

# Media Coverage of the Black Saturday Bushfires (2009) and Discussion of Climate Change in Australia

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## Abstract

This research examines what issues are presented in the Australian print media regarding the ongoing discussions of the anthropogenic climate change in the wake of the Black Saturday bushfires in 2009. It selected three Australian leading newspapers—*The Age*, *The Australian* and the *Herald Sun*. To analyze newspaper contents this study undertakes the *mass media agenda setting* as theoretical guideline. Findings argue that despite a minimum resistance to the concerns of the climate change issues in the wake of the bushfires, generally all of the three newspapers presented this issue within a broader ideological parameter of free market economy which avoids the sustained debates of the Australia's emission of the greenhouse gasses and other social context of the country.

**Keywords:** Media; Bushfires; Australia; Climate change; Media agenda setting

## Introduction

This research has been conducted from Melbourne, Australia after six months of the catastrophic Black Saturday bushfires (ignited on 7<sup>th</sup> February 2009) in Victoria that killed more than 200 people, destroyed about 2000 homes and many invaluable natural resources. I would express my sincere compassion to all who have suffered through this disaster. Due to some extra ordinary weather conditions during the summer 2009, the Black Saturday inflames turned into an outrageous and uncontrollable catastrophe which could partly cause by climate change - as conferred by some contemporary environmental discourses while searching the root cause of the disaster. Interestingly, there has been wider media coverage both in Australia and worldwide some of which speculate on the possible role that climate change has played in the fires [1]. As Australian media, newspapers, televisions and radio have played very significant role in providing news stories and information about the hazard places. This study examines how the Australian newspapers have addressed the climate change issue while presenting the overall Black Saturday bushfires in their daily news coverage in the whole month of February, 2009.

Bushfires are an inevitable part of Australian ecology at least over the last 17,000 years [2]. The southeast including Victoria and Adelaide is susceptible to wildfires where the majority of population resides [2]. Although any formal attribution study quantifying the relation of climate change with the increased fire danger is not conducted yet, evidence shows that there has been influence of possible climate change [1]. The southeast Australia experiences a so-called 'Mediterranean' climate, dry and hot in summer but mild, cold and rainy in winter [2]. Rains in winter help the fuel growth (i.e. bushlands) whereas dry summers allow the fire danger to raise [2]. Additionally, this common fire risk is aggravated by periodic droughts and heat waves with a record-breaking severity in late January continued till mid February 2009 [3]. Such anomalies of climatic factors are further revealed technically by the *climate change projections*, a study based on Southeast Australia [2]. The *climate change projections* forecast that the region is likely to become hotter and drier in future. Several longitudinal and follow studies have warned that the growing trends of fire danger over the last few years is alarming. Especially the 2006-2007 fire seasons were the hottest time of that decade in Australia [2,4].

In academia, some of the fundamental weather variables have been

examined before the catastrophic Black Saturday ignited in Victoria. Analysis indicates the evidence of anthropocentric climate change in Australia. As mentioned above maximum temperature, relative humidity, wind speed and drought are the weather variables those play critical roles in climate change [1]. Notably, all of these factors have been record setting on the day of the birth of Black Saturday in Victoria [1]. The state Victoria experienced an extreme heat wave (46.4°C) on the 7th February 2009 immediately after a previous record setting heat wave (43°C) which took place between January 28 and 30, 2009. NASA Earth Observatory provides an outstanding image of the surface temperature anomalies during the heatwave period in Australia [1,5]. Australian Bureau of Meteorology (BOM) mentioned this extreme weather as "exceptional" not only for such a record-breaking temperature but also for its longer duration [3]. Among the weather variables, relative humidity, for example, was also recorded as record low on February, 2009 with a lowest value of 5% in the late afternoon. The strong northerly winds on 7th February was exceptionally high which is comparable to other previous bushfires including Ash Wednesday (1983) and Black Friday (1939) [1]. Although no specific studies have attributed relative humidity to anthropogenic climate change in Australia, scientifically it is proportionate to the increased temperature and decreased rainfall. Nonetheless, these two factors are anthropocentric climate change indicators as accepted by climatologists [1].

Given that both the threat and impacts of anthropocentric climate change is increasing in Australia day by day, appropriate public policy and awareness is necessary to reinforce against greenhouse gas emission of the country. The country is largely dependent on transportation and at the same time dependent on coal mining. According to the UN (United Nations) estimates, Australia emitted about 1.32% of the global carbon emissions in the year 2008 [4]. If climate change is a threat for

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Australia, carbon emission reduction is critically important for the country. Hence it is important to make a policy change in favour of more sustainable source of energy, environment friendly modes of production and eco-friendly lifestyle for the citizens of Australia. It is an established academic belief that the mass media play an important role in influencing public perceptions on national issues. Particularly the print media is known as a pressure group at the policy level for many countries [6]. Hence it is assumed that the Australian print media (along with electronic ones) can play an important role in making public awareness against Australia's high carbon emission and citizens' current standard of living i.e. their mass consumption pattern of lifestyle.

The critical role of media advocacy for policy change to prevent environmental degradation has been a major concern of many international and regional academic researches. The following publications provide different analysis and also criticism of media role in projecting disaster and climate change issues which are of global concern: United Nation Disaster Relief Co-ordination [7], the Australian Counter Disaster College [8], The Canadian Flood Damage Reduction Program (FDRP), TEXAS Coastal and Marine Council [9], Southern California Earthquakes Preparedness Project [10-16]. Additionally, textual analysis of newspapers' roles and coverage of climate change debates have been undertaken in a number of studies (such as [13] (about USA) [17-20] (about US, New Zealand and Finland) [21] (about UK). The primary focus of this study is to analyse what role the print media play as a conduct of risk communication (Black Saturday bushfires) and public awareness for bushfires and other concerns of climate change. Some previous researches have shown that newspapers are the primary source of public information about bushfires and other environmental issues in Australia and other countries. Some of the researches also explore media efficiency in response to public need; comparative media coverage of sustainability issues in the Asia pacific region; community acceptance of crisis communication by media and so on [22,23]. A further literature review suggest that Australian newspapers provide news and discussions about how to resolve anthropocentric climate change impacts. The most prominent discussions include debates between carbon trading and carbon taxing as a core sustainable policy; impacts of using coals for power generation, control burning to reduce fire danger, 'living in bush' (i.e. living in the forest) and so on. As yet, however, little is known about HOW the Australian newspapers place the overall anthropogenic climate change issue to the public domain. Hence, it would be interesting to see how the Australian daily newspapers deal with the environmental concerns while immediately covering news of the Black Saturday Bushfires 2009.

This study attempts to explore such an issue by analysing three Australian daily newspapers during the month of February 2009. Doing that the study follows *deductive thematic analysis* procedure [24], where the *mass media agenda setting* is taken as a theoretical framework to examine newspaper coverage on black Saturday bushfires in Victoria, Australia. Three Australian daily newspapers have been chosen as a sample to examine how the print media depicts anthropocentric climate change at national level in comparison with a plenty of other news reports and articles on Black Saturday bushfires in Victoria. Overall, all three newspapers have shown similar characteristics in prioritizing five different news frames—i. 'Management' ii. 'Cause and Blame' iii. 'Factual Information' iv. 'Human Interest' and v. 'Lifestyle' (which covers the issues of climate change) and eighteen associate sub-frames as identified through literature review. The next section will discuss in details about the definition and uses of 'frames' in news reports. Overall, this study will argue that despite a large number of news reports and articles on the Black Saturday bushfires, the Australian print media reporting of

anthropogenic climate change has been very insignificant compared with four other types of news *frames* and associated *sub-frames* with an extraordinary prevalence of human interest and infotainment kind of stories.

### Mass media agenda setting and framing

Media Agenda setting theory was introduced by Maxwell McCombs and Donald Shaw in 1972 in their ground breaking study into the presidential election campaigns that took place in 1968 in Chapel Hill, North Carolina [25].

Mainly, the *mass media agenda setting* theory provides a critical lens to understand how the media frame any public *event* guided by the media's own implicit political agendas.

Like few other *media effect theory*, *mass media agenda setting theory* endeavours to know long term instead of short term media effect on audience [26,27]. Journalists and other media professionals influence public opinions on a certain issue according to the salience they provide to that particular news coverage [26,27]. Salience transfer, as the main postulate of agenda setting theory refers to the degree of importance placed on the issues of news which ultimately influence priority obtained by these issues in the public sphere [28]. News stories and articles in paper image of a newspaper for example, are prioritized or ordered in accordance with their certain news value [27]. Some news stories considered more newsworthy for a particular newspaper agency and will be placed on the front page with more news space whereas less newsworthy stories might be placed in the middle of that edition or further back with less news space [29].

To trace how a media agenda becomes a public agenda, scholars revealed the function of 'framing' as a rhetorical cue that draws public attention to the salience of a particular issue [29,30].

Although there is no single definition of media framing, many discussions, such as [31-34] have summarized the similar characteristics of framing in media agenda setting. The general consensus is that news frames are 'conceptual tools' which are being used by media and individuals to convey, interpret and evaluate information [29,35]. Framing shapes the parameters of importance in which "citizens discuss [ongoing] public events" [36]. In order to set the parameter, framing defines a problem; then determines what are the causal agents involved especially with costs and benefits; then it diagnoses the cause by identifying different actors responsible for such problems; evaluates causes by making moral judgements of events or actors involved and also suggests remedies along with some future prediction of likely effects [31]. Hence frame influences readers' understanding of a particular issue.

While this theoretical approach has been recognized initially in the wake of the ability of mass media in shaping public understanding of political campaigns in the late 60s [25], recent research demonstrate its competency in analysing more complex socio-political and environmental issues especially media framing of political economy, sustainability, climate change, natural disaster and health hazard in different countries such as the USA, Africa and also some countries in Europe and Asia [33,37-39]. A number of these studies claim that during the crisis of natural disasters mass media' agenda setting was often advanced through creating public interests and convergence of popular stories and reports worldwide [39] instead of reflecting the 'reality' of an issue [28,40-49]. In her study, Jennifer Ellen Good has focused on three geographically based newspaper databases where the geographical 'regions' include Canada, the US and the 'International'

(described as ‘around the world’) [43]. Good’s findings show that while newspapers in the United States seemingly avoid the anthropogenic climate change issue, newspapers in two other geographical places also show ‘hesitancy’ to address industrial pollution and other aspects of anthropogenic climate change in their contents [43,50]. In another similar study, for example, Carvalho [21] analysed the framing of climate change issues in three major British newspapers : The Times, The Guardian and The Independent. Based on his analysis, Carvalho concluded that despite some resistance to government discourses in some newspapers “the ‘quality’ press’s analysis of the governance of climate change remained within the broad ideological parameters of free-market capitalism and neo-liberalism, avoiding a sustained critique of the possibility of constant economic growth and increasing consumption, and of the profound international injustices associated with the greenhouse effect” [21].

### Framing news on politics, health hazards and climate change

In order to discuss the media framing of different types of news, here I have separately presented the available literature on how the print media frame political affairs, health hazards and climate change issues. The reason for such arrangement is that most of the research on framing have been undertaken to study the political issues and events (such as election campaigns) all around the world. In comparison, relatively less research have been found that examine media framing of climate change and health hazards issues across the world. Nonetheless, it is also admitted by scholars that the media coverage of anthropogenic climate change is highly political matter guided by the agendas to preserve the interests of powerful class and countries [10]. Therefore, the available literatures on how framing took place in political news coverage have been included below. Again, literatures on media framing of health hazards are also included because of its closer proximity with environmental concerns. In total, the following section will have three sub-sections: the first section discusses print media framing of ‘political’ news, second section discusses newspaper framing of ‘health hazard’ and the third section presents literature on framing of climate change concerns in newspapers.

### Framing political news

The literature to date offers a handful of frames that are observed commonly in covering news on political issues despite the fact that their frequency of appearances are not very simultaneous, i.e. Some of them are likely to appear more frequently than others. However, most of the studies are concerned about the existence of one or another frame in newspapers and how those influence public opinions [22] News frames such as the ‘conflict’ frame and ‘attribution of responsibility’ frame have more specific meanings and have been the subjects of frequent discussions in news agenda setting research [33,44]. In contrast, some news frames like ‘Emotional’ frame and ‘Logical’ frame cover a broader array of news and meanings which could also be categorized into several sub-frames [45]. In the book *Common Knowledge* Neuman et al. [35] have identified five news frames that have been discussed in the context of US news coverage in a range of issues. These are –

- i. Conflict Frame, ii. Economic [consequences] Frame, iii. Powerlessness Frame,
- ii. Human Impacts Frame and v. Morality Frame [35].

Interestingly, some of these frames have been replicated by Brants and Neijens in 1998 [49] and Semitko and Valkenburg in 2000 [50] in their studies of framing political news in the US and European contexts. Both of the studies assure the fact that these frames appear more

frequently in the salience that newspapers provide on different public issues. Some additional literature review on the nature of news coverage in Europe and the US reconfirm the fact that these above mentioned frames account frequently in the studies on news coverage of public issues and events [47]. Hence such literatures provide us with the scope to initiate another deductive study approach to assess the prevalence of such frames in the news coverage of the Black Saturday bushfires in February, 2009.

### Framing health hazard in newspapers

Studies on newspaper coverage of health hazards are few compared with the media coverage of political issues, as observed within the limited scope of this thesis. Research undertaken by Andsager and Powers [51] found that news magazines and women’s magazines use some specific frames while presenting news reports and articles about breast cancer. Interestingly, news magazines more frequently used factual information frame such as economic frames to report on breast cancer and linking it with health insurance data [51]. Women’s magazines, on the other hand, were more likely to use research on causes and prevention, emotional stories of the survivors and their families as frames [49]. Hence, it is anticipated that different types of print media use different framing techniques to cover health hazards and diseases [37]. These framing techniques guided by the implicit media agenda can have influence on people’s perception of diseases and initiatives by policymakers on such an issue [37].

Also the presence of factual information frame is found while investigating the changes in media framing in four countries in sub Saharan African magazines and medical journals. Pratt et al found that African publications frequently use factual information frame (which includes trends, statistics and numbers of casualties or deaths) in describing hazard events or places [37]. Thus factual information frame remained as a dominant frame in crisis communication in some African media. Moreover, a detailed analysis of 8 years of media portrayal of health hazards undertaken by Pratt and his associates list the priorities of frames some of which are provided here in accordance of their relevance to this study -

- iii. Trends and Statistics: Includes data on number of death, cost, damages and loss of lives.
- iv. Policy and politics: Discrimination and fears expressed in articles about diseases whose medical treatment or evacuation programs were politicized either at the local or national level.
- v. Celebrity portrayals: This is basically human interest stories of celebrity involvements or their visit of hazard place and so on.
- vi. Prevention: This frame provides information on celebrity involvement in public response to diseases [37].

Further, a study of the disease HIV/AIDS coverage in the US print media revealed an interconnection between the mass media agenda and agenda of the scientific community which are presented in the media [49-52]. Thus popular magazine and medical journals are using factual information and human interest type frames in the discussion of health hazards [37].

### Framing climate change and natural disasters in newspapers

Recent studies on the media *agenda setting* draw more attention to the framing of environmental and climate change issues in a range of geographical locations. A study conducted by Jennifer Ellen Good [52] uses framing analysis “to explore the story of climate change at a



moment in history when, arguably, the story should be shifting from “Is climate change happening?” to “What should we do about it?”[43]. Good’s study suggested four news frames categories–

- vii. i. Social context: Based on the hypothesis that the stories of climate change are the stories of science which is least threatening to the existing status quo (in favour of the business). ii. & iii. Causes and Consequences: Interestingly, the basic assumption of these frames is that while the causes of climate change are anthropogenic, the consequences of climate change are ‘natural’ (such as the changes in weather variables). In short, such framing can divert attention from human causes (such as greenhouse gasses responsible for global warming) to some other ‘natural’ reasons such as the “changing and extreme weather have always existed”. iv. Solutions: Since the newspaper articulation of causes and consequences of climate change are possibly least threatening to the status quo, the assumption was that the ‘solution’ to global warming suggested by this frame would potentially be even more so.

Furthermore, when the role of media framing research concerns disaster response, recovery and mitigation some researchers question the adequacy of framing in surrounding disaster response and recovery schemes arguing that disaster response is primarily a social issue as much as it is environmental [39]. In the study of media framing during Hurricane Katrina in southern Florida, the USA, Barnes and colleagues have identified some thematic framings of the US newspapers that include - i. Preparation, ii. Mitigation, iii. Response, iv. Recovery, v. Death injury and vi. Destruction.

Here ‘Preparation’ and ‘Mitigation’ present information on disaster preparation and possible initiatives to mitigate loss and damages. ‘Response’ provides information about the response of government and responsible authorities to tackle the consequences. Recovery provides certain information about reconstruction of the Hurricane damaged places. Both ‘death injury’ and destruction provide factual information on damages and casualties.

In summing up, this section discusses different framing types and the attributes that have appeared in the research on the media agenda setting of political news, health hazards and climate change issues. The next section combines a list of frames and sub-frames mostly from the discussions of this section which will be used in the *deductive* approach of this study to examine how the three selected Australian newspapers have framed the Black Saturday bushfires and anthropogenic climate changes issue in their news items.

### Sampling and Methodology

Australia has two national and a number of regional and state based daily newspapers [44]. For this study, one Australian national newspaper and two state (Victoria) based daily newspapers have been selected. These are - i. *The Australian* (national) ii. *The Age* and iii. the *Herald Sun*. From literature review, five major frames and seventeen sub-frames have been identified as a main checklist to determine appropriate frames and sub-frames for all of relevant news items - reports, articles and letters those appear in the three sampled Australian newspapers during the month of February (from 1st to 28th February, 2009). Additionally, a piloting procedure have been conducted to filter more relevant news frames appropriate for the specific context of the Black Saturday in Australia. This study follows *deductive thematic analysis* procedure to identify appropriate news frames for different types of news text related to the Black Saturday bushfires.

### Piloting and modification of news frames for data collection

This section describes the piloting procedure which has been conducted to filter the most relevant news frames listed from the literature review on the *mass media agenda setting*. From literature review, five major news frames and sixteen news sub-frames have been selected. Basically, most of the news frames found in available literature were incorporated by placing those under five main priority theme areas (five news frames in Table 1). But initially, we have listed 18 main news frames and 17 sub frames from the literature review. In order to combine some similar frames and also to eliminate some ‘irrelevant’ (those are less likely to appear) frames in Australian media, these initially selected frames and sub-frames have been pre-tested with a smaller sample of data. A search was conducted in the ‘News Bank’ electronic database with specific keywords or search terms: [bushfire] + [Victoria] + [Australia] + [2009] which initially yielded 6046 results. Then search term [The Age] + [The Australian] + [Herald Sun] was added to narrow down the number of news and articles in the database. After sorting relevance of data and redundant news reports, 639 news reports and articles have been identified as relevant to the Black Saturday bushfires in Australia. Then, *stratified random* sampling method (described in [24]) have been used to select news samples from each of the three different time lines (in Table 1) of the Black Saturday crisis. In total, twenty-five news reports and articles have been selected to cross check their appearances with the initial 18 frames and their 17 coexisting sub-frames, found in my literature review. Result shows that some frames are unlikely to appear whereas four new sub-frames have been observed having significant match in those 25 news reports and articles. This piloting was expected to strengthen the conduct of a more feasible study while doing a larger data analysis with all three newspapers.

Frame(s)	Sub-frame(s)
i. Management	i. Prevention / Resource management / Appropriate policy / Disaster preparedness
	ii. Fire Safety during fires
	iii. Recovery / Reconstruction
	iv. Addressing Impacts
ii. Cause / Blame	v. Policy / Politics
	vi. Biophysical causes (incl. climate change)
	vii. Morality
	viii. Law enforcement
	ix. Debate & Critical Reflections
iii. Factual Information	x. Casualties (deaths, injuries)
	xi. Cost (damage & loss, fire fighting)
	xii. Other (no of fire fighters, extent)
iv. Human Interest / Infotainment	xiii. Tragedy
	xiv. Heroism
	xv. Animals, etc.
	xvi. Mourning
v. Lifestyle	xvii. Living in bush, semi-rural suburbs, etc.
	xviii. Australian contribution to climate change

Table 1: News Frames of mass media agenda setting.

A brief description of finally selected five news frames and associated sub-frames are given below.

i. Fire Management: 'Fire Management' frame deemed to catch stories or articles that report on or, argues for the better fire fighting options. ii. Human Interest Frame: This frame brings emotional appeals in presenting issues, events or problems which refers to an effort to 'dramatise', 'personalize' and 'emotionalize' news to capture and 'retain' audience's attention and interest [33]. iii. Factual Information Frame: This frame reports on issues, crisis and problems that have 'cost' in terms of human casualty, economic consequences and environmental damages. iv. Cause and Blame: This frame presents issues in a way that attributes the responsibility of a crisis to different organizations and individuals like government, political and social groups, or, individuals like - arsonists. v. Lifestyle: 'Lifestyle' frame has been developed to know the degree at which the sampled newspapers inform people the scientific issues regarding the anthropocentric climate change in Australia. This also includes news and debates on existing government policy such as carbon trading vs taxing, and Australians' growing interest on living in bush area which is more vulnerable to bushfires. The list of frames and associated sub-frames are given below.

**Data analysis**

Tankard (in 2001) has illustrated 11 framing mechanisms or focal points to identify different news frames in newspapers [24]. For this research, five mechanisms (from Tankard) are chosen to help to determine more appropriate news sub-frames for different types of news, that is whether a particular news report or article should be labelled under 'policy and politics' sub-frame or 'biophysical causes' sub-frame and so on. These five mechanisms have been used as five units of analysis for this study. These are -

- viii. Headlines and kickers ii. Sub-heads iii. Photographs iv. Leads (the beginning of news stories) v. Concluding statements and paragraph of article. vi. News treatment and news size.
- ix. For this research, headlines, kickers and subheads are always considered as important factors to determine any news sub-frame. Photographs do not appear in all news. However, it is

considered as important parameter for a number of news only those particularly include photographs. For news reports, leads are given high priority to identify sub-frames and secondary sub-frames. For editorials, articles and letters to the editor and some concluding statements are given high priority to identify their sub-frame. Nevertheless, many of the news contents especially editorials and articles have been analysed thoroughly by the researcher (me) to identify their appropriate sub-frames. Doing that, sentences and paragraphs in any other places of these articles are also given importance. This is because some of the critical writings conceive important points or main agendas in the body of the essays rather than in the beginning or end.

**Findings**

The following three figures show the daily appearances of the five news frames in each of the sampled newspapers. These are presented as line graphs, to show a comparison between the relative frequency of the different types of news frames. While placing news frames, there are some variations observed in the three newspapers. Each of the respective graphs illustrates the frequency of appearances of the five frames as they appeared each day in February (2009) in three newspapers. There is a fairly balance in the frequency of appearances of 'Management', 'Cause/Blame' and 'Factual Information' frames in all three daily newspapers. A wider variation is observed in the 'Human Interest' frame. *Herald Sun* published far greater numbers of 'Human Interest' news documents, whereas *The Age* had the second highest number, followed by *The Australian*. But most frequently appearing news frame was 'Human Interest' in all of three different newspapers in this study. Another distinction is observed in the appearance of 'Lifestyle' frame. In comparison to four other news frames, all three newspapers published far lower numbers of 'Lifestyle' items throughout the month of February 2009. Examining news reports and articles that address anthropocentric climate change issues in Australia which is covered under the 'Lifestyle' frame in this study, *The Age* produced the highest number of news items, followed by *The Australian* and *Herald Sun* respectively (Figures 1-3)

*News Sub-frames:* The Tables 2.1-2.3 show the daily appearance

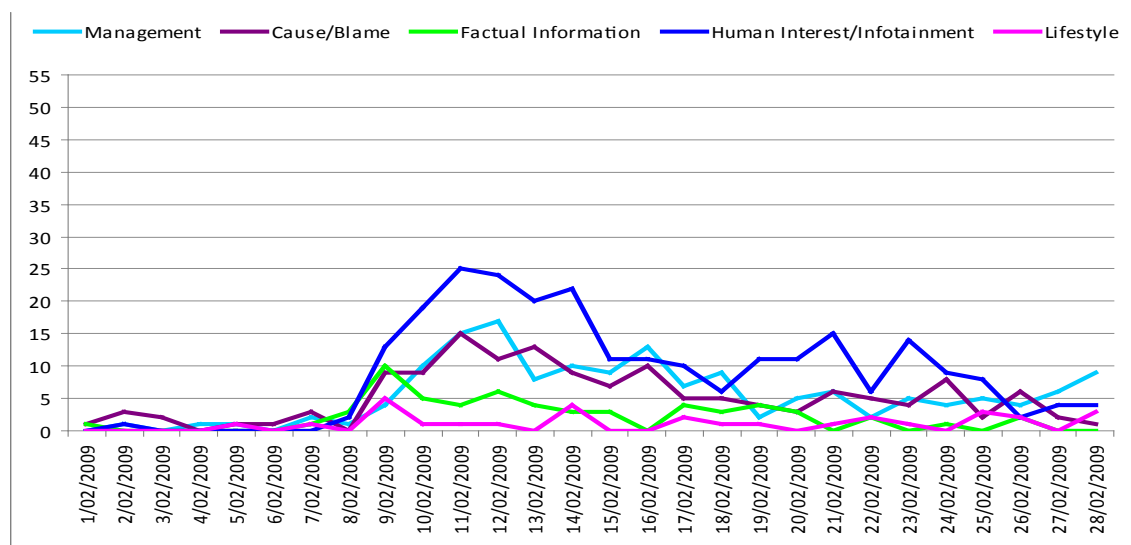


Figure 1: The Age: News frames per day.

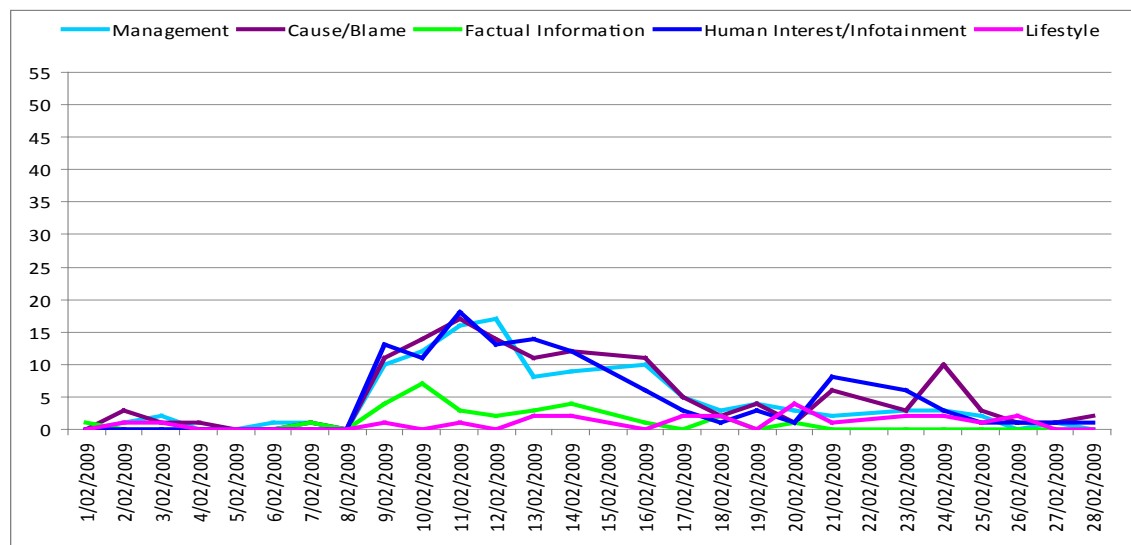


Figure 2: *The Australian*: News frames per day.

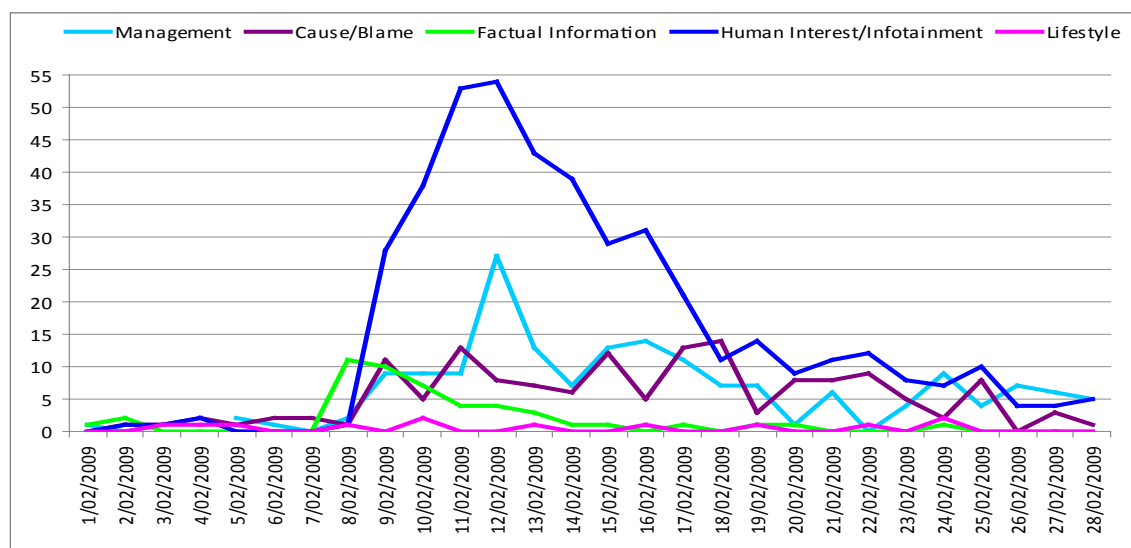


Figure 3: *Herald Sun*: News frames per day.

of the seventeen news Sub-Frames in each of the sample newspapers during the 28 days in February, 2009. Since *The Australian* did not publish any newspaper edition on Sundays during the month of February 2009 the Table 2.2 does not present any data on February 1, 8, 15 and 22.

Description of Tables 2.1-2.3: As mentioned earlier, each of the news frames was subsequently sub-divided into a number of sub-frames. The Management frame, for example, comprises the ‘Prevention’, ‘Fire Safety’, ‘Recovery and Reconstruction’ and ‘Addressing Impact’ sub-frames. The first sub-frame, ‘Prevention, Resource Management and Appropriate Policy’ (disaster preparedness) identifies news reports and articles that discuss policies or precautionary initiatives to minimize damages by bushfires in Australia. This sub-frame received least coverage by *Herald Sun*, whereas *The Age* and *The Australian* had

almost double in terms of the number of appearances of reports and articles falling within this sub-frame.

The second sub-frame ‘Fire Safety during Fire’ explores news reports and articles that specifically addressed life saving precautionary measures while the Black Saturday fires were taking place. This also includes warnings about further fire danger (after effect), and instructions to evacuate risky places. *The Australian* and *Herald Sun* carried similar number of news documents on ‘Fire Safety during Fire’. Interestingly, despite being published in Victoria, *The Age* had a slightly lower number of news items within this sub-frame.

The third sub-frame ‘Recovery and Reconstruction’ covers news on upcoming recovery and reconstruction once the fires were brought under control. *The Age* and *The Australian* produced 38 and 32 news documents under this sub-frame whereas *Herald Sun* emphasised it

Frames	Sub-Frames	1/02/2009	2/02/2009	3/02/2009	4/02/2009	5/02/2009	6/02/2009	7/02/2009	8/02/2009	9/02/2009	10/02/2009	11/02/2009	12/02/2009	13/02/2009	14/02/2009	15/02/2009	16/02/2009	17/02/2009	18/02/2009	19/02/2009	20/02/2009	21/02/2009	22/02/2009	23/02/2009	24/02/2009	25/02/2009	26/02/2009	27/02/2009	28/02/2009	Total	
		Management	Prevention, Resource Mgmt, Policy & Disaster Preparedness	0	1	0	1	0	0	1	0	0	1	4	4	1	0	1	4	1	1	0	1	2	1	1	1	0	0	0	0
Fire safety during fire	0		0	0	0	0	0	0	1	1	3	0	0	1	2	0	0	0	0	0	1	1	0	0	1	0	0	1	4	16	
Recovery/Reconstruction	0		0	0	0	0	0	0	0	2	4	5	3	2	0	2	2	1	1	0	2	0	0	2	1	2	3	2	4	38	
Addressing Impacts	0		0	0	0	1	0	1	0	0	0	0	0	0	0	1	3	2	3	0	0	3	0	2	0	1	1	3	0	21	
Cause and Blame	Policy/politics	0	1	0	0	0	0	0	0	0	1	4	3	5	2	2	1	1	1	1	1	1	1	1	1	4	2	1	0	33	
	Biophysical cause (including climate change)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	
	Morality/irresponsibility	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	Law enforcement	1	1	1	0	0	1	3	0	0	1	0	2	1	3	2	0	5	1	0	0	0	0	0	0	1	0	1	1	0	25
Factual Information	Debate & Critical Reflection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	1	1	0	0	0	1	0	9	
	Casualties (death, injuries)	0	0	0	0	0	0	1	2	3	3	1	1	3	2	0	0	1	2	2	2	0	1	0	0	0	0	1	0	25	
	Cost (damage & loss, fire fighting)	0	0	0	0	0	0	0	2	4	0	1	0	0	0	0	0	2	1	1	0	1	0	0	1	0	1	0	0	14	
Human Interest & Infotainment	Other (no. of fire fighters, hospital staff, extent)	1	0	0	0	0	0	0	0	3	2	2	5	3	1	3	0	1	0	1	1	0	2	0	1	1	0	0	0	27	
	Tragedy	0	0	0	0	0	0	0	0	0	14	12	12	6	7	4	1	3	0	1	3	7	4	5	1	2	0	0	0	82	
	Heroism/Survivors	0	1	0	0	0	0	0	1	12	0	11	4	6	6	2	4	2	3	5	6	5	1	6	1	2	2	3	1	84	
	Animals, celebrity, hopes others	0	0	0	0	0	0	0	0	0	1	2	6	3	4	2	2	2	1	2	2	1	0	0	1	0	0	0	3	32	
Lifestyle	Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	1	0	0	0	6	
	Living in bush, semi-rural suburbs, solar energy, etc	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Lifestyle	Australian contribution to climate change	0	0	0	0	1	0	1	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	1	0	1	0	0	1	9	

Table 2.1: The Age: News sub-frames per day.

Frames	Sub-Frames	1/02/2009	2/02/2009	3/02/2009	4/02/2009	5/02/2009	6/02/2009	7/02/2009	8/02/2009	9/02/2009	10/02/2009	11/02/2009	12/02/2009	13/02/2009	14/02/2009	15/02/2009	16/02/2009	17/02/2009	18/02/2009	19/02/2009	20/02/2009	21/02/2009	22/02/2009	23/02/2009	24/02/2009	25/02/2009	26/02/2009	27/02/2009	28/02/2009	Total
		Management	Prevention, Resource Mgmt, Policy & Disaster Preparedness	0	0	1		0	1	0	1	0	5	4	1	1	2	3	1	0	2	0	0	0	0	0	0	0	22	0
Fire safety during fire	0		0	0	0	0	0	0	5	4	3	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	19	0	0	0
Recovery/Reconstruction	0		0	0	0	0	0	2	1	4	7	3	3	4	1	1	2	1	1	1	0	1	0	0	0	0	32	0	0	0
Addressing Impacts	0		1	0	0	0	0	1	2	2	3	3	0	0	4	0	1	2	0	1	2	3	0	0	0	0	25	0	1	0
Cause and Blame	Policy/politics	0	0	0	0	0	0	1	4	7	9	0	3	5	2	1	2	2	1	2	1	0	1	0	0	1	42	0	0	0
	Biophysical cause (including climate change)	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
	Morality/irresponsibility	0	0	0	0	0	0	0	0	2	1	1	1	0	2	0	0	2	0	1	2	0	0	1	0	0	13	0	0	0
	Law enforcement	0	1	1	0	0	0	0	6	1	0	2	3	5	1	2	0	0	0	1	0	0	0	0	0	0	23	0	1	1
Factual Information	Debate & Critical Reflection	0	0	0	1	0	0	0	0	3	2	7	1	0	1	0	0	0	0	2	1	0	1	0	1	0	20	0	0	0
	Casualties (death, injuries)	1	0	0	0	0	0	2	2	1	2	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	11	1	0	0
	Cost (damage & loss, fire fighting)	0	0	0	0	0	0	0	0	3	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0	0	0
Human Interest & Infotainment	Other (no. of fire fighters, hospital staff, extent)	0	0	0	0	0	1	2	3	1	0	1	3	4	0	0	0	1	0	1	0	1	0	0	0	0	17	0	0	0
	Tragedy	0	0	0	0	0	0	2	4	12	4	4	2	2	2	1	2	1	0	1	0	1	0	0	0	1	39	0	0	0
	Heroism/Survivors	0	0	0	0	0	0	9	2	5	4	9	7	2	1	0	0	0	6	0	0	0	0	0	0	0	45	0	0	0
	Animals, celebrity, hopes others	0	0	0	0	0	0	0	1	2	3	0	3	2	0	0	0	0	0	0	1	1	0	0	0	0	13	0	0	0
Lifestyle	Mourning	0	0	0	0	0	0	2	1	1	0	1	0	0	0	0	1	0	2	2	0	0	1	1	0	12	0	0	0	
	Living in bush, semi-rural suburbs, solar energy, etc	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0
Lifestyle	Australian contribution to climate change	0	0	0	0	0	0	0	0	0	0	2	1	0	1	1	0	3	1	2	2	0	2	0	0	15	0	0	0	

Table 2.2: The Australian: News sub frames per day.

Frames	Sub-Frames	1/02/2009	2/02/2009	3/02/2009	4/02/2009	5/02/2009	6/02/2009	7/02/2009	8/02/2009	9/02/2009	10/02/2009	11/02/2009	12/02/2009	13/02/2009	14/02/2009	15/02/2009	16/02/2009	17/02/2009	18/02/2009	19/02/2009	20/02/2009	21/02/2009	22/02/2009	23/02/2009	24/02/2009	25/02/2009	26/02/2009	27/02/2009	28/02/2009	Total
		Management	Prevention, Resource Mgmt, Policy & Disaster Preparedness	1	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	0	1	0	0	0	0	0	2	0	1	2
Fire safety during fire	0		0	0	0	0	0	0	1	4	2	5	2	0	1	1	0	0	0	0	0	1	0	1	1	0	1	0	1	21
Recovery/Reconstruction	0		0	0	0	0	0	0	0	3	4	3	16	9	4	4	4	6	3	5	0	4	0	1	4	1	3	1	2	77
Addressing Impacts	0		0	1	0	1	1	0	1	1	0	1	3	2	1	1	0	1	1	0	0	0	0	0	0	2	0	2	0	19
Cause and Blame	Policy/politics	0	0	0	1	1	0	0	0	0	1	3	1	2	0	0	0	2	3	0	1	1	1	0	2	4	0	0	0	23
	Biophysical cause (including climate change)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Morality/irresponsibility	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	1	0	3	0	2	1	0	0	0	0	0	0	0	11
	Law enforcement	0	1	1	0	0	1	2	1	1	2	3	2	4	1	1	1	9	2	0	1	2	0	1	0	1	0	1	0	38
Factual Information	Debate & Critical Reflection	0	0	0	0	0	1	0	0	1	1	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	8
	Casualties (death, injuries)	0	1	0	0	0	0	1	6	5	4	1	1	2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	24
	Cost (damage & loss, fire fighting)	1	1	0	0	0	0	0	5	4	1	1	3	1	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	20
Human Interest & Infotainment	Other (no. of fire fighters, hospital staff, extent)	0	0	0	0	0	0	0	0	1	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	Tragedy	0	1	0	0	0	0	0	1	13	20	20	22	13	10	7	5	2	1	2	0	0	0	0	0	1	0	2	0	120
	Heroism/Survivors	0	0	1	0	0	0	0	0	8	6	19	13	10	13	11	10	8	3	3	2	4	4	1	1	2	0	0	3	122
	Animals, celebrity, hopes others	0	0	0	0	0	0	0	0	1	3	6	9	2	3	2	5	4	4	2	2	1	2	1	1	2	1	1	0	52
Lifestyle	Mourning	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	5	0	0	0	1	2	1	5	1	3	0	0	0	21
	Living in bush, semi-rural suburbs, solar energy, etc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	Australian contribution to climate change	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3

Table 2.3: Herald Sun: News sub-frames per day.

much more, producing nearly double the number of items carried in the other two papers.

The fourth sub-frame ‘Addressing Impacts’ include some possible future problems relating to the Black Saturday bushfires, such as drought or loss of biodiversity. It also discusses some future impacts such as victims might experience psychological trauma (particularly among children), along with some professional suggestions to avoid the worst. Each of the three newspapers had around twenty pieces of news documents of this type.

The ‘Cause and Blame’ frame comprises ‘Policy and Politics’, ‘Biophysical Causes of Fire’, ‘Morality and Irresponsibility’ and ‘Debate and Critical Reflection’. The sub-frame ‘Policy and Politics’ identifies news documents that discuss policies, politicians and authorities, and political issues relating to responsibility for the massive casualties and damages of the Black Saturday bushfires. *The Age* and *The Australian* had the higher level of coverage of the ‘Policy and Politics’ sub-frame compared to the *Herald Sun*, which produced less treatment or criticism of policy failure or responsibility for the Black Saturday blazes.

The sixth sub-frame ‘Biophysical Causes’ (including climate change) is one of the least prevalent news sub-frames in all three newspapers. This sub-frame includes discussion of the human causes of climate change, wherein human activities such as increased atmospheric carbon dioxide levels from fossil fuels are identified as being a major cause of climate change issues in Australia. *The Age*, *The Australian* and *Herald Sun* had only two, three and one news items, respectively, which directly addressed issues of climate change in relation to the fires.

The seventh sub-frame ‘Morality/Irresponsibility’ includes news stories that attempt to lay blame for the fires, particularly highlighting

‘moral’ issues such as lack of sincerity and integrity in fire management. *The Age* had only three news items under this sub-frame, whereas *The Australian* and *Herald Sun* produced 13 and 11, respectively. However, this sub-frame was mostly prevalent in the letters to the editor—the public opinion columns.

‘Law Enforcement’, the eighth sub-frame, includes news mainly about arson and the arrest and trials of arsonists, also with some stories about suspected firebugs. The highest number of news under this sub-frame appeared in the *Herald Sun*, followed by *The Australian*, with the lowest number appearing in *The Age*.

The ninth sub-frame for this study is ‘Debate and Critical Reflection’, which covers discussions on the causes of fires, addressing issues such as the politics of climate change and how complicated such issues are in reality. Unlike the ‘Policy and Politics’ sub-frame, news items under this sub-frame do not attempt to directly assign blame or identify the cause of bushfires or climate change. Rather, these writings attempt to critically analyse issues instead of simply assigning blame to individuals or groups. Among the three sample newspapers, *The Australian* had the highest number of ‘Debate and Critical Reflection’ articles and reports, while both *The Age* and *Herald Sun* featured few items falling within this sub-frame. The *Herald Sun* appeared to be the most ‘absent’ to undertake ‘critical reflection’ in addressing the Black Saturday bushfires in Australia.

The ‘Factual Information’ frame is divided into three sub-frames: ‘Casualties (Death and Injuries)’, ‘Cost and Damage’, and ‘Others’. ‘Casualties’ (death and injuries), the tenth sub-frame, falls under the Factual Information Frame. This sub-frame identifies factual information news stories that specifically contain data and information



on casualties (both human and animals) due to the Black Saturday fires. *The Age* carried the highest number of news items on casualties, followed by the other Victorian daily, the *Herald Sun*. The national daily, *The Australian* has the lowest coverage of death and injuries caused by the fires.

The eleventh sub-frame, 'Cost' (damage and losses, plus the cost of fighting the fires) includes reports and data on damage and losses to houses, forests and other infrastructure and objects. The highest number of news reports under this sub-frame was observed in *Herald Sun*, followed by *The Age*, with the lowest number observed in *The Australian*.

The twelfth sub-frame 'Others' (number of fire fighters, hospital staff) covers news reports on information and data on hospital staff, progress of medical treatment, updates of fire fighters, etc. *The Age* had the highest number of items in this sub-frame, followed by *The Australian*. Surprisingly, despite being published in Victoria, *Herald Sun* published the lowest number of such news stories.

The fourth news frame 'Human Interest and Infotainment' consists of four sub-frames: 'Tragedy', 'Heroism and Survival', 'Animals, Celebrities and Others' and 'Mourning'. The thirteenth sub-frame, 'Tragedy' which falls under the 'Human Interest' frame, covers reports on death and casualties during the fires. Whereas 'Casualties' above relates to news items falling under the 'Factual Information Frame', the 'Tragedy' sub-frame takes a more emotional approach to the stories. *Herald Sun* had the highest number of 'Tragedy' by-lines; significantly higher than the two other newspapers. *The Australian*, on the other hand, produced the lowest number of reports on 'Tragedy'; approximately one third the number appearing in the *Herald Sun*.

The fourteenth sub-frame, 'Heroism and Survivors' involves stories of survivors and bushfire heroes such as CFA fire-fighters. Interestingly, the frequency of 'Heroism and Survivors' stories mirrored that of the previous 'Tragedy' sub-frame, with the highest number appearing in the *Herald Sun* followed by *The Age*, whereas *The Australian* had approximately one third of the number of such stories as appeared in the *Herald Sun*.

'Others' (Animals, celebrity, sounds of hope) is the fifteenth sub-frame—also falling under the 'Human Interest frame—and includes 'Human Interest' stories about animals, and other 'feel good' news items. Again, the *Herald Sun* had the highest number, followed by *The Age* and then *The Australian*, which had approximately one fourth of the number of items as appeared in the *Herald Sun*.

The sixteenth sub-frame, 'Mourning' covers news that specifically address mourning for the Black Saturday victims. *The Age* had the lowest number of items in this sub-frame, with *The Australian* having the second highest number of appearances. The *Herald Sun* had the highest number of appearances of 'Mourning' stories.

Finally, the 'Lifestyle and Climate Change' frame comprises two sub-frames: 'Living in the Bush' and 'Australia's Contribution to Climate Change'. The sub-frame 'Living in the Bush' discusses issues of vulnerability related to the Australian lifestyle, such as living in semi-rural suburbs those are closer to the forests. The purpose of this sub-frame is to identify the frequency of appearance of news that addresses the issue of a more sustainable and safe lifestyle in the face of climate change and the increased likelihood of cataclysmic bushfires in Australia.

Lastly, the eighteenth sub-frame, 'Australia's Contribution to Climate Change' involves issues at the policy level that are critical to

climate change and global warming. This includes debates on carbon trading and carbon taxing to address Australia's contribution to global warming; the use of coal to generate power in Australia; and so on. *The Australian* carried the highest number (15) of news items under this sub-frame followed by *The Age* (nine) and *Herald Sun* (three). The focus of this sub-frame is to identify news that addresses the issue of climate change in the daily sphere of Australian citizens' lifestyle, such as using solar energy instead of power generated from coal. Surprisingly, this sub-frame was the largely absent in all three newspapers. *The Australian* produced 3 news documents on sustainable lifestyle issues, whereas both *The Age* and *Herald Sun* produced only one item each.

*Comparison between Human Interest and Lifestyle frames:* This section limits discussions on the frequencies of appearance of two predominant news frames and their associated sub-frames in three daily newspapers. The analysis is presented below throughout two comparative discussions of the appearances of 'Human Interest' and 'Lifestyle' frames.

The media's use of the 'Human Interest' frame focuses on individuals and groups who are particularly affected by an issue or event [35]. It has been widely argued that instead of expressing compassion overtly, the print media uses 'Human Interest' stories as a technique that lures the attention—and sympathy—of readers [35]. Some previous research on newspaper coverage of natural disasters also confirms that media simulate such 'Human Interest' dramas and 'infotainment' to sensationalise their coverage of a crisis moment [33,45]. Additionally, Hughes argues that this was the reason why more formal newspapers such as the *Congressional Record* had low circulation in comparison with some popular dailies such as the *Times*, *The New York Daily News* and so on [46]. Hence a connection between the higher readership of newspaper and its highest interest on 'infotainment' has been observed in the past studies on print media. Therefore, it can be argued that what newspapers are more likely to sell is drama and 'infotainment' rather than the issue itself to the readers while covering a public issue or event.

A similar correlation between media 'Human Interest' and higher newspaper readership is found in this study. The daily *Herald Sun* has the highest readership in Victoria among the three newspapers surveyed [47] in this study; it also produced the most 'Human Interest' news stories about the Black Saturday fires. Only from 8th to 20th February 2009, the *Herald Sun* published 371 'Human Interest' news items, whereas *The Age* published 185 and *The Australian* published only 95 'Human Interest' stories, articles and etc. Additionally, the *Herald Sun* produced extra sections especially for 'Human Interest' stories on the 9th, 10th, 11th, 12th and 13th of February. The combined number of Human Interest news stories relating to the Black Saturday Bushfires published in *The Age* and *The Australian* are even lower than the number of such stories produced by the *Herald Sun* alone.

## VI. Conclusion

The original intention of this research effort was to determine to what extent the public media in Australia engaged in discussion of climate change issues in their coverage of the catastrophic Black Saturday bushfires in Victoria in February 2009. The analysis took the approach of media agenda setting in its examination of three Australian daily newspapers with wide circulation: the national daily *The Australian*, and two Victoria-based papers: *The Age* and the *Herald Sun*. Anthropogenic climate change—specifically Australia's role in contributing to increased atmospheric greenhouse gas levels as well as Australia's vulnerability to the impact of global warming—are hotly debated topics in the country. Although difficult to establish a direct

connection between anthropogenic climate change and the catastrophic Victoria 2009 fire season, it nonetheless seemed 'natural' that some discussion of these issues would be woven into the public and media's reaction to the Black Saturday bushfires.

This study examined media *agenda setting* through the framing of different issues and events relating to the Black Saturday bushfires. Every form of disaster is to some extent *political*; this study sought to gain an understanding into the politics of how the fires were presented in popular print media.

The study first explored the frequency of appearance of five news frames and eighteen associated sub-frames in the three sampled newspapers throughout the month of February, 2009. The overwhelmingly predominant news frame throughout the coverage of the fires was the 'Human Interest' frame—including a large portion of the news that can be classified as 'infotainment'. The second most prevalent news frame was 'Cause and Blame', however this frame was designed not to include matters relating to climate change, but rather issues of policy and politics (e.g., fire prevention, range and forest management), matters of morality and irresponsibility, and law enforcement. Climate change—particularly Australia's contribution to global warming through high per capita consumption of fossil fuels, and the likely impact of Australian lifestyle and settlement patterns (e.g., building communities and suburbs in fire-prone areas)—were classified under the 'Lifestyle' frame—which received the least coverage of any of the five news frames.

It is likely, however, that the newspapers will choose not to take too critical a stance on this controversial issue of industries and climate change. Most likely, a sense of 'business as usual' will prevail. The Black Saturday fires were tragic and costly ('Human Interest' and 'Factual Information' frames). Mistakes were made, some lives could have been saved ('Cause and Blame' frame). As to whether the Australian lifestyle should be held to account for its role in causing this disaster ('Lifestyle' frame), this is a matter for scientists to decide. In sum, the findings of this limited study appear to support Anabela Carvalho's thoughtful statement as already mentioned earlier of this article:

"the 'quality' press's analysis of the governance of climate change remain(s) within the broad ideological parameters of free-market capitalism and neo-liberalism, avoiding a sustained critique of the possibility of constant economic growth and increasing consumption, and of the profound international injustices associated with the greenhouse effect" [21].

In closing, it appears that the answer to the research question as to whether the Australian media attempted to engage in critical discussion of climate change in its coverage of Victoria's February 2009 Black Saturday fires, is emphatically 'no'.

## References

1. Karoly D (2009) Bushfires and Extreme Heat in South-East Australia, Real Climate: Climate Science from Climate Scientists, Retrieved 1 May, 2009.
2. Lucus CK, Hennessy G, Mills, Bathols J (2007) Bushfire Weather In Southeast Australia: Recent Trends And Projected Climate Change Impacts, Bushfire CRC And Australian Bureau Of Meteorology, CSIRO Marine And Atmospheric Researc, Melbourne: Bureau Of Meteorology Research Centre.
3. National Climate Centre (2009) Special Climate Statement 17: The Exceptional January-February 2009 Heatwave In South-Eastern Australia, Bureau Of Meteorology, Melbourne: Bureau Of Meteorology.
4. Nicholls N (2006) Detecting and Attributing Australian Climate Change: A Review, Australian Meteorological Magazine, 53: 199-211.
5. NASA (National Aeronautics And Space Administration) Earth Observatory 2009, Exceptional Australian Heat Wave.
6. Mccombs, M, Lopez-Escobar E, Llamas JP (2000) Setting the Agenda of Attributes in the 1996 Spanish General Election. International Communication Association, Spring 77-92.
7. United Nation Disaster Relief Co-Ordination (UNDRO) (1979) Disaster Prevention and Mitigation – A Compendium of Current Knowledge (Volume 10). New York: Public Information Aspects, UN.
8. Australian Counter Disaster College (ACDC) (1979) Report of the Proceeding of the Media (Broadcasters) Study Group, ACDC, Macedon, Victoria (12–14 November 1979).
9. TEXAS Coastal and Marine Council (TCMC) (1977) Hurricane Awareness Program, Box 13407, Austin, TX 78711, USA Southern California Earthquakes Preparedness Project (SCEPP, 1980). Work Program, 6850 Van Nuys Blvd, Suite 110, CA 91405, USA (1980).
10. Wilson K (1995) Mass Media as Source of Global Warming Knowledge, Mass Communication Review, 22:75-89.
11. Wilson K (2000) Drought, Debate, and Uncertainty: Measuring Reporters' Knowledge and Ignorance about Climate Change. Public Understanding of Science 9: 1-13.
12. Wilson K (2000) Communicating Climate Change Through the Media: Predictions, Politics and Perceptions of Risk, in S Allan B Adam & C Carter (Eds.) Environmental Risk and The Media. London, UK.
13. Boykoff M, Boykoff J (2004) Balance as Bias: Global Warming and the US Prestige Press, Global Environmental Change, 14: 125-136.
14. Hargraves I, Lewis J, Speers T (2003) Towards A Better Map: Science The Public and The Media, Economic and Social Research Council (ESRC).
15. Zehr S (2000) Public Representation of Scientific Uncertainty About Global Climate Change, Public Understanding of Science. 9: 85-103.
16. Corbett J, Durfee J (2004) Testing Public (Un)Certainty of Science: Media Representations of Global Warming, Science Communication. 26: 129-151.
17. Mccombs K, Shahnanhan J (1999) Telling Stories about Global Climate Change: Measuring the Impact of Narratives on Issue Cycles. Communication Research 26:30-57.
18. Mcmanus P (2000) Beyond Kyoto? Media Representation of an Environmental Issue. Australian Geographical Studies 38:306-319.
19. Taylor N, Nathan S (2002) How Science Contributes to Environmental Reporting in British Newspapers: A Case Study of The Reporting of Global Warming and Climate Change. The Environmentalist 22: 325-331.
20. Dispensa, J, Brulle R (2003) Media's Social Construction of Environmental Issues: Focus on Global Warming – A Comparative Study. The International Journal of Sociology and Social Policy 23: 74-105.
21. Carvalho A (2005) Representing the Politics of the Greenhouse Effect: Discursive Strategies in the British Media. Critical Discourse Studies 2: 1-29.
22. Nash C, Bacon W (2006) Reporting Sustainability in the English-Language Press of Southeast Asia. Pacific Journalism 12 : 106-135.
23. Bacon W, Nash C (2004) How The Australian Media Cover Humanitarian Issues. Australian Journalism Review (25): 5-30.
24. Babbie E (2004) The Practice of Social Research, Australia: Wadsworth.
25. Mccombs ME, Shaw DL (1972) The Agenda-Setting Function of Mass Media. Public Opinion Quarterly 36:176-187.
26. Sparks GG (2006) Media Effect Research, Australia: Thomson Wadsworth.
27. Laughey D (2007) Key Themes in Media Theory. Open University Press, UK.
28. Dearing JW, Everett RM (1996) Agenda Setting. London: Thousand Oaks, SAGE Publications Inc.
29. Mccombs M (2004) Setting The Agenda: The Mass Media And Public Opinion. Polity Press, UK.
30. Mccombs M, Gilbert S (1986) News Influence on Our Pictures of the World In J. Bryant & D. Zillmann (Eds.) Perspectives on Media Effects. Lawrence Erlbaum Associate, USA.
31. Entman R (1991) Framing US Coverage of International News: Contrasts in Narratives of the KAL and Iran Air Incidents. Journal of Communication 41: 6-27.

32. Aday S (2006) The Framesetting Effects of News: An Experimental Test of Advocacy Versus Objectivist Frame. *Journalism and Mass Communication Quarterly* 83:767-784.
33. Semetko HA, Valkenburg PM (2000) Framing European Politics: A Content Analysis of Press and Television News. *International Communication Association*.
34. Reese SD (2007) The Framing Project: A Bridging Model For Media Research Revisited. *Journal of Communication* 57: 148-154.
35. Neuman WR, Just MR, Crigler AN (1992) *Common Knowledge: News and the Construction of Political Meaning*, Chicago: The University of Chicago Press.
36. Tuchman G (1978) *Making News*, New York: Free Press.
37. Pratt CB, Ha L, Pratt CA (2002) Setting the Public Health Agenda on Major Diseases in Sub-Saharan Africa: African Popular Magazines and Medical Journals, 1981-1997. *Journal of Communication*.
38. Scheufele DA, Tewksbury D (2007) Framing, Agenda Setting, and Priming: The Evolution of Three Media Effects Models. *Journal of Communication* 57: 9-20.
39. Barnes MD, Hanson CL, Novilla MKB, Meacham AT, McIntyre E, et al. (2008) Analysing of Media Agenda Setting During and After Hurricane Katrina: Implications For Emergency Preparedness, Disaster Response, and Disaster Policy. *American Journal of Public Health* 98: 604-611.
40. Mccombs MG, Overholser, Jamieson KH (2005) The Agenda Setting Function of the Press, In G. Overholser & K. H. Jamieson (Eds.), *The Press*. UK: Oxford University Press.
41. Mccombs MDL, Shaw, Weaver DL (1997) *Communication and Democracy: Exploring the Intellectual Frontiers in Agenda Setting Theory*. Mahwah (NJ): Lawrence Erlbaum Associates.
42. Zehr SC (2000) Public Representation of Scientific Uncertainty About Global Climate Change. *Public Understanding of Science* 9: 85-103.
43. Good JE (2008) The Framing of Climate Change in Canadian, American, and International Newspapers: A Media Propaganda Model Analysis. *Canadian Journal of Communication* 33: 233-255.
44. National Library of Australia (2009) *Australian Newspapers Online*.
45. Petersen A (2001) Biofantasies: Genetics and Medicine in the Print News Media. *Social Science and Medicine* 52: 1255-1268.
46. Hughes HM (1980) *News and the Human Interest Story*, New Jersey: Transaction Publishers.
47. Australian Press Council (2008) *State of the News Print Media*.
48. Hallahan K (1999) Seven Models of Framing: Implications for Public Relations. *Journal of Public Relations Research* 11:205-242.
49. Brants, K, Van Meurs, L, Neijens, P (1995) 'Political Tussen Informatie En Entertainment [Politicians Between Information And Entertainment]', In K. Brants And Ph. Van Praag (Eds.), *Verkoop Van De Politiek: De Verliezingscampagne Van 1994 [Selling Politics: The 1994 Election Campaign]*, Het Spinhuis, Amsterdam.
50. Semetko HA, Valkenburg PM (2000) Framing European Politics: A Content Analysis of Press and Television News. *International Communication Association*.
51. Julie A, Angela P (1999) Social or Economic Concerns: How News and Women's Magazines Frame Breast Cancer in The 1990s. *Journalism and Mass Communication Quarterly* 76: 531-550.
52. Good JE (2008) The Framing of Climate Change in Canadian, American, and International Newspapers: A Media Propaganda Model Analysis. *Canadian Journal of Communication* 33:233-255.