safety policy, what the recommendation meant in terms of organisational change only became clear over time through multiple iterations of sensemaking and sensegiving. Recommendation 1 was a considerable source of equivocality. Senior managers and functional experts were concerned that it oversimplified complex issues which comprise issuing warnings to the community on days of high fire danger. For middle managers, equivocality arose as they sought to mediate different

interpretations of Recommendation 1, while also seeking to ensure that it was given due consideration across hierarchical boundaries. Furthermore, none of the groups was clear as to what implications Recommendation 1 would have for work arrangements. Accordingly, my model challenges the taken-for-granted assumption that public inquiry recommendations are authoritative and provides insights into the way in which they are re-interpreted within organisations through sensemaking and learning.

Second, while existing studies of sensemaking suggest that change arises as a result of actions and reactions in response to equivocality in present day circumstances, my study suggests a deeper level of complexity. Organisations, individuals and groups are dealing with multiple sources of equivocality – not just from the report of an inquiry, but also from past events, which collectively shape the sense that is made. For example, when each of the groups were making sense of Recommendation 1, individuals often made references to difficult experiences from past bushfire events such as Ash Wednesday 1983, procedural injustices during the Black Saturday Royal Commission (as well as other emergency management public inquiries), and the tragic events which occurred on Black Saturday. Accordingly, my study broadens the notion of equivocality as a multifaceted prompter of sensemaking as different disasters and inquiries that occurred at different times and in different spaces shape, inform and influence the way in which senior managers, middle managers and functional experts make and give sense to each other. There is then considerable evidence to suggest that organisational groups make sense of equivocality from multiple sources in the past, present and future.

7.2.2 Sensemaking and learning

The relationship between sensemaking and learning has received considerable attention in recent times with scholars suggesting that there is significant scope for achieving a greater understanding of the relationship between the concepts (Colville, Pye, & Brown, 2013). Given the heavily ritualised and often political nature of public inquiries, some

researchers have suggested that they inhibit learning (e.g., Buchanan, 2011). Nonetheless, the authoritative nature of public inquiries means that they are generally expected to somehow result in organisational learning; and some scholars have demonstrated that public inquiries of disasters do prompt managers to implement change (e.g., Bowman & Kunreuther, 1988).

Findings from my pilot and main studies indicate that for organisations to act on a public inquiry's recommendations, not only does sensemaking occur but, so too, does learning. From my pilot study, I find that public inquiries reduce equivocality through single-loop learning insofar they construct an authoritative narrative around a novel event which provides a basis to create shared understandings, making it possible to construct a plausible basis for action. For inquiries to lead to changes in organisational practices, double-loop learning must extend beyond the inquiry. My main study indicates this process is facilitated by learning cues – stimuli that gain attention after equivocality has been interpreted from past events which facilitates movement to a new order about future events which, in turn, aids the introduction of changes in organisational practices following an inquiry. Therefore, public inquiry sensemaking does provides a basis for single-loop learning to occur during the inquiry, as well as double-loop learning in the form of more fundamental organisational changes. However, for the latter to occur, sensemaking and learning must continue beyond the inquiry, and take place in the organisations concerned.

My study makes two contributions in relation to sensemaking and learning. First, it extends our insight into the interplay between sensemaking and learning in organisations after public inquiries have concluded their work. Sensemaking gives rise to learning and learning gives rise to sensemaking as individuals seek to create meaning in relation to public inquiry recommendations. For example, my study showed that as the three groups interpreted equivocality, learning cues enabled the same groups to identify how organisational processes relating to emergency warning and information could be improved by implementing specific changes. Thus sensemaking and learning cues appear to interact within organisations. There

is then, a strong case to suggest that the process of sensemaking which surrounds public inquiry recommendations provides a basis for learning. Accordingly, my study challenges the proposals of scholars who suggest that sensemaking and learning are in tension with each other, such as Schwandt (2005) who suggests that sensemaking may preclude more fundamental learning because individuals interpret equivocal cues to align with current knowledge, whereas my study suggests that more fundamental double-loop learning can occur.

Second, while studies to date have acknowledged the prominent role that cues play in sensemaking processes (e.g., Maitlis, 2005; Weick, Suttcliffe, & Obstfeld, 2005; Colville, Hennestad, & Thoner, 2014) there is scope for extending our knowledge in terms of what constitutes them and how they facilitate learning. A second contribution therefore is the way in which my study draws attention to sensemaking and learning cues. As far as sensemaking cues are concerned, they come from multiple sources – not just the inquiry's report but also individual and shared experiences of participating in the inquiry as well as the shared process of sensemaking in the organisation following the inquiry. Learning cues are also broader than textual fragments from inquiry reports. They constitute the experiences, text and talk that get noticed, bracketed and framed after the equivocality from recommendations have been interpreted from sensemaking cues, and they provide a basis for collective action. For example, in my study learning cues were used by senior managers, middle managers and functional experts to identify how different organisational processes relating to emergency warning and information that could be improved, as well as develop plans for specific actions. It seems that once individuals had interpreted the equivocality surrounding Recommendation 1 they were able reflect on their experience in a manner that enabled them use their tacit knowledge of organisational processes to implement change in a much more meaningful way. Accordingly, my study further enhances our understanding about the relationship between sensemaking and learning.

While it has been suggested that learning cues help extend double loop learning from public inquires to the wider organizational context (Dwyer & Hardy, 2016), we know little about how this occurs. Figure 4 suggests that learning cues engender double loop learning by enabling groups to subsume lessons from disasters and the subsequent public inquiries into them as a result of sensemaking. By doing so, learning cues enable groups of senior managers; middle managers and functional experts to identify and implement new practices which they hope will ameliorate the effects of future disasters. Individuals and groups will often have concerns about the focus and intent of public inquiry recommendations, and learning cues enable them to transcend such concerns and use such recommendations to prepare for the disasters of the future.

It seems then that learning cues may have a dimension that helps to expedite change after disasters as individuals seek to ensure that valuable lessons to learn and improve their organization are not lost to harmful cultures of entrapment. Cultures of entrapment perpetuate practices which are known amongst individuals to be problematic for the organization (Suttcliffe & Weick, 2003). This is important because my study showed that there was reluctance amongst individuals within senior management, middle management and functional expert groups to change Victoria's bushfire safety policy which may have resulted in change inertia. Yet by making sense of public inquiry recommendations, particularly in the context of a disaster, each group recognized that improvements could be made to existing practice. Almost all of the participants in this study now agree to greater or lesser extent that Victoria's safety policy is more robust as a result of the changes which have emerged from Recommendation 1. What is interesting is that learning cues are socially constructed from sensemaking processes amongst groups in relation to public inquiry recommendations which reinforces the finding that such recommendations and public inquiries are not as authoritative as current theory suggests. Moreover, it seems that learning cues played an important role in moving individuals beyond their concerns and disagreements about the Royal Commission's

recommendations and enabled them to make what they perceived to genuine improvements to their organization.

All in all, it seems that learning cues (like sensemaking cues) provide an important basis for action in organizations after periods of protracted equivocality. For example, Figure 4 shows that learning cues are likely to become more meaningful as groups collectively made sense of public inquiry recommendations and frame the processes which they seek to change. Accordingly, I propose that learning cues are an important mechanism for enabling individuals and groups to share perspectives across organisational boundaries by moving artefacts such as public inquiry recommendations into organisations where they can be transitioned into change initiatives, which give rise double-loop learning. Therefore, learning cues provide an important basis for individuals to plan for the bushfires and disasters of the future.

7.2.3 Sensemaking and hierarchy

My study shows that when we consider sensemaking in an organisational setting, we must take into account the role of hierarchy. Figure 4 shows that sensemaking and sensegiving are undertaken by individuals at each level in the organizational hierarchy as senior managers, middle managers and functional experts seek to make meaningful sense of public inquiry recommendations so that they can be used to guide organizational change. However, to date, some studies have equated sensegiving with higher levels in the hierarchy. For example, Gioia & Chittipeddi (1991: 446) suggest that strategic change is a product of negotiation which stems from sensegiving where "the upper echelon members can dominate the definition of the negotiated reality because of the influence they hold over possible visions of change". While my findings reaffirm that organisational change is a product of negotiated meaning it also suggests that the span of sensegiving is far wider than the upper echelons of hierarchy. My study suggests that the implementation of meaningful strategic change from public inquiry recommendations relies on the sensemaking and sensegiving

activities of individuals at each hierarchical level. My model clearly shows that sensemaking and sensegiving occur across and between individuals within the hierarchy as they sought to interpret the equivocality surrounding Recommendation 1. Accordingly, I propose that no one group is particularly dominant in the process of interpreting equivocality as part of an iterative social process of meaning-making. Furthermore, studies to date have assumed or implied that sensegiving occurs as a trait of leadership amongst senior managers (Maitlis, 2005; Gioia and Thomas, 1996; Gioia and Chittipeddi, 1991). However, my findings suggest and my model shows that sensegiving is in fact just as much a mechanism for individuals outside of the upper echelons of hierarchy to provide organisational leadership. It therefore does not support existing sensemaking studies which seem to assume that sensemaking is overwhelmingly or even primarily the domain of senior and middle managers. Moreover, my model suggests that the occurrence of sensemaking and sensegiving amongst different hierarchical groups is important to ensure that the interests of all interests are reflected in the new practices which emerge from public inquiry recommendations.

Like scholars before me, my study also shows that the role of middle managers in 'managing' change is "less about directing and controlling and more about facilitating recipient sensemaking processes to achieve an alignment of interpretation" (Balogun & Johnson, 2005: 24). However, I found that functional experts at the lower echelon of the hierarchy played a critical role in 'managing' change by facilitating middle and senior managers meaning-making through sensegiving. For example, functional experts were often champions of change with expert knowledge, which meant they facilitated dialogue between senior and middle managers at steering committee groups meetings which concluded with a basis for further action which often gave rise to organizational learning. While my study suggests that sensegiving often involves robust conversations, these in themselves are clearly an important component of building intersubjective sense (Weick, 1995), which is plausible and meaningful across different hierarchical levels. By doing so, they create dynamic

interactions and perspectives which have, surprisingly, attracted less attention in scholarly studies.

Accordingly, my study shows the important leadership role which individuals at the lower echelons of the organisational play in the processes of sensemaking and sensegiving which arise from efforts to interpret the equivocality surrounding public inquiry recommendations and, more broadly, during strategic change initiatives. Sensemaking and learning allows individuals to understand what is occurring and act collectively (Maitlis, 2005; Mills & Weatherbee, 2006). These processes enable groups within different echelons of hierarchy to stimulate organisation-wide conversations and share accounts of their different interpretations of equivocality. Accordingly, meaning emerges from the different interpretations of cues across hierarchical boundaries over time. It seems that once a shared meaning was established in relation to Recommendation 1, the learning cues provided a basis for noticing, bracketing and framing of different processes which they agreed to re-evaluate and change through collective action. Accordingly, I show how sensemaking and learning cues enable individuals to transcend hierarchical boundaries and echelons to accomplish double-loop learning in the form of organisational change.

7.2.4 Emotions and sensemaking

My second research question was: *How do emotions influence sensemaking in emergency management organisations that deal with crises and disasters after the findings from public inquiries have been published?* Scholars have called for more studies on the role of emotion, for example, to ascertain its role in and impact on sensemaking (e.g., Maitlis, Vogus, & Lawrence, 2013). To date, scholars have implied that sensemaking can elicit a variety of emotions and that emotional responses may have an influence on whether and how people engage in sensemaking or may even result in the collapse of sensemaking (Vaughan, 1996; Weick, 1993). For example, some studies suggest that negative emotions such as anxiety, fear and stress indicate that a particular context has become harmful to individuals,

groups and/or the organizations giving rise to a shared beliefs amongst individuals about what is occurring in their organisation's environment which have been shown to result in behaviours that give rise to tragic and unintended consequences (Colville, Pye, & Carter, 2013; Cornelisson, Mantere, & Vaara, 2014).

Depending on the context, negative emotion seems to prompt sensemaking with consequences such as change (Dutton & Dukerich, 1991), surprise (Louis, 1980) or tragedy (Colville, Pye & Carter, 2013). Interestingly, the literature has cast emotions as an impediment to change (see Mumby & Putnam, 1992) while also highlighting the negative emotion which individuals at the lower echelon experience as a result of management sensemaking and sensegiving surrounding organisational change (Gioia & Chittipeddi, 1991; Gioia & Thomas, 1996), casting them as passive recipients during strategic change management initiatives (Bartunek, Rousseau, Rudolph, & DePalma, 2006). It is as if senior managers and middle managers do not experience emotions when the organizational context changes and if they do, they are not expressed or held in check.

My study shows how important emotions are in post-inquiry sensemaking: while disasters trigger emotions in immediate and visible ways, the emotional context of post-inquiry sensemaking is more complex. In the first instance, my study shows – as other studies have done – that disasters often result in significant losses and damages for communities while giving rise to challenging and dangerous work environments for emergency management practitioners (see Birkman, 2006).

My findings clearly show that Black Saturday was a traumatic event for the individuals who participated in my study. However, unlike previous research, there is little evidence suggesting that the actions of senior managers, middle managers and functional experts who were anxious and stressed exacerbated what unfolded on Black Saturday (see Weick, 1993). For example, there were no losses of operational firefighter lives on the day of Black Saturday. Moreover, despite the findings of the Royal Commissioners, there was

agreement amongst many of the interviewees that what the Royal Commission labelled as inaction on Black Saturday was actually good leadership by emergency management officers in a disastrous situation. Despite experiencing heighted anxiety and stress the officers in charge did not offer advice to the community that was unavailable or unverifiable which would have created extra panic in the community and inevitably exacerbated the loss of life.

It does seem then, that while individuals may experience stress and anxiety during equivocal circumstances, they do not always necessarily contribute directly to the disaster situations even when such situations are novel. In fact, my findings suggest that despite equivocal situations during a disaster, individuals can still operate effectively to manage situations during a disaster. While studies to date (Cornelisson, Mantere, & Vaara, 2014; Weick Maitlis, Vogus, & Lawrence, 2013; Weick, 1993; Vaughan, 1990) suggest that the heightened negative emotions amongst groups can cause or exacerbate disasters, my findings highlighted how the actions of firefighters under very difficult circumstances prevented the fires burning into one of Victoria's major water dams suggesting that even during novel and equivocal times, individuals can make sense, take action and ameliorate disasters.

However negative emotions had subsequent effects: they very much influenced the way in which they made sense of Recommendation 1. Making sense of Recommendation 1 (and other recommendations) did not, therefore, occur in an emotional vacuum and this is an important finding as we begin to extend our understanding of the role of different emotions in sensemaking. I found that individuals continued to remember and make reference to the traumatic, stressful and shocking experiences, which arose from the lead-up to Black Saturday as well as the events of the day itself. Equally important, was the experience of the Royal Commission which prompted experienced anxiety, stress, trauma, sadness and even anger among those who gave evidence, as well as their colleagues. These emotions also permeated subsequent sensemaking in relation to Recommendation 1. Thus, as indicated in Figure 4, the equivocality and sensemaking that follow a public inquiry into a disaster is

likely to be accompanied, initially at least, by negative emotions on the part of organizational members.

While studies to date have contributed to knowledge about how public inquiries make sense (e.g., Gephart, 1997), we know relatively little of their emotional impact on individuals who participate in them. My findings show that, in addition as well as being bound up with negative emotions associated with the original disaster, they can generate negative emotions in and of themselves. In my study, individuals experienced cognitive loading and negative emotion on multiple occasions before and during Black Saturday. Individuals then became anxious and stressed as they began to anticipate a Royal Commission in the aftermath of Black Saturday because they knew that there was a strong likelihood that they would be called before it to give evidence. Furthermore, it was clear that individuals struggled to respond to requests from the Royal Commissions secretariat for policy and procedure documents as they sought to interpret the government's terms of reference for the inquiry and provide meaningful guidance to the Royal Commissioners.

Also, during the Royal Commission, individuals reported feelings of shock and anger as both they and their colleagues were effectively blamed for the losses and damages which occurred on Black Saturday. It seems then that experiences surrounding public inquiries are associated with negative emotion that scholars of public inquiries may have overlooked. My findings indicate that the Royal Commissioners' judicious and forensic approach to examining what was a very emotional event created considerable difficulty for many of the individuals who were cross-examined. Further, there are few studies which consider the emotions people experience *after* public inquiries as, for example, when participants began to interpret Recommendation 1 when they returned to their organisations afterwards.

To date scholars have characterised public inquiries as comprising ceremonies and rituals (t'Hart & Boin, 1993; Brown, 2004; Elliot & McGuinness, 2002) to such an extent that they are perceived as objective, clinical and forensic, which overlooks many of the social

dynamics of which they are comprised, and particularly the way in which they generate largely negative emotions. In addition to producing an interpretation of what occurred (e.g., Brown & Jones, 2000), public inquiries also produce emotions, especially for individuals who feel that their evidence and submissions to the Royal Commission were misinterpreted in hearings and recommendations. My model proposes that anger, stress and sadness were all carried forward into organisational sensemaking as individuals struggled to interpret the equivocality associated with the Royal Commission's report. Different interpretations of evidence, selective omissions and commissions, and authorial strategies shape a particular version of an inquiry's report (e.g., Brown, 2000; 2004). For those individuals required to appear before the inquiry and/or charged with implementing its recommendations, equivocality and emotion are bound up together. Therefore, my study shows how public inquiries give rise to negative emotions, and have a far greater impact on individuals than research to date has suggested.

My study identifies specific types of emotions which arise when making sense of public inquiry recommendations. Scholars to date have suggested that examining for and conceptualising emotion is challenging and that it often becomes obscured during times of organisational change (Fineman, 2004). We know that change triggers an emotional response in both crisis and non-crisis situations as levels of cognitive loading increase (see Weick 1988; 1990 & 1993; Weick, Suttcliffe, & Obstfeld, 2008). My findings identify the extent to which anxiety, stress, sadness, shock, guilt and anger surfaced as individuals relived their experiences from both Black Saturday and the Royal Commission as they interpreted the equivocality surrounding Recommendation 1. My findings also show that positive emotions, such as trust, confidence and happiness arose as sensemaking and learning progressed although, when deeper, more reflective learning occurred, negative emotions were reported once again. My model suggests shows that in many ways cognitive loading and emotions that arise during a disaster are only the beginning of a cycle of emotionality, which influenced

sensemaking and learning in the two emergency management organisations and during which emotions change over time.

It is clear that the emotions which arose from Black Saturday influenced the manner in which sensemaking occurred during the Royal Commission and afterwards, in organisations. For example, the participants in my study felt that the public outcry arising from the damages and losses caused by Black Saturday prompted cross-examinations of witnesses during the Royal Commission which focused on individual actions and decisions rather than on the specifics of the circumstances which arose from the unprecedented weather on the day and the effect this had on the fires.

As a result, the Royal Commission's questions seemed to create a perception amongst media commentators and the broader community that individuals had failed in their duty to protect Victorian communities on Black Saturday.

The anxiety and stress which individuals experienced prior to the fires and during the day itself, coupled with the sadness and guilt in the immediate aftermath, were exacerbated by feelings of shock and anger about the conduct of the Royal Commission. Clearly emotions spread across individuals to create an emotional 'state' (Cornelisson, Mantere, & Vaara, 2014). Consequently, when the Royal Commission recommendations were released, individuals were experiencing high levels of negative emotion as they began to make sense of the equivocality surrounding the commission's recommendations. So, while studies to date suggest that sensemaking is more effective when emotions are held in check (Catino & Patriotta, 2013), my study shows that the process of meaning-making that surrounds equivocality in organisations after a disaster is in fact suffused with emotion which plays an important part in fuelling sensemaking. Accordingly, I propose that the role of emotion during sensemaking and after disasters results less in "the simplicity of action" and more in the "complexity of thought" (Colville Brown, & Pye, 2012: 5) which is very necessary as individuals seek to move beyond equivocality so that they can prepare for future fires.

Accordingly, I propose that tensions between equivocality and negative and positive emotion provides an important basis for sensemaking and learning. My model proposes that the negative emotion prompted by equivocality sparked a process of sensemaking and learning. This is important, particularly because existing research suggests that sensemaking is more effective when emotions are held in check. This lends support to the notion that emotions impede organisational change (Maitlis, Vogus, & Lawrence, 2013). However, my study shows that negative emotion prompted sensemaking and sensegiving in such a way that it re-interpreted Recommendation 1. So much so that it became meaningful for groups within organisations and enabled them to bring about change through double-loop learning at which point positive emotions began to surface. In providing insights into this process, my study shows how both negative and positive emotions play a role in influencing and indeed shaping cultural readjustment in organisations, which would not occur if emotions were, as studies suggested (see Mumby & Putnam, 1992; Weick, 1993; Maitlis & Sonenshein, 2010), an inhibitor of sensemaking.

While my findings lend support to studies which have suggested that negative emotion is likely to provide the basis for sensemaking (Maitlis, Vogus, & Lawrence, 2013), my study shows the role of positive emotion. The role of positive emotion has attracted little attention in sensemaking studies that appear to assume that individuals will be more inclined to associate negative feelings or experiences with problems in their environment whereas positive feelings signify safety (Maitlis, 2005). However, my findings show that individuals experience positive emotions as they made sense and noticed learning cues which enabled them to bracket the organisational processes relating to warning and information that could be improved by implementing Recommendation 1. Moreover, as double-loop learning began to take effect, individuals began to experience feelings of trust, confidence and happiness as their organisation returned to a sensible state after a period of protracted equivocality. However, as individuals begin to reflect on the likelihood of future fires, negative emotions,

such as anxiety, returned. Accordingly, my model challenges existing research insofar as it suggests that individuals only notice and make sense of equivocality when experiencing negative emotion. My model shows that positive emotions provide a basis for individuals to make sense in a prospective manner as individuals move between different episodes of emotionality and equivocality.

Finally, the temporal component of emotion in my study is interesting. My model shows that negative emotion is high during times of sensemaking as individuals struggle to make sense of equivocality. However, as they grapple with equivocality and create plausible meaning, positive emotions surface as they begin to learn from their experiences and implement double-loop learning. While negative emotion fuels sensemaking, positive emotion after individuals have made sense of equivocality, fuels learning (Maitlis & Christianson, 2014).

In sum, my study shows how equivocality from public inquiry recommendations prompts sensemaking in emergency management organisations and how this provides a basis for learning. My study shows that sensemaking occurs amongst different hierarchical levels. I also find that emotion plays an important role in the sensemaking processes retrospectively but also prospectively as individuals begin to consider the likelihood of future bushfires.

7.3 Limitations and future research

While my study makes a number of contributions to theory, I recognise that there are a number of limitations associated with my research. Like scholars before me, I acknowledge that my findings and contributions are a subjective and idiosyncratic reflection of my qualitative and interpretive methodology (e.g., Brown 2000; 2004; Gephart, 1993). Also, I was not directly part of Black Saturday or involved in the following Royal Commission. I therefore relied heavily on interviews with those that did. While each of the interviewees in this study did live through the experience of the Black Saturday fires and the subsequent Royal Commission and shared their accounts of those experiences with me, they invariably

have private views about some of their experiences that they may not have shared. Furthermore, the views of the interviewees are also subjective and idiosyncratic insofar as they make choices and selections about different events which they choose to emphasise as part of their experience. Moreover, I am aware that the interviewees may consciously or unconsciously omit certain facts about the events which occurred in relation to Black Saturday, the Royal Commission and the ways in which the recommendations were implemented in their organisation. Furthermore, I am aware that interviewees may have emphasised different aspects of their experience if I conducted interviews with them sooner (or indeed at a later date) after Black Saturday and/or the Royal Commission.

My study includes no measurement or evaluation of the effectiveness of the changes which occurred in various organisations and whether they actually improved organisational performance in relation to preventing and managing bushfires. Therefore, my investigation of single loop and double loop learning is grounded in terms of whether sense was made, narratives were established, and organisational changes were made. It does not involve a formal evaluation of those changes over time. Similarly, as I explain in more detail in Chapter Three, in identifying and analysing emotions, I am relying on retrospective accounts by individuals (for more details see pp. 48-62). Finally, I also acknowledge that my thesis is an artefact, produced by my authorial strategies and use of rhetoric to produce a particular account. Despite these limitations, my study does suggest some promising avenues for further research.

Notwithstanding the limitations of my study, it makes a number of important contributions to existing understandings of sensemaking, learning and emotion which I have presented here. It also provides a basis for future research. Invariably, significant bushfires like Black Saturday will occur in the future yet there are very few studies which observe how equivocality emerges and how it influences the sensemaking, learning and emotions of emergency management professionals in real time. Consequently, I suggest that future

ethnographic studies would have a lot to offer. In the first instance, ethnographies of sensemaking during disasters have great potential to broaden our knowledge of the equivocality which emergency management practitioners encounter under emergency conditions. Such studies may not only enable us to understand the situations which give rise to equivocality but also offer an opportunity to understand how sense is made.

Similarly, real-time ethnographies of public inquiries – where the emotional impact on and displays of individuals can be more closely examined would offer considerable insight. Moreover, they may also provide a basis for Royal Commissioners to be less judgmental when pointing to failures of the emergency management organisations on days like Black Saturday. Finally, ethnographies that examine how organisations make sense of and learn from inquiries as they do so would also help us understand how to help organisational change efforts of this nature, as well as providing a way to examine more critically whether inquiry recommendations do indeed form an effective basis for improving how emergency management organisations respond to disasters responses. Such ethnographic work is not easy to conduct but it does address some of the limitations of my study's reliance on retrospective interviews. Consequently, I encourage further research that actively involves those who work in emergency management.

7.4 Practical contributions

My study so far has comprised extending organisational theory based on practitioner experience. While my thesis presents several theoretical contributions I believe that my study also makes a number of practical contributions. Many of the interviewees who participated in this study expressed hope that the findings of this study may be used to improve the conduct of emergency management in two ways. First from a *policy* perspective and second from a *practice* perspective.

In the first instance from a policy perspective, I believe that this study provides policymakers with an evidence base for improving the ways in which we make sense of and

learn from natural disasters. There are clearly multiple options available to government which allow for a more procedural way of conducting inquiries which may enable individuals in incident control or operational firefighting leadership roles to recount their experiences while sparing them the emotional trauma of a cross examination about a disasters which have most likely left them with residual stress, anxiety and worry.

Second, while my study shows the importance of sensemaking and learning after disasters, it also suggests that the negative emotions associated with these processes can impact on the wellbeing of senior managers, middle managers and functional experts. Yet, with commentators suggesting that natural disasters are likely to increase in the future, it is likely that public inquiries will continue. To alleviate impacts of stress, anxiety and even anger on individuals at different hierarchical levels, I suggest that there is a need to focus less on retrospective sensemaking in relation to emergency service decision-making and more on prospective sensemaking which examines reflects and improves on the way that the community prepares for the natural disasters which will inevitably occur in the future. For this to happen, there needs to be a shift whereby the community through its planning and preparedness perceives itself as active partner of emergency management organisations rather than a passive recipient of their decisions.

The remainder of this section further reflects on my practical contributions while also identifying the challenges that come with moving theoretical contributions from research in practice. While the government may influence policy and practice change in emergency management organizations there remains work to do to ensure that those living in bushfire prone areas are aware of how they can prepare for days like Black Saturday and have a plan in place to ensure that they do not find themselves in harm's way of the fires and natural disasters of the future.

7.4.1 Public inquiry models, sensemaking and learning

While emergency management organisations have grappled with the

recommendations which have emerged from bushfire public inquiries since 1939, there is little doubt that 76 years of sensemaking and learning has led to innovations. We have seen improvements in community bushfire education programs, advances in modelling fire behaviour, more sophisticated approaches to deliver bushfire warnings, an increased emphasis on planned burning to prepare for fire seasons and greater integration across emergency management agencies. However, the sensemaking and learning surrounding such innovation has been challenging for individuals at all hierarchical levels, not least because of quasi-judicial approach that was taken to collecting evidence as part of the Royal Commission.

There seems to be a perception amongst senior managers, middle managers and functional experts that a more robust process for deciding which type of public inquiry should be used to make sense and learn from major bushfire. For example, a number of the interviewees in my study suggested that there was no clear reasoning behind the appointment of a Royal Commission. For example, one interviewee commented:

> It was pretty clear early that an inquiry was going to happen but nobody was too sure how it was going to happen. The Premier was asking about what to do and then he just announced that it was going to be a Royal Commission when he was asked at a media conference. I suppose it showed that around government nobody was entirely certain how to proceed. Everybody was looking to each other to find out what was going on (Communications Manager 1, ORG A).

It seems like the Victorian Government struggled to know what to do in the aftermath of Black Saturday. Having conducted this study, it seems that the decision was made in haste to conduct a Royal Commission when other non-judicial options were available (see Eburn & Dovers, 2015). For example many of the interviewees in my study suggested that the review committee approach used after the Ash Wednesday fires 1983 would have satisfied the requirements for establishing key facts about the significant bushfires which occurred on Black Saturday which could have been used as the basis for making recommendations for

future change to emergency management organisations.

The findings from my pilot study showed that the non-judicial approach taken by the review committee from the Ash Wednesday fires played a key role in capturing important sensemaking and learning cues which provided the basis new practices while also facilitating a broader debate about the role of the community in emergency management. A number of the participants in my study suggested that the review committee inquiry was successful because it was chaired by emergency management experts – not by lawyers, who intricately understood the nuances and challenges associated with managing bushfire in Victoria. Accordingly, their recommendations focused on change which needed to be made to organisational systems for the fires of the future while prompting a broader societal discussion about living in Victoria which has always been considered one of the most bushfire-prone areas in the world. This was in direct contrast to the Black Saturday Royal Commission, which had a retrospective focus, which resulted in many individuals being blamed, scapegoated and even vilified.

While it was important to examine what happened and why after Black Saturday it seems that the Royal Commissioners overlooked the fact that to live in Victoria is to live with bushfire. There is very real concern amongst the participants in my study that the retrospective nature of the Royal Commission has created an ingrained belief that we can prevent all bushfires or predict when and where they will happen. It seems that a more prospective approach to sensemaking during the Royal Commission may have challenged the sense of entitlement within the Victorian community to own and develop land in fire-prone areas.

While the Royal Commission forensically cross-examined the Victorian emergency services there was a compassionate sensitivity shown to members of the community. Much of this sensitivity has continued since with government reluctant to raise the matter of community accountability for their behaviour before, during and after a bushfire. More

attention continues to be focused on emergency services and the past, which is interesting, particularly when the community can do so much to protect themselves and each other. It seems that there is a need for greater discussion during public inquiry processes about community accountability, particularly when recent research (see McLennan, Elliot & Wright, 2014), suggests that the people who live in some of the highest fire risk communities in Victoria are choosing to take a passive approach to bushfire preparedness and planning insofar as they wait to see what happens on high fire danger days rather than having a plan and knowing what they will do before a fire is ignited (Dwyer, 2015; McLennan, Elliot & Wright, 2014). There is then, considerable scope for my study to contribute to development of future public inquiry processes which put an emphasis on extracting meaningful sensemaking and learning cues which consider the specifics of individual fire events against the fire prone context of Victoria. My hope is to contribute to the implementation of Recommendation 67 of the Royal Commission's report of recommendations

> The State consider the development of legislation for the conduct of inquiries in Victoria—in particular, the conduct of royal commissions (Parliament of Victoria, *Victorian Bushfire Royal Commission Summary Report*, 2010: 34).

To alleviate some of these challenges associated with Royal Commissions after bushfires, I propose that new legislation which provides for a more consultative and less judicious approach so that deliberations focus more on circumstances, events and organisational systems rather than individuals. My model suggests that more procedural emphasis on sensemaking and learning during Royal Commissions, rather than on allocating blame, may result in more meaningful sensemaking and learning cues that help emergency management practitioners to change organisational practices more easily.

Accordingly, to support such change, I encourage further research that involves the study of individuals who have lived through disasters and the resulting public inquiries. Such studies may not only build momentum for change and increase meaningful learning, but also

have a cathartic effect whereby individuals can reflect on their experiences of a major event and broker them into learning and change, hence returning the organisation to a sensible environment after a period of protracted equivocality.

7.4.2 Towards a learning culture

Although scholars to date have noted that knowledge for academics and practitioners means different things (McKelvey, 2006), I believe that engaged scholarship needs to extend beyond achieving theoretical gains and place an increased emphasis on building collaborative relationships. As part of my study I have committed to building theory from practice with the next step being to work with Emergency Management Victoria (https://www.emv.vic.gov.au/how-we-help/reviews-and-lessons-management) to bring about a praxis whereby practice informs theory and theory informs practice in Victorian emergency management organisations. By doing so I hope to further extend the existing learning culture within emergency management organisations beyond emergency operations.

While a learning culture is well developed at operational level within Victorian emergency management organisations, insofar as debriefing occurs and corrective actions developed after every response to an emergency, there remains great scope to develop a reflective learning culture at the organisational level. Figures 1, 3 and 4 offer senior managers, middle managers and functional experts an evidence-based framework for progressing the implementation of complex recommendations from public inquiries. My hope is to actively work with the appropriate interviewees from this study to transfer the knowledge comprising each of Figures 1, 3 and 4 into workforce training initiatives at both operational and organisational levels within Victorian emergency management organisations. While implementing organisational change is challenging within ‘normal’ work environments (Stensaker, Falkenberg & Grønhaug, 2008), my study suggests that emergency management organisations operate in an environment where equivocality is omnipresent from multiple sources across different spaces from different times. Moreover, managing

equivocality is much more challenging for emergency management professionals because of the likelihood that trauma will accompany many of the events which they deal with as part of their core business.

Figures 1, 3 and 4 provide a basis for discussing the next steps in relation to how emergency management practitioners make sense and learn from public inquiry recommendations. By modelling the experiences of those who lived through Victoria's worst bushfire events and the subsequent public inquiries which followed them, my study also provides a foundation for emergency management organizations to ensure appropriate peer support mechanisms are in place before, during and after significant bushfires as individuals work through equivocality while seeking to facilitate sensemaking and learning. By doing so, I hope that the burden of negative emotions are acknowledged, shared and normalised within organisational culture as opposed to individuals carrying them as a personal burden. More importantly, I hope that this work can mitigate the circumstance arising where people feel they have no alternative but to leave their role because they feel responsible for disasters.

By bringing attention to the role of emotion in sensemaking and learning it is my hope that this study provides pathways towards managing negative emotions more strategically and individuals able experience more positive emotions as part of a sensemaking and learning culture. Accordingly, I would suggest that it may be worthwhile for emergency management organisations to develop training for senior managers, middle managers and functional experts which encourages more awareness about the role of emotions in many different aspects of their work. By doing so, it my hope that they can (as much as possible) make sense in as meaningful ways of their work experiences before, during and after major emergency events while becoming more comfortable with the prospect of working in an environment where events such as Black Saturday are likely to occur in the future.

7.5 Personal reflection

I began this study in 2012 in the aftermath of Black Saturday and the subsequent

Royal Commission. One of my primary aims in conducting this study was to examine whether public inquiries make a difference in emergency management organisations. It was a question I had been curious about for a number of years and it had been sparked by my previous career in the Victorian public service. In 2003, I had started working with a Victorian government department shortly after The Alpine Fires of 2002-2003, which led to 13,000 kilometres of land being burned. While no lives were lost in those fires, the scale of the damage caused to the landscape prompted the government to undertake a review of Victorian emergency management which resulted in 47 recommendations. In 2005, I commenced a management role with responsibilities for performance improvement in ORG B. I often had to report back to my former government department progress made on the implementation of recommendations. It was difficult to know what constituted a recommendation being implemented and even more difficult to evaluate whether organisational learning had occurred. Moreover, I recalled that many of the recommendations in this inquiry were similar to those that had appeared in prior reports of public inquiry recommendations. While in this role during bushfire season, I was also an operational firefighter for ORG B where I became aware that public inquiry recommendations could be a source of great frustration for practitioners who do not think they necessarily result in meaningful learning or change. While I shared many of the frustrations of my colleagues, I wondered if continuous learning would occur within the organisation without a requirement prescribed by recommendations. In this role, I continued to be intrigued by the fact that organisational learning was almost always retrospective. I was also interested in the difficulties of making organisational change. These are insights which have guided me in my study.

Although the government department for which I worked did much valuable work, I was often struck by how difficult it was to make sense and learn in a prospective manner particularly when the challenges were well known. It was at this point that I realised that

change is complicated and that even when the perception is that the organisation has learned we witness occurrences such as Black Saturday where no policy or system could have prepared the State for anything less than significant damages and losses.

Over the six years I worked in emergency management in Victoria, I observed many of the challenges which emergency management practitioners encounter, from protracted fire seasons exacerbated by climatic conditions to trying to work in an integrated manner with many organisations having responsibilities for different aspects of bushfire planning and response. Furthermore, a key part of my role was testing new technology in bushfire-prone areas and evaluating its effectiveness based on feedback from emergency management organisations and the community. Professionally, I came to know many of the emergency services and community leaders in the communities around Victoria, including those affected by Black Saturday. During my time I learned great deal from many of these professionals and volunteers. As an operational firefighter on the fireground and a community information officer in the incident control centre, I personally became aware of the many perils facing emergency management professionals.

The volatile nature of Victoria's climate means weather conditions can rapidly change the conditions faced by firefighters from benign to deadly dangerous. On each occasion I was on the fireground there was near-miss incidents which arose from falling tree branches and changes in the directions in which fires moved. Similarly, in incident control roles as a communications officer I occasionally found myself in the challenging circumstance where it was difficult to know where the fire was and what it was doing. This made it very difficult to issue timely and effective warnings particularly when I knew that wrong or inaccurate warning information could trigger decisions by the community to leave their property, only to be met by the dangers of flame on the road.

On the day of Black Saturday, I reflected a lot on my emergency management career and thought about many of my former colleagues. I had left ORG B three months before

Black Saturday and often wondered how I would have coped on such a day. Moreover, I became concerned that I could be called before the Royal Commission to provide evidence about the performance review standards which I had a key role in maintaining at ORG B. I had been advised that I should expect to be called. However, this did not happen and it soon became clear that the Royal Commission was more concerned with cross-examining senior managers and key incident control staff who were operational on the day.

Like many interested observers I watched as the Royal Commission unfolded, often with great sympathy for my former colleagues (as well as for the victims of the fires) as they were blamed for the events of Black Saturday and it became apparent to me that the Royal Commissioners had little regard for the broader context of emergency management. At times, I became angry that the Royal Commissioners permitted such unfair cross-examinations of individuals who were living through the trauma of what had happened on Black Saturday as well as being in the midst of fire season that carried a real threat of more disaster. Furthermore, I perceived much of the media commentary to be sensationalist at a time when a measured analysis was what was really required.

In 2014, I began interviewing many of my former colleagues in both ORG A and ORG B as part of this study. Black Saturday evoked many emotions for them and, while it was a difficult experience, they were keen to share it in the hope that my study might prompt a change in the way that Royal Commissions are conducted. On a number of occasions I found myself feeling somewhat guilty that I had left ORG B and was spared the stress of Black Saturday and the Royal Commission as my former colleagues recounted some very sad and distressing stories. I also became angry and saddened when I met former colleagues who had carried blame and guilt from their Black Saturday and Royal Commission experience to such an extent that they resigned. This meant that State of Victoria lost some of its most experienced and knowledgeable bushfire experts.

My previous experience and network of established relationships in Victorian

emergency management meant that I was able to engage individuals in my research who otherwise may not have participated in such a study. As I conclude this thesis, I believe that the next stage of my engaged scholarship journey is to use my findings to shape and prompt change in emergency management (Van de Ven, 2007). This is a difficult process given that knowledge in research and knowledge in an organisation carry very different meanings with scholars suggesting there are tensions between the two (Bartunek & Rynes, 2014; Van de Ven & Johnson, 2006).

As I begin the next stage of my engaged scholarship journey I look forward meeting the challenges of enabling, facilitating, convening and supporting knowledge transfer (Bansal, Bertels, Ewart, MacConnachie, & O'Brien, 2012), particularly since this was one of the main reasons why many people chose to participate in my study. It is also why I chose to undertake this project. In my future work, it is my hope that I can somehow facilitate, convene and support the move to prospective public inquiry sensemaking so that future emergency management professionals might be spared the traumatic experience of a judicial Royal Commission and, thereby, helped to engage positively with change initiatives taking place within their organisations – initiatives designed to address the ongoing and intensifying challenges of bushfires

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Appendices

Appendix 1: Ethics Approval

THE UNIVERSITY OF MELBOURNE

27 March 2014

Professor Cynthia Hardy
Department of Management and Marketing
The University of Melbourne

Dear Professor Hardy,

I am pleased to advise that the Business and Economics Human Ethics Advisory Group has approved the following Minimal Risk Project.

Project title: Public Inquiry Sensemaking in Victorian Emergency Management Organizations

Researchers Prof Cynthia Hardy, Prof Graham Sewell, A/Prof Susan Ainsworth, Mr Graham Dwyer

Ethics ID: 1441442

The Project has been approved for the period: **27 March 2014 to 31 December 2014**

It is your responsibility to ensure that all people associated with the Project are made aware of what has actually been approved.

Research projects are normally approved to 31 December of the year of approval. Projects may be renewed yearly for up to a total of five years upon receipt of a satisfactory annual report. If a project is to continue beyond five years a new application will normally need to be submitted.

Please note that the following conditions apply to your approval. Failure to abide by these conditions may result in suspension or discontinuation of approval and/or disciplinary action.

(a) **Limit of Approval:** Approval is limited strictly to the research as submitted in your Project application.

(b) **Amendments to Project:** Any subsequent variations or modifications you might wish to make to the Project must be notified formally to the Human Ethics Advisory Group for further consideration and approval before the revised Project can commence. If the Human Ethics Advisory Group considers that the proposed amendments are significant, you may be required to submit a new application for approval of the revised Project.

(c) **Incidents or adverse affects:** Researchers must report immediately to the Advisory Group and the relevant Sub-Committee anything which might affect the ethical acceptance of the protocol including adverse effects on participants or unforeseen events that might affect continued ethical acceptability of the Project. Failure to do so may result in suspension or cancellation of approval.

(d) **Monitoring:** All projects are subject to monitoring at any time by the Human Research Ethics Committee.

(e) **Annual Report:** Please be aware that the Human Research Ethics Committee requires that researchers submit an annual report on each of their projects at the end of the year, or at the conclusion of a project if it continues for less than this time. Failure to submit an annual report will mean that ethics approval will lapse.

(f) **Auditing:** All projects may be subject to audit by members of the Sub-Committee.

Please quote the ethics registration number and the name of the Project in any future correspondence.

On behalf of the Ethics Committee I wish you well in your research.

Yours sincerely,

Ms Jane Hronsky, Chair
Faculty Human Ethics Advisory Committee

Cc Prof Graham Sewell, A/Prof Susan Ainsworth, Mr Graham

Research Support Unit, Faculty of Business and Economics
The University of Melbourne, Victoria 3010 Australia
T: +61 3 8344 1670 **F:** +61 3 9349 5021 **E:** fbe-research@unimelb.edu.au
W: www.ecom.unimelb.edu.au/research/

unimelb.edu.au

Appendix 2: Plain Language Statement

PLAIN LANGUAGE STATEMENT FOR INTERVIEWEES

PROJECT: Public Inquiry Sensemaking in Victorian Emergency Management Organizations

HREC Ref: 1441442.1

Dear [Insert name of the interviewee]

My name is Graham Dwyer and I am a PhD student at the Department of Management and Marketing at the University of Melbourne.

I would like to invite you to take part in a research project. The aim of the study is to learn how emergency management practitioners understand and implement public inquiry recommendations about significant bushfires in Victorian emergency service organizations. While I am particularly interested in recommendations made by the Black Saturday Royal Commission, there is ongoing interest in this issue because significant bushfires occur during summer months in Victoria. This means that public inquiries are likely to continue to be used by government when reviewing the causes and consequences of these events. Through practical insights the research hopes to contribute to a better understanding about how people understand public inquiry recommendations and implement them in their organization so that we can prepare better for future fires.

I am currently on a leave of absence from my role as a policy officer at the Department of Transport Planning and Local Infrastructure to collect data for my PhD. I used to work at the Department of Justice between 2003 and 2006 and the Department of Environment and Primary Industries between 2006 and 2008. While this study stems from my knowledge of working in emergency management and bushfire roles prior to 2008, it is not directly connected with my current employment and there is no conflict of interest. This study has been approved by The University of Melbourne's Human Research Ethics Committee.

What you will be asked to do
You have been selected for this study because you have been involved in the implementation of recommendations which were made by the Black Saturday Royal Commission. Should you agree to participate, I will interview you about your experience. I am mainly interested in how you and your colleagues understood the recommendations and whether and how they have been implemented. Overall, the interview should take about one hour.

Your participation
The risks related to participation in this interview are minimal. Please note that your participation is voluntary. You have the right to refuse participation and withdraw from the interview at any time and request any unprocessed data be withdrawn, without being penalised.

Your privacy protection
My notes, transcripts, and any other documents that you provide, will be kept confidential, within the limits of the law. Your name, contact details and any information you provide will be kept in separate

files on a password-protected computer for at least five years after the results are published, and then destroyed.

You will not be identified in any publications resulting from this study. All personal information that may enable somebody to guess your identity or the identity of your organization will be removed. However, the small numbers participating in the study mean that it may be possible that somebody could identify you.

How you will receive feedback
Once the research has been finalized, your organization will receive a summary of the findings of my thesis. You will also have the opportunity to attend a presentation of the findings after the thesis has been submitted.

How to get further information
For further information about this project, please do not hesitate to contact me through the details below.

You are free to raise any concerns about the conduct of this research with the **Executive Officer, Human Research Ethics, The University of Melbourne, on phone: +61 3 8344 2073, or fax: 9347 6739.**

Your agreement to participate
If you wish to participate in the study, please sign the attached consent form indicating that you have read and understood the information provided in this statement.

Contact information:
Graham Dwyer (Researcher)
Department of Management and Marketing
Email: g.dwyer@student.unimelb.edu.au
Phone: +61 3 9035 5295

Professor Cynthia Hardy (Supervisor)
Department of Management and Marketing
Email:chardy@unimelb.edu.au
Phone: +61 3 8344 3719

Associate Professor Susan Ainsworth (Supervisor)
Department of Management and Marketing
Email: susanaa@unimelb.edu.au
Phone: +61 3 9035 5639

Professor Graham Sewell (Supervisor)
Department of Management and Marketing
Email: gsewell@unimelb.edu.au
Phone: +61 3 8344 4481

Appendix 3: Consent form

Department of Management & Marketing

Consent form for participating in interviews

Project Title
Public inquiry sensemaking in Victorian emergency management organizations

Participant Name:

Name of Researchers:

Graham Dwyer
Professor Cynthia Hardy
Associate Professor Susan Ainsworth
Professor Graham Sewell

- I understand that by signing this consent form I am agreeing to participate in this research study.
- I understand that by signing this consent form I am agreeing that information from participation in an interview will be used as part of a research study and that this form will be retained by the researcher.
- As part of this understanding and consent I have been provided with a written plain language statement which has been explained to me and I understand what my involvement in this study entails.
- I understand that by agreeing to participate in this study, notes, observations, recordings and transcriptions will be made of this interview.
- I understand and agree that my comments may be quoted directly in the researcher's thesis and academic publications with my identity disguised as a pseudonym.
- I have been informed and understand that I can withdraw from this project at any time for reasons that I am not required share with others and can withdraw any unprocessed data I have provided.
- I have been informed and understand that no personal identifiers will appear in the PhD thesis or any subsequent research report or publication without my prior written consent.
- I have been informed and understand that the information that I provide as part of this interview is for the purpose of social science research only.
- I have been informed and understand that this interview will be recorded and that all audio files will be deleted after they have been transcribed by the researcher.

- I have been informed and understand that the information I provide as part of this interview will be stored on a password-protected computer and where necessary in a locked cabinet in a secure area at the University of Melbourne for a period of five years.

- I have been informed and understand that I have the option of attending a presentation of the research findings after the thesis has been submitted.

I agree that my comments may be directly quoted anonymously and with personal and organizational details disguised in academic publications resulting from the study

Please tick: Yes☐ No☐

I wish to attend a presentation of the findings after the thesis has been submitted

Please tick: Yes☐ No☐

Participant signature:

Date:

Appendix 4: Interview schedule

Interview Schedule

The Black Saturday Royal Commission (BSRC) laid out a lot of recommendations for organizations like yours and there has been a lot of commentary during this recent fire season about how much emergency management organizations have learned from BSRC. I am interested in learning about how inquiries like BSRC influence what organizations like this actually do, and how organizations go about implementing recommendations.

1. Has the BSRC changed how this organization functions and if so how? Has it changed your particular job and if so how? Can you give some examples? What have been the most important changes? Can you explain why they are important?

2. Is there a formal process that your organization uses for implementing changes like these? Can you please walk me through the steps of how your organization goes from understanding public inquiry recommendations to implementing them as part of core business?

3. In the case of BSRC's recommendations – was it clear what they involved? Was there any confusion or conflict at the beginning of the process about what they meant? What were the different views? Who held them? [Probe different departments and different hierarchical levels] Can you give an example of confusion and conflict? How was it resolved?

4. Did the way in which people understood the recommendations change over time, for example as other functional areas or different levels of the organization become involved in the discussions? Can you give an example?

5. Is there one particular area or level of the organization that would usually take the lead when working through what public inquiry recommendations mean and putting them into practice?

6. What do you find gets in the way of understanding public inquiry recommendations and do you find this has an impact on the organization's ability to implement the recommendation?

7. Would you say that the Royal Commission understood the role of your organization properly? Could the Royal Commission have made some recommendations in a way that would have been more appropriate for your organization or that would have been easier to implement?

8. Was understanding and implementing the recommendations from the Black Saturday Royal Commission done differently to other public inquiries?
9. The BS bushfires were obviously very emotional because so many people died and so many properties were lost. Has that emotion carried over into subsequent years? Obviously, the bush fire season occurs every year and presumably changes are regularly implemented? What it's like as a new bushfire season approaches? Is there heightened anticipation? Do people get stressed?

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We have not lived long enough: Sensemaking and learning from bushfire in Australia

Graham Dwyer and Cynthia Hardy
The University of Melbourne, Australia

Abstract

Organizations increasingly find themselves responding to unprecedented natural disasters that are experienced as complex, unpredictable, and harmful. We examine how organizations make sense and learn from these novel experiences by examining three Australian bushfires. We show how sensemaking and learning occurred during the public inquiries that followed these events, as well as how learning continued afterward with the help of "learning cues." We propose a model that links public inquiry activities to changes in organizational practices. Given the interesting times in which we live, this model has important implications for future research on how new organizational practices can be enacted after public inquiries have concluded their work.

Keywords

Novelty, organizational learning, public inquiries, sensemaking

Introduction

Over the last decade, the earth's natural environment has provoked a growing and justifiable level of concern over our ability to cope with major catastrophes (Pelling, 2010). Atmospheric scientists are attributing higher temperatures, wind speeds, and moisture deficits to climate change, which is subsequently causing natural disasters that have become more frequent, complex, and devastating (Birkman, 2006). Hence, in the last decade, we have witnessed earthquakes, flooding, droughts, and bushfires becoming more frequent and more damaging (Glade et al., 2010). Such natural disasters are proving to be a challenge for emergency management practitioners, including government ministers, policy-makers, police officers, fire fighters, weather forecasters, and geospatial analysts. Despite being well prepared, organizations still struggle to respond effectively to natural disasters (Mileti, 1999) because their learning from previous events is undermined when new or unfamiliar conditions unfold.

Natural disasters are what Weick (1988) refers to as high impact–low probability events, meaning that they interact with actors, systems, and routines in the organizational environment in a

Corresponding author:
Graham Dwyer, The University of Melbourne, 198 Berkeley Street, Carlton, Melbourne, VIC 3053, Australia.
Email: g.dwyer@student.unimelb.edu.au

manner that is often rapid, unpredictable, harmful, and on an unprecedented scale. Such disasters impose significant losses and damages on communities globally. Nevertheless, and perhaps surprisingly, critics argue that they have received less scholarly attention than "man-made" crises in organizational, industrial, or political contexts (Sellnow et al., 2002). This study therefore looks specifically at the case of natural disasters to explore how organizational sensemaking and learning unfold in situations where actors struggle with novel conditions. It does so by examining the case of bushfire in Victoria, Australia.

In a normal year, during the summer months, Australia is prone to high levels of bushfire risk, and there are times when such risk is greatly exacerbated by the early onset of summer, prolonged drought, high wind speeds, and low humidity. These conditions mean that when fire is ignited, it creates what Colville et al. (2013b) refer to as "circumstances that are suffused with dynamic complexity" (p. 1201). Three such bushfires that continue to live in the collective memory of Victorians are the focus of this article: the Black Friday Fires, 1939 (71 lives lost); the Ash Wednesday Fires, 1983 (75 lives lost: 47 in Victoria and 28 in South Australia); and the Black Saturday Fires, 2009 (173 lives lost). In each case, the organizations responsible for managing these fires faced conditions that, despite their experience with bushfires, were experienced as surprising, overwhelming, and rare. They represented what Weick (1993) refers to as cosmology episodes, when "the sense of what is occurring and the means to rebuild that sense collapse together" (p. 634). Many of those who lived through them express sentiments that echo Weick (1993): "I've never been here before, I have no idea where I am, and I have no idea who can help me" (pp. 634–635).

Our study shows how the inquiries that followed each of these fires constructed them as novel, justifying the need for retrospective sensemaking and learning through deliberative public inquiry processes. It shows how sensemaking and learning occurred during the inquiries, as well as suggesting how "learning cues" provided a basis for the double loop learning that occurred during the inquiry to extend beyond it and lead to changes in organizational practices. In this way, our study responds to the call for research to explore the theoretical and practical importance of how actors "learn to make sense, and make sense to learn" (Colville et al., 2013a: call for papers). It makes the following contributions. First, it provides an empirical exploration of sensemaking and learning associated with three natural disasters that were described as unprecedented, dynamically complex events. Second, it shows how both sensemaking and learning can occur through the process of holding public inquiries. This is important because most of the theoretical focus on public inquiries has been in relation to sensemaking; we know far less about whether and how inquiries engender learning. Third, our study develops a general model that sets the stage for future research on how new organizational practices come into being after inquiries have concluded their work.

The remainder of this article reviews the literature on sensemaking and learning, with a particular focus on public inquiry processes. It then explains the methods associated with our qualitative, interpretive study of three bushfires. We then present the findings and develop a model of sensemaking and learning. Finally, we discuss the implications.

Sensemaking

Sensemaking is "an ongoing process that creates an intersubjective sense of shared meanings through conversation and non-verbal behavior in face to face settings where actors seek to produce, negotiate and maintain a shared sense of meaning" (Gephart et al., 2010: 284–285). It comprises two primary concepts (Weick, 1995). First, the *sensing* component is built on the premise that actors draw on their lived experience, which is informed by their identity, and influences how they

respond to stimuli such as events, triggers, and surprises (Weick et al., 2005). Cognitively, actors struggle to respond in a meaningful way in an environment where events are perceived to be novel, triggers are seen as sudden, and surprise is experienced as continuous because existing cues and frames offer little or no insight into what is unfolding (Colville et al., 2012, 2013b). Second, the *making* component is built on the premise that people attempt to enact or create sensible environments through "conversational and social practices" (Gephart, 1993: 1469) about specific events to arrive at an understanding about what is plausible, rather than objectively accurate (Weick, 1995). Actors use questioning, framing, bracketing, and storytelling to give meaning to organizational issues in a way that provides the basis for action, even during crises and disasters (Brown and Jones, 2000; Maitlis, 2005).

Crises and disasters trigger "sensebreaking" moments where people lose their ability to impose meaning on events and routines are interrupted (Mantere, et al., 2012). As a result, they also provide powerful conditions for sensemaking as people ask "What is going on?" (Weick, 1993). This questioning provides the opportunity to create new meanings, allowing individuals to understand their experiences and, if there is consensus, facilitate coordinated action (Weick, 1995). However, when individuals fail to understand the implications and lessons to be gleaned from major crises and disasters, they are likely to engage in behaviors with unintended or even tragic consequences because they are confronting novel situations that they do not know how to gauge, process, and manage (Weick, 1990).

Learning

The concept of organizational learning suggests that organizations learn from previous experiences in the same way as individuals share mental modes that detect and correct errors by altering the organization's theory of action (Argyris and Schön, 1996). Such learning is triggered when actors experience

> a surprising mismatch between expected and actual results of action and respond to that mismatch through a process of thought and further action that leads them to modify their images of organization or their understandings of organizational phenomena and to restructure their activities so as to bring outcomes and expectations into line, thereby changing organizational theory-in-use. (Argyris and Schön, 1978: 16)

Hence, organizational learning occurs to the extent that actors extract knowledge from systems at the individual and group levels of the organization (Argyris, 1976) so that change can be made in an evidence-based manner through intuiting, interpreting, integrating, and institutionalizing (Crossan, et al., 1999) in ways that identify and correct errors.

Argyris (1976) argues that such learning occurs in two ways. First, single loop learning occurs through error correction, but without altering the underlying governing values of the system and/or organization. Second, double loop learning occurs when errors are corrected by changing governing values and subsequent actions. Thus, single loop learning produces change within the existing organizational culture, while double loop learning leads organizations to re-evaluate governing values and, potentially, change the culture and practices more fundamentally. Moving from single loop learning to double loop learning allows organizations to adjust their culture so that they can escape the clutches of "cultures of entrapment" which produce antilearning (Sutcliffe and Weick, 2003: 73). Antilearning occurs when an organization's members remain blind to incompetencies and inefficiencies, resulting in inadequate performance that can harm the organization and its stakeholders (Argyris, 1993; Argyris and Schön, 1996).

Public inquiries, sensemaking and learning

Sensemaking and learning are both relevant to public inquiries. Research has found that in addition to the sensemaking that occurs (or fails to occur) during both natural and man-made disasters (e.g. Weick, 1993), sensemaking also takes place in the public inquiries that often follow (e.g. Brown, 2000; Brown and Jones, 2000; Gephart, 1984). In reviewing what happened during the disaster or crisis, public inquiries make sense of it, often in ways that establish accountability, rebuild public confidence, and restore an organization's legitimacy where failure is evident. Much of this research, accordingly, emphasizes the ceremonial and ritualized nature of inquiries and the way in which they create normalized versions of the "truth" (Brown, et al., 2015). Consequently, through rhetorical accounts, public inquiries will often protect the dominance of powerful organizations, often at the expense of individuals (e.g. Brown, 2004; Gephart, 1993).

Some researchers claim that the ritualized and political aspects of public inquiries serve to inhibit learning (e.g. Buchanan, 2011). Nevertheless, public inquiries are generally expected to result in some form of learning and lead to changes in subsequent practices in order that organizations might respond more effectively in the future (Elliott, 2009). Moreover, some studies have demonstrated that public inquiries of disasters *do* prompt managers to implement change. For example, Bowman and Kunreuther (1988) show how data generated from multiple public inquiries triggered safety management initiatives in a 500 Fortune chemical company. Similarly, Turner (1976) demonstrates how "cultural readjustment" (p. 381) occurred in UK state organizations following the Aberfan coalmine accident in Wales (1966–1967), the Hixon level crossing collision in England (1968), and the Summerland leisure complex fire in Isle of Man (1974). However, we still know relatively little about how sensemaking and learning during a public inquiry lead to organizations being better prepared for the future. This study therefore explores the relationship between sensemaking and learning activities during public inquiry processes after dynamically complex events, as well as examining the processes leading to changes in organizational practices that occur after inquiries have run their course.

Methodology and research design

Our research is qualitative and interpretive insofar as it examines "the meanings in use by societal members to explain how they directly experience everyday life realities" and examines how particular meanings become shared (Gephart, 2004: 457). We chose such an approach because sensemaking and learning can be considered to be interpretive processes (Argyris, 1976; Brown et al., 2015; Gephart, 1993; Maitlis, 2005), and we are interested in how public inquiries create meanings for the events that give rise to them, as well as for the changes that may follow them. We examine three case studies of bushfires and conduct a textual analysis of the reports produced by three public inquiries. In doing so, we recognize that a public inquiry report is

> an artefact that has resulted from authorial strategies of selection and omission of material, and which makes use of rhetorical devices … to present *an* (not the only) understanding of events. (Brown, 2000: 49)

Inquiries are ceremonial events with certain ritualized procedures (Gephart, 1984), embedded in a particular cultural and legal context (Brown, 2000), whose aim is to produce accounts that are plausible, verisimilitudinous, and authoritative (Brown, et al., 2012). Accordingly, when we infer instances of sensemaking and learning from such reports, we do not claim that they are "correct" or "accurate" in their representation of events. Instead, we suggest that sensemaking and learning are "manifest in language, text and discourse including conversations,

vocabularies, utterances and documents" (Gephart, 1997: 588), and can therefore be discerned from the analysis of such language.

In addition to inquiry reports, we also analyze other texts that were related to the inquiries but produced afterward as a form of "intertextuality" (Fairclough, 1992). When texts draw on, react to, and transform other texts, certain conclusions can be drawn. For example, in our analysis, when public inquiry reports were referred to in other texts, we were able to make inferences as to whether learning may have taken place. Similarly, insofar as these other texts reported on changes made (or not made) following the inquiries, they provided us with evidence for subsequent changes in organizational practices. In analyzing these texts in this way, we make no inference as to whether the learning was "correct" or whether these changes actually worked. Nor do we use these texts as a form of triangulation, whereby multiple data sources are assumed to represent reality more accurately. Rather, we acknowledge that the views offered in these other texts are subjective and that each genre has its own institutionalized protocols, which shape the rhetoric of their accounts. Nonetheless, these data are still useful to explore learning during and after public inquiries. Finally, we recognize that this article is, itself, an attempt to craft an authoritative account, and we deploy rhetoric in ways consistent with the genre of a scholarly article in order to appeal to our particular audience (cf. Currie and Brown, 2003).

We selected the three case studies—the Black Friday Fires in 1939, the Ash Wednesday Fires in 1983, and the Black Saturday Fires in 2009—because they were perceived to be three of the most significant and damaging natural disasters in Victoria, during which a considerable number of lives and properties were lost (Griffiths, 2010). It therefore appeared likely that sensemaking would occur in the public inquiries that followed them, as in the case of other public inquires dealing with crises (e.g. Brown, 2000; Brown and Jones, 2000; Gephart, 1984; Gephart et al., 1990). Equally, we felt that we would be able to discern evidence of learning (or its absence) from inquiry reports and related texts insofar as public inquiries are expected to be an important vehicle for learning in Australia (Prasser, 1985); and Griffiths (2010) argues that these reports did have a significant influence on emergency management in Victoria. Finally, we felt that the analysis of three case studies would provide more robust findings than selecting a single event.

Data collection

We collected the reports of the public inquiries: the Report of the Royal Commission to Inquire into the Bush Fires of January, 1939 (Black Friday Bushfires); the Report of the Bushfire Review Committee, 16 February 1983 (Ash Wednesday Bushfires); and the Report of the Victorian Bushfires Royal Commission 2009 (Black Saturday Bushfires). We augmented these reports with other texts that were related to the three public inquiries, but produced afterward. Using Factiva, which is a search engine for newspaper articles, TV and radio transcripts, journals, and so on, we identified 20 publicly available interviews with senior fire fighters, commissioners and politicians, 17 newspaper articles, and four web-blogs (see Table 1). These texts were collected because they provided (albeit subjective) views of whether and how sensemaking and learning occurred both during and after the inquiries.

Data analysis

An interpretive approach was used to analyze whether the texts contained evidence of sensemaking and learning and to explore the nature of these processes. Rereading the texts, and relating them to our understanding of sensemaking and learning from the literature, we were able to identify "themes, meanings and patterns in textual data" (cf. Gephart, 1997: 585), from which categories

Table 1. Sources of textual data.

Text source	Relevance	Number of sources
Inquiry reports	Inquiry reports provide detailed accounts of sensemaking over a period of time with input from government, emergency management, and community stakeholders; and provide evidence of learning.	3 Reports
Publicly available interviews	Observers comment on whether they believe the public inquiry made sense of and learned lessons from the previous bushfire, as well as whether sensemaking, learning, and change have occurred subsequently.	20 interviews with politicians, fire fighters, royal commissioners
Media articles	Media articles provide commentaries on whether the public inquiry made sense of and learned lessons from the previous bushfire, as well as whether sensemaking, learning, and change have occurred subsequently.	17 newspaper articles
Web-blogs	Web-blogs provide commentaries on whether the public inquiry made sense of and learned lessons from the previous bushfire, as well as whether sensemaking, learning, and change have occurred subsequently.	Four web-blogs by emergency management practitioners

were constructed. These categories became an emergent theory that provided the basis for an inductively derived model showing patterns of sensemaking and learning (cf. Gephart, 1993).

In the first instance, we examined the public inquiry reports for evidence that the bushfires were perceived to be novel, given our interest in how sensemaking and learning occur in response to novel conditions of dynamic complexity. Table 2 shows how perceptions of novelty were inferred from references in the inquiry reports to the bushfires as "unprecedented," "previously unseen," "catastrophic," "new," "unforeseen," "unchartered," and "unknown." By exploring the excerpts containing these terms, we were able to identify references to accounts by individuals who saw the fires as novel at the time, as well as instances where conclusions of novelty were drawn from the inquiries' overall deliberations. The inquiry reports were then examined for evidence of sensemaking. Excerpts containing references to "understanding," "listening," "review," and "deliberations" were identified. We then explored these excerpts in more detail to see whether there was evidence that the process of receiving submissions, holding hearings, conducting deliberations, and writing a report had served to make sense of the fires for those involved.

The next stage of analysis was to look for evidence of learning. In the context of public inquiries, we conceptualized single loop learning in terms of explanations of what had happened and why during the bushfires. We therefore identified and explored excerpts in the inquiry reports containing references to terms like "learning," "lessons," "mistake," and "experience"—looking for evidence of such explanations. We conceptualized double loop learning in the context of the inquiry in terms of recommendations for more fundamental change. We therefore examined excerpts in inquiry reports containing references to "learning," "continuous learning," "lessons learned," "re-evaluate," "review," "fundamental," "change," and "system" to identify and explore recommendations for fundamental change. We also identified double loop learning that extended beyond the inquiries in the form of subsequent changes in emergency management organizations. To do so, we examined texts produced subsequent to the inquiries to see whether they provided accounts of fundamental changes made after the inquiry and to identify independent views from experts, fire fighters, journalists, and politicians as to whether such learning had taken place. We recognize that views of change as fundamental —including our own—are subjective.

Table 2. Illustration of codes and quotes for key themes.

Indicative codes	Quotes
Novelty: References to a bushfire that was "unprecedented," "previously unseen," "catastrophic," "new," "unforeseen," "unchartered," and "unknown." Analysis of excerpts from inquiry reports undertaken to discern whether and how the bushfire was constructed in relation to novelty.	*Report of Inquiry: 1939 Black Friday* There had been no fires to equal these in destructiveness or intensity in the history of settlement in this State, except perhaps the fires of 1851, which, too, came at summer culmination of a long drought. (Parliament of Victoria, 1939: 6) *Report of Inquiry: 1983 Ash Wednesday* [T]heir extent and severity, especially in terms of the truly disastrous proportions reached on 16 February 1983, constituted an unmistakable peak in the disaster record of the State. (Parliament of Victoria, 1984: 12) *Report of Inquiry: 2009 Black Saturday* Although the fires of January–February 2009 were catastrophic, they were not the first fires to gravely affect the State of Victoria. The outcome of these fires, however—especially the loss of life—surpassed that of past fires. (Parliament of Victoria, 2010: xvi)
Sensemaking: References to the bushfire that referred to "understanding," "listening," "review," and "deliberations" Analysis of excerpts from inquiry reports undertaken to discern evidence of sensemaking.	*Report of Inquiry: 1939 Black Friday* To enable a report of full effect to be made, it would be necessary to inquire into and resolve the preliminary problem of the co-ordination of control of forest lands by, and recognition and preservation of the rights of, the various persons and departments whose interests are rooted in the soil of the forests; to inquire into the constitution and administration of some of these departments; … (Parliament of Victoria, 1939: 7) *Report of Inquiry: 1983 Ash Wednesday* The aim of this report therefore is to consider factors relevant to the bushfires which occurred in Victoria during the 1982/83 season particularly those of 16 February 1983 and to make any necessary recommendation for countering disaster situations in the future. (Parliament of Victoria, 1984: 4) *Report of Inquiry: 2009 Black Saturday* As Commissioners, we concentrated on gaining an understanding of precisely what took place and how the risks of such a tragedy recurring might be reduced. (Parliament of Victoria, 2010: vii)
Single loop learning: References to "learning/lessons," "mistake," and "experience." Analysis of excerpts from inquiry reports undertaken to discern evidence of single loop learning in the form of explanations of what happened and why.	*Report of Inquiry: 1939 Black Friday* Except that the summer of 1938–39 was unusually dry and that it followed what already had been a period of drought, the causes of the 1939 bushfires were no different from those of any other summer. There were, as there always have been, immediate and remote causes. The major, over-riding cause, which comprises all others, is the indifference with which fires, as a menace to the interests of us all have been regarded … (Parliament of Victoria, 1939: 11)

(Continued)

Table 2. (Continued)

Indicative codes	Quotes
	Report of Inquiry: 1983 Ash Wednesday It was clear, therefore, that in spite of experience of past bushfires and the lessons learned from them, the events of the 1982/83 season needed careful analysis and evaluation. (Parliament of Victoria, 1984: 2) *Report of Inquiry: 2009 Black Saturday* The resultant evidence is the most comprehensive ever assembled about the circumstances of deaths in an Australian bushfire. It thus offers an unprecedented opportunity for analysis. Looking back on the experience of 7 February, it is plain that on such days, when bushfires are likely to be ferocious, leaving well before the fire arrives is the only way of ensuring one's safety. (Parliament of Victoria, 2010: 334)
Double loop learning: References to "learning," "continuous learning," "lessons learned," "re-evaluate," "review," "fundamental," "change," and "system." Analysis of excerpts from inquiry reports undertaken to discern evidence of double loop learning in the form of recommendations for fundamental change in bushfire management systems. Analysis of excerpts from subsequent texts undertaken to discern accounts of change and views that learning occurred.	*Publicly available interview: 1939 Black Friday* Fire-fighters are now trained to know when to retreat or leave, and they have the right back-up and support. None of those systems where in place then. (Steve Bracks (2003), past Premier of Victoria) *Publicly available interview: 1983 Ash Wednesday* As a nation, did we learn from the experience? Of course we did. But that was never going to be enough. [I]t is the work of our bushfire scientists over the last two decades … that has made the greatest contribution to saving lives and property. (Gary Morgan (2008), past Chief Executive of the Bushfire Co-operative Research Centre (Bushfire CRC)) *Publicly available interview: 2009 Black Saturday* The 2009 bushfires were subject to an exhaustive Royal Commission of Inquiry. That led to a series of fundamental changes, many of which are largely invisible to the public eye. But they are fundamental. (Craig Lapsley (2014), current Emergency Management Commissioner)
Learning Cues: Analysis of accounts from subsequent texts referring back to recommendations in inquiry reports to explain, justify, or initiate changes in organizational practices.	*Publicly available interview: 1939 Black Friday* [I]t was a turning point in terms of structure and arrangement for fire prevention and fire suppression because when you look at the model [which included a state fire authority, planned burning and clearer responsibilities] which was proposed as a result of the 1939 Royal Commission … (Russell Rees (2003), past CFA Chief Officer)

Table 2. (Continued)

Indicative codes	Quotes
	Web-blog: 1983 Ash Wednesday The 1983 Ash Wednesday bushfires also provided a range of experiences to build upon. The suddenness, the velocity and the deadliness of those fires added considerable urgency as far as our need to know more about a range of variables such as fire behaviour and fire weather [referring to the need to model fire behaviour]. We needed better guidelines on how to manage the land for both bushfire protection and for its conservation value [referring to formalizing the management of major emergencies]. (Gary Morgan (2008), past Chief Executive of the Bushfire CRC) *Publicly available interview: 2009 Black Saturday* The primacy of human life is more obviously at the forefront of all of our activities. That is why the advice to leave a high bushfire area well in advance of a bushfire threat is so prominent in our communications. It is the safest option. Likewise, information and advice to the public is delivered in an integrated and varied way. The advice is as timely and relevant as it can be. The means of delivering this are improving all the time [referring to the need to review of "Stay or Go" policy. (Craig Lapsley (2014), current Emergency Management Commissioner)

CFA: Country Fire Authority.

Finally, we explored the link between inquiry recommendations and subsequent changes in organizational practices. Here, we analyzed excerpts from inquiry reports detailing recommendations for fundamental changes and compared them to accounts in subsequent texts detailing how these recommendations were implemented in the form of changes in organizational practices. In this way, we identified what we refer to as "learning cues" in the inquiry reports, as texts produced after the inquiry referred back to certain recommendations in order to explain, justify, or introduce changes in organizational practices.

Findings

In this section, we first show evidence of novelty, sensemaking, and learning in relation to all three inquiries. We conclude by presenting the particular dynamics associated with each of the three fires.

Novelty and sensemaking

The analysis of the inquiry reports suggests that all three bushfires were interpreted as representing novel conditions that had not been experienced before. The reports conveyed this novelty by drawing attention to unprecedented antecedent conditions before and during the major fires. In all three cases, inquiry reports constructed the fire as so overwhelming that individuals could not make sense of it at the time. Such was the unprecedented nature of all three fires that actors struggled to

frame what was going on, recognize cues, and bring their existing knowledge to bear on the situation. All three reports concluded that these particular bushfires were novel, unprecedented events, based on witness accounts and expert assessments of conditions at the time of the bushfire:

> The speed of the fires was appalling. Balls of crackling fire sped at a great pace in advance of the fires, consuming with a roaring, explosive noise, all that they touched. Houses of brick were seen and heard to leap into a roar of flame before the fires had reached them. Some men of science hold the view that the fires generated and were preceded by inflammable gases which became alight. (Report of Black Friday Inquiry; Parliament of Victoria, 1939: 5)

Inquiry reports argued that because of this novelty, existing procedures had failed to contain the fires, allowing them to escalate significantly and detrimentally. The resulting loss of life and damage to property were so great that it should never be allowed to happen again:

> Black Saturday wrote itself into Victoria's history with record-breaking weather conditions and bushfires of a scale and ferocity that tested human endurance. (Report of Black Saturday Inquiry; Parliament of Victoria, 2010: vii)

If novelty had made it difficult for emergency services to respond adequately to the fires at the time, then sense needed to be made of that novelty retrospectively, through the submissions, hearings, and, ultimately, the inquiry report:

> [T]he truly disastrous proportions reached on 16 February, 1983, constituted an unmistakable peak in the disaster record of the State. It was clear, therefore, that in spite of experience of past bushfires and the lessons learned from them, the events of the 1982/83 season needed careful analysis and evaluation. To this end, in conjunction with other initiatives, the Government decided to establish a Bushfire Review Committee. (Report of the Ash Wednesday Inquiry; Parliament of Victoria, 1984: 2)

The inquiries helped to make sense of the past—the apparent novelty of the bushfire could only to be understood through a post hoc inquiry. However, this attempt at comprehension of past events was clearly made with a view to safeguarding the future:

> We have seen the pain people have endured and continue to bear and, we know it will be a long road to full recovery for many. Bushfire is an intrinsic part of Victoria's landscape, and if time dims our memory we risk repeating the mistakes of the past. We need to learn from the experiences of Black Saturday and improve the way we prepare for and respond to bushfires. (Report of Black Saturday Inquiry, Parliament of Victoria, 2010: vii)

In this way, the inquiry reports adopted a prospective outlook in relation to future learning:

> I am determined that this Royal Commission report is never allowed to gather dust. It is crucial that we grasp the opportunity now to make our State safer. I am equally determined that the path forward unites all Victorians in one commitment to do all we can to preserve human life in the face of the threat of bushfires. (Premier of Victoria, quoted in Department of Premier and Cabinet, 2010: para.10)

Single loop and double loop learning

In making sense of the bushfires, the inquiry reports also provided accounts that indicated single loop learning in the form of explanations of what had happened during each of the bushfires and why it had happened:

> Except that the summer of 1938–39 was unusually dry and that it followed what had already been a period of drought, the causes of the 1939 bushfires have been immediate and remote causes. [I]t will appear that no one cause may properly be said to have been the sole cause. The major, over-riding cause, which comprises all others, is the indifference with which forest fires, as a menace to the interests of us all, have been regarded. (Report of the Black Friday Inquiry, Parliament of Victoria, 1939: 11)

There was also evidence of double loop learning insofar as some inquiry recommendations identified a need to re-evaluate systems that had been considered adequate before the unprecedented nature of fires exposed their limitations. The inquiry reports suggested that preparing for and responding to future bushfires on the scale of those recently experienced would require new practices, routines, and, in some instances, new systems:

> [W]e need to learn the lessons so that problems can be avoided in the future. The Commission therefore examined the policies, systems and structures needed to 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. (Report of Black Saturday Inquiry, Parliament of Victoria, 2010: 4)

The inquiries were, then, a first step insofar as recommendations argued for a need for fundamental changes in the system of bushfire management that, in turn, would require changes in the practices of specific organizations:

> A legacy for governments or a legacy for a fire leader I think will be to introduce these recommendations over time to avoid, as best we can, these sort of events that occurred on the seventh of February. (Jack Rush, Queens Counsel assisting the Black Saturday Inquiry, interviewed by Fyfe (2010))

Thus, double loop learning extended beyond the inquiries as changes were implemented in organizations responsible for bushfire management. For example, a Park Ranger who had witnessed the Ash Wednesday Fires commented on changes that followed the public inquiry:

> Ash Wednesday had jolted fire-fighting services to re-examine how they tackled bushfire. From communications, to the way we transport people, to the way we use aircraft, dozers, the way we configure people across the landscape. It made us look hard at that. It made us look at how we configure our incident management teams, how we train people. (McAloon, 2008: para. 15–16)

Similarly, changes were announced following the Black Saturday Royal Commission, including

> reducing fuel load on public land while monitoring and carefully managing the ecological consequences of such action; maintaining strategic fire breaks to protect communities and their critical assets, such as water; limiting known fire-starting activities on days with a dangerous fire risk; and encouraging individuals living in unacceptably high bushfire risk areas to relocate to safer environments. (Victoria's Emergency Services Minister quoted in Department of Premier and Cabinet, 2011: para.10)

Learning cues

In tracing links between inquiry recommendations for fundamental changes and accounts of changes being implemented subsequently, we identified what we refer to as "learning cues." Like sensemaking cues, learning cues are key fragments of information that serve as "stimuli that gain attention and engender action" (cf. Colville et al., 2014: 217). They are not pre-determined or

pre-existing but, rather, are constructed as actors draw on particular fragments of text from inquiry recommendations to explain, justify, and initiate subsequent changes in organizational practices. In this way, learning cues appear to help extend the double loop learning that occurs during the inquiry to the wider setting, providing a basis for subsequent changes in organizational practices.

Sensemaking and learning in the three bushfires

In this section, we present a summary of the sensemaking and learning dynamics that characterize each of the three bushfires. In the case of Black Friday (1939), sensemaking constructed the bushfire as Australia's worst natural disaster—a novel event compounded by a chronic drought and a lack of accountability (Table 3). In making sense of this novelty, the inquiry engaged in single loop learning by offering explanations as to why the fire occurred and escalated to such a seemingly unprecedented extent. These explanations included the lack of fire-related organizations with responsibility for managing risk in regional areas, an absence of forest management, and conflict among various organizations. Recommendations included the need for a State fire authority, new guidelines for planned burning, and clearer responsibilities for land and forest management. These proposals served as learning cues in that they were referred to in subsequent texts discussing changes in organizational practices. These changes included the establishment of the Country Fire Authority (CFA) whose jurisdiction included fires on private land in regional areas, the institutionalization of planned burning, and the introduction of the 1939 Forest Act, giving the existing Forest Commission complete control of fire management on public land. These changes can be considered to involve double loop learning insofar as they changed the assumptions of emergency management in Victoria in ways that continue to the present day.

In the case of Ash Wednesday (1983), we again observed that sensemaking constructed the bushfires as novel—the worst natural disaster to date owing to the early onset of summer and irregular fire behavior (Table 4). Single loop learning occurred insofar as explanations in inquiry reports explained the damage caused by the fire in terms of conservative planning on the part of the community, the need for more effective responses from emergency management organizations, and the need for better understanding of fire behavior. Recommendations regarding new education programs, new partnership arrangements, and formal modeling of fire typologies served as learning cues in that they were referred to in subsequent texts discussing changes in organizational practices. These changes included a new "Stay or Go" policy, which was an education program to assist communities living in high bushfire risk areas in their preparation for the fire season. Other changes involved new partnership arrangements and the institutionalization of fire modeling. These changes can be considered to involve double loop learning insofar as the "Stay or Go" policy was developed collaboratively as a result of new partnership arrangements introduced through legislation. It remained the cornerstone of Victoria's bushfire safety program for more than 25 years, while the new fire management strategy became established practice.

Inquiry sensemaking in the case of Black Saturday (2009) constructed these fires as the country's worst natural disaster resulting from a severe heatwave and an absence of leadership in the line of command and control authority (Table 5). Single loop learning explained the severity of the fire in terms of individuals lacking bushfire safety plans, the build-up of fuel, and the lack of clarification regarding the line of command and control authority. Recommendations regarding fire warnings, planned burn-offs, and a review of the coordination of fire management organizations served as learning cues in that they were referred to in subsequent texts discussing changes in organizational practices. These changes included new forms of warning, defined burn-off targets, and legislation for a new position of Fire Services Commissioner. Again, these changes can be

Table 3. Summary of findings from Black Friday 1939.

Construction of novelty	Sensemaking and single loop learning	Learning cues	Double loop learning and new organizational practices
Australia's worst natural disaster	The fire occurred and escalated because no fire-related organizations had responsibility for managing risk in regional areas.	Recommendation for a State fire authority to educate citizens about the risk of fire in regional areas and to coordinate training of volunteer fire fighters.	The CFA comes into existence in 1945 to manage fire in regional areas on private land.
Chronic drought	The fire occurred and escalated because there an absence of forest management.	Recommendation for new guidelines for planned burning off of growth to reduce fuel hazards.	Planned burning is instituted as a fire management strategy.
Absence of organizational accountability	The fire occurred and escalated because of intra-organizational conflict.	Recommendation for clearer responsibilities among land and forest managers.	The 1939 Forests Act gives the Forest Commission complete control of fire management on public land in Victoria.

CFA: Country Fire Authority.

Table 4. Summary of findings from Ash Wednesday 1983.

Construction of novelty	Sensemaking and single loop learning	Learning cues	Double loop learning and new organizational practices
Australia's worst natural disaster	The fire caused so much damage and loss because the community had become conservative about planning for the risk of bushfire.	Recommendation for new education program to educate people about fire risk and bushfire preparedness.	The "Stay and Defend or Go Early" policy is adopted.
Early onset of summer	The fire caused losses and damages may have been less if fire management organizations were able to respond more effectively the rapid onset of bushfires.	Recommendation for new partnership arrangements between fire management organizations.	The 1986 Emergency Management Act implements a formal partnership approach to managing major fires.
Irregular fire behavior	The fires highlighted a need for a better understanding of fire behavior.	Recommendation for formal modeling of fire typologies in different terrains to improve planning and preventative action against bushfire.	Fire modeling is instituted as a fire management strategy.

Table 3. Summary of findings from Black Friday 1939.

Construction of novelty	Sensemaking and single loop learning	Learning cues	Double loop learning and new organizational practices
Australia's worst natural disaster	The fire occurred and escalated because no fire-related organizations had responsibility for managing risk in regional areas.	Recommendation for a State fire authority to educate citizens about the risk of fire in regional areas and to coordinate training of volunteer fire fighters.	The CFA comes into existence in 1945 to manage fire in regional areas on private land.
Chronic drought	The fire occurred and escalated because there an absence of forest management.	Recommendation for new guidelines for planned burning off of growth to reduce fuel hazards.	Planned burning is instituted as a fire management strategy.
Absence of organizational accountability	The fire occurred and escalated because of intra-organizational conflict.	Recommendation for clearer responsibilities among land and forest managers.	The 1939 Forests Act gives the Forest Commission complete control of fire management on public land in Victoria.

CFA: Country Fire Authority.

Table 4. Summary of findings from Ash Wednesday 1983.

Construction of novelty	Sensemaking and single loop learning	Learning cues	Double loop learning and new organizational practices
Australia's worst natural disaster	The fire caused so much damage and loss because the community had become conservative about planning for the risk of bushfire.	Recommendation for new education program to educate people about fire risk and bushfire preparedness.	The "Stay and Defend or Go Early" policy is adopted.
Early onset of summer	The fire caused losses and damages may have been less if fire management organizations were able to respond more effectively the rapid onset of bushfires.	Recommendation for new partnership arrangements between fire management organizations.	The 1986 Emergency Management Act implements a formal partnership approach to managing major fires.
Irregular fire behavior	The fires highlighted a need for a better understanding of fire behavior.	Recommendation for formal modeling of fire typologies in different terrains to improve planning and preventative action against bushfire.	Fire modeling is instituted as a fire management strategy.

Table 5. Summary of findings from Black Saturday 2009.

Construction of novelty	Sensemaking and single loop learning	Learning cues	Double loop learning and new organizational practices
Australia's worst natural disaster	The actions of many people living in high fire danger areas on the day of 7 February 2009 showed that they did not have a robust bushfire safety plan.	Recommendation for a review of the "Stay or Go" policy and implementation of new technology to provide timely and relevant information to communities potentially at risk.	Warnings are now issued to correspond with potentially harmful fires on severe fire days.
Severe heatwave	The fires were exacerbated by a build-up of fuel such as desiccated flora communities and vegetation growth.	Recommendation for fire management organizations to burn a rolling target of 5 percent minimum of public land.	There is now a defined target of land, which must be burned each year with an appraisal of how this activity is contributing to mitigating bushfire risk.
There was an absence of authority and leadership and command and control	The severity of the fires showed that emergency management command and control structures needed role clarification.	Recommendation for a review of how fire management organizations activities are coordinated and controlled.	The 2010 Fire Services Commissioner Act established a new Fire Services Commissioner whose role is to coordinate and oversee the activities of fire management organizations.

considered to enact double loop learning insofar as they involved radical changes to existing policies and changes in the organization of the overall fire management system.

Sensemaking and learning were thus embodied in the deliberative processes of the three public inquiries. Single loop learning resulted in explanations of what happened and why in inquiry reports, while evidence of double loop learning was found in the form of recommendations for more fundamental changes. Learning cues in the recommendations appeared to gain attention and engender action insofar as they were referred to in relation to subsequent changes in the practices of organizations responsible for bushfire management.

Discussion

Our findings allow us to propose a general model regarding sensemaking and learning during—and after—public inquiries as events move from natural disaster, through the public inquiry deliberations and report, to the aftermath of the inquiry (see Figure 1).

First, in all three public inquiries, novelty was attributed to particular circumstances in the natural environment that accounted for these "unprecedented" natural disasters. At the same time, all three inquiries clearly indicated that similar conditions could be expected to occur again in the future. According to inquiry reports, these novel conditions had taken emergency management practitioners by surprise and inhibited sensemaking at the time. We propose that the construction

of novelty helps to justify the need for a public inquiry to provide retrospective sensemaking in order to manage future conditions more effectively.

Second, sensemaking during the inquiry reduces the equivocality of the novelty in that it helps to create shared understandings, making it possible to construct plausible explanations of what happened and why. We therefore also propose that sensemaking provides the basis for single loop learning to occur during the inquiry, as well as double loop learning in the form of inquiry recommendations for more fundamental changes.

Third, for inquiries to lead to changes in organizational practices, double loop learning must extend *beyond* the inquiry. We propose that this process is facilitated by learning cues—stimuli that gain attention and engender action, signifying to others of a need for a specific change, and allowing actors to move from a state of disorder about past events to a new order about future events (cf. Colville et al., 2014) which, in turn, aids the introduction of changes in organizational practices following the inquiry.

Our model helps to develop new theory concerning the link between sensemaking and learning. Whereas Schwandt (2005) suggests that sensemaking and learning are in tension with each other, our study suggests that sensemaking is a basis for learning. Only after sense is made can learning occur. Additionally, whereas Schwandt (2005) suggests that sensemaking may preclude more fundamental learning because actors interpret equivocal cues to align with current knowledge, our study suggests that double loop learning can still occur. There is, then, considerable scope for further research to explore the relationship between sensemaking and learning in more detail. The temporal component is particularly interesting (Colville et al., 2014). Our model suggests that, initially, sensemaking is high and learning low as actors struggle with equivocality. As sense is made, sensemaking activities reduce over time while learning increases, moving from single loop to double loop learning. Ethnographic studies of inquiries would be helpful in investigating the real-time dynamics of sensemaking and learning during the deliberative processes of an inquiry.

Our model also builds on the work of Colville et al. (2014) who show the links between sensemaking, learning, and change within an organization. Our study shows how these activities can transcend organizational boundaries by "moving" from the organization that is the public inquiry into the myriad of organizations that constitute its subject matter. In this regard, we introduce the concept of the learning cue, which appears to play a role in this transition. There has been considerable interest in sensemaking cues (e.g. Colville et al., 2013b), and we feel there is potential for similar research into learning cues, which are similarly equivocal. What constitutes a learning cue—why are some textual fragments taken up and not others? How do they gain attention and engender action, and signify change to others? Do they serve a cognitive function in that certain textual fragments spark learning? Are they rhetorical insofar as some fragments of texts are most effective in persuading other organizational members of the need for change? Or are they political in that certain textual fragments gain political momentum and visibility, making it easier for organizations to implement them? Also, what happens when potential learning cues "fail" and are not picked up? How does this affect the outcomes of an inquiry?

In sum, our model suggests that sensemaking and learning processes do not end with the inquiry report, and if organizations are to address novel events and turbulent conditions, sensemaking and double loop learning must extend beyond the inquiry (cf. Brown et al., 2015). Our model offers some proposals as to how this happens and suggests avenues for future research. For example, more research is required to examine the process of "transitioning" out of the inquiry into the organization. Does sense also have to be made of the inquiry and its report by organizational members before they can engage in double loop learning and introduce new practices? If so, how do these processes occur? What effect does the backdrop of the inquiry have? The construction of a disaster as a novel event appears to frame the sensemaking and learning that occurs during an

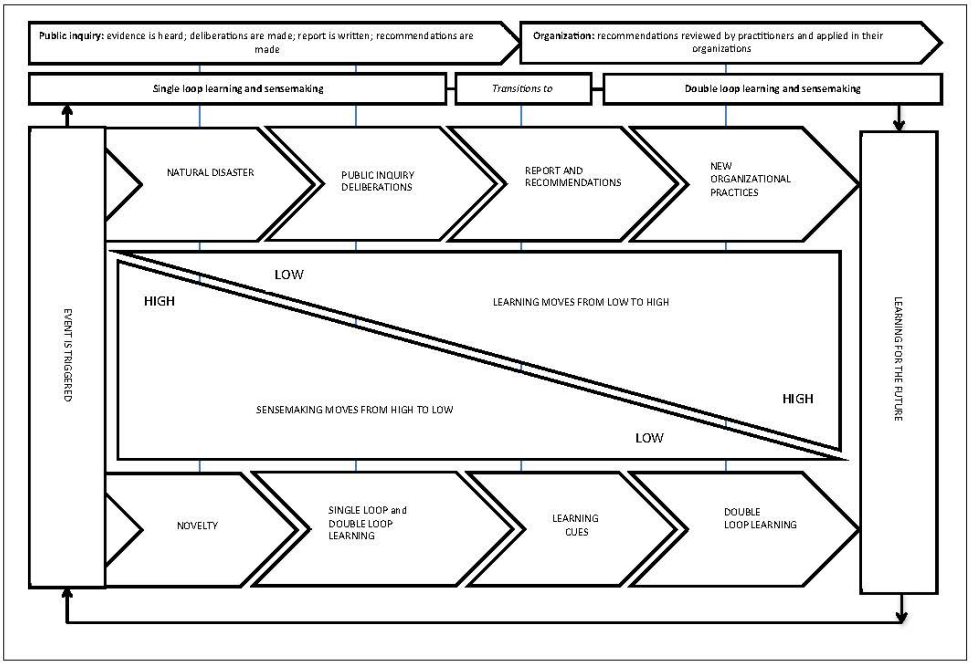

Figure 1. Sensemaking and learning.

inquiry; how, then, does the construction of blame and accountability that typically occurs during public inquiries frame the sensemaking and learning that follows? How does being called to appear in front of the inquiry influence organizational members responsible for implementing changes in organizational practices?

We recognize that there are a number of limitations associated with our research. First, our findings are a product of our interpretations of publicly available texts. Hence, like scholars before us, our findings and contributions are a subjective and idiosyncratic reflection of our qualitative and interpretive methodology (e.g. Brown, 2004; Gephart, 1993). Second, other texts may have told a different story: practitioners and politicians may have different private views than those expressed in public inquiries. Third, our inferences concerning double loop learning into the organizational setting are based on publicly available texts and not on direct interviews with, or observations of, organizational members. Also, our study includes no measurement of the effectiveness of the individual changes in preventing and managing bushfires. Our model can only propose relationships that will require further research to establish. Finally, we acknowledge that like the texts on which we base our study, this article is itself an artifact, produced by our authorial strategies and use of rhetoric to produce a particular account (cf. Brown, 2000). These limitations notwithstanding, our study does suggest some promising avenues for future research.

Our model also has important practical implications. Developing and implementing new organizational practices is a difficult challenge for management practitioners, particularly when the organization has lived through traumatic events such as a crisis (Pearson and Clair, 1998). Organization resilience is further tested when practitioners are called to give evidence before public inquiries and, in some instances, blamed for how they managed certain activities (see

Vince and Saleem, 2004). To alleviate some of these challenges, our article suggests that practitioners might seek to identify learning cues which they can use to explain, justify, and initiate change, a necessary first step in advancing double loop learning and developing new organizational practices. Our model also has implications for the conduct of inquiries whose commissioners have the vantage of hindsight not afforded to those practitioners managing the disaster at the time. Often, these practitioners are blamed even though the inquiry report suggests that the event under review was novel (Gephart, 1993). We suggest that more procedural emphasis on sensemaking and learning during public inquiries, rather than allocating blame, may result in more robust learning cues that help practitioners to change organizational practices more easily. Consequently, we encourage further research that actively involves those who have lived through events like the ones described here. Such studies may not only increase meaningful learning but also have a cathartic effect whereby actors can reflect on their experiences of a major event and broker them into learning and change, hence returning the organization to a new state of sense after turbulent times.

Conclusion

In the case of natural disasters, government and communities must continue to look to the future when engaging in sensemaking and learning to ensure that they are implementing change that is not blind to the risks ahead. History has the tendency to repeat itself—albeit in novel ways. It seems likely that emergency management organizations in Victoria will continue to be challenged by the novelty of climate change. As one Australian environmental scientist has commented:

> Worryingly, since 2009 we have experienced more days of "catastrophic" fire danger, and this number will very likely increase in the future. Fire frequency and intensity is also predicted to increase in already fire-prone areas—areas in which a large proportion of the Australian population lives. (Flannery, 2013: para. 8)

The need to encourage and foster double loop learning remains an ongoing challenge, especially since the impetus for change tends to drop away after the disaster in question fades from memory (Griffiths, 2010). Yet, the experiences of those who have lived through such events should remind us of the need to continue to make sense and learn from them:

> In the usual course of life you cannot gain experience without paying a price but in the experience of the many bushfire-affected families of this state and those in charge of the systems … the price has been immeasurable … It is tragic to pay the price for the experience and not learn the lesson. (Ms Scherman who lost loved ones on Black Saturday, quoted in Parliament of Victoria (2010: xxiv))

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Author biographies

Graham Dwyer is a Doctoral Researcher at the University of Melbourne and a Research Associate at the Bushfire and Natural Hazards Cooperative Research Centre, Australia.

Cynthia Hardy is a Laureate Professor of Management at the University of Melbourne and an Honorary Professor at the Cardiff Business School, Cardiff University.