

CIVILIAN DECISION MAKING UNDER STRESS: USE OF FIRE AGENCY WEB-SITES ON BLACK SATURDAY

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“As part of the 2010/11 fire season, the provision of community information and warnings was elevated to the same importance as the operational aspect of fighting fires. In some instances, it’s importance actually surpasses firefighting efforts.”[†]

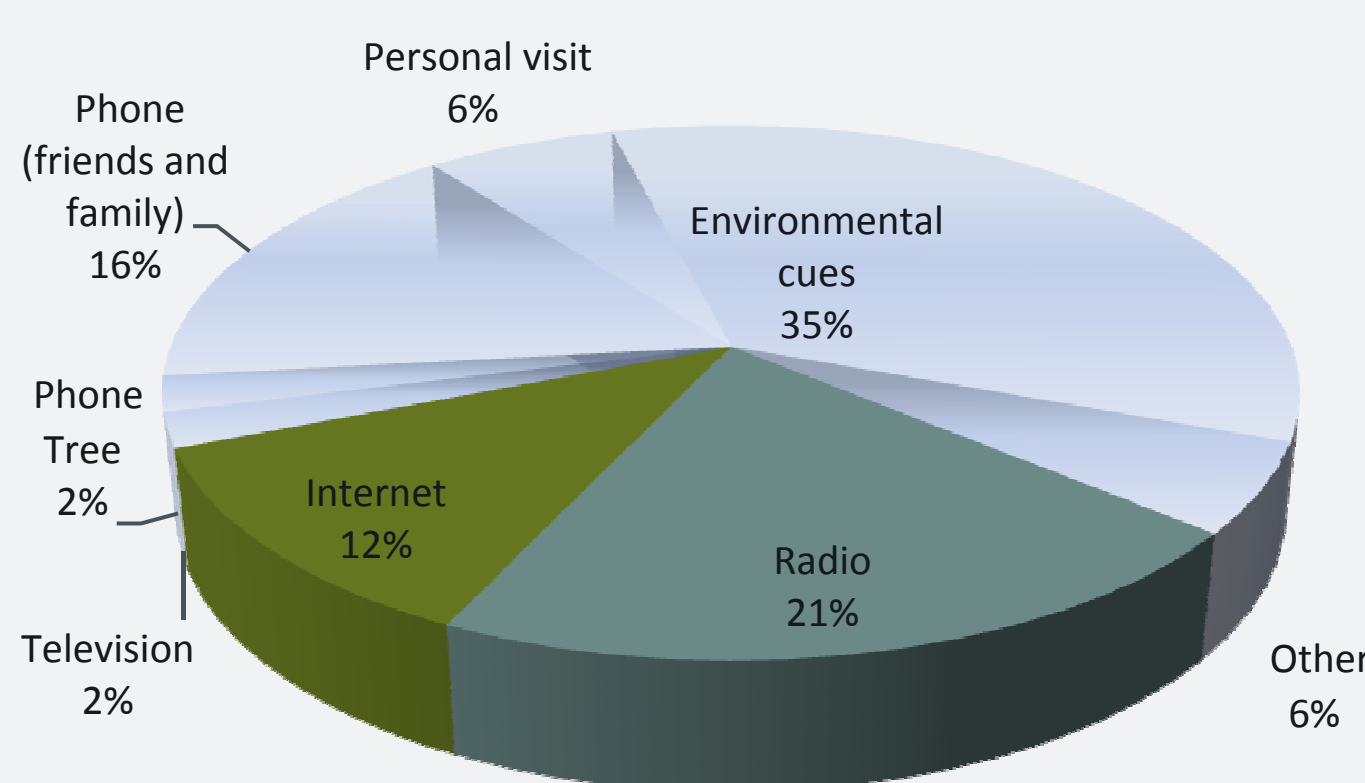
The above quote from Victorian Fire Services Commissioner Craig Lapsley, which builds on learnings from the 2009 Victorian bushfires, emphasises the importance for fire agencies to provide community members with timely, accurate and meaningful threat warning information.

Analysis of the CRC Black Saturday taskforce interviews from the 2009 Kilmore-East fire complex identified a number of usability issues with fire agency web-sites on the day.

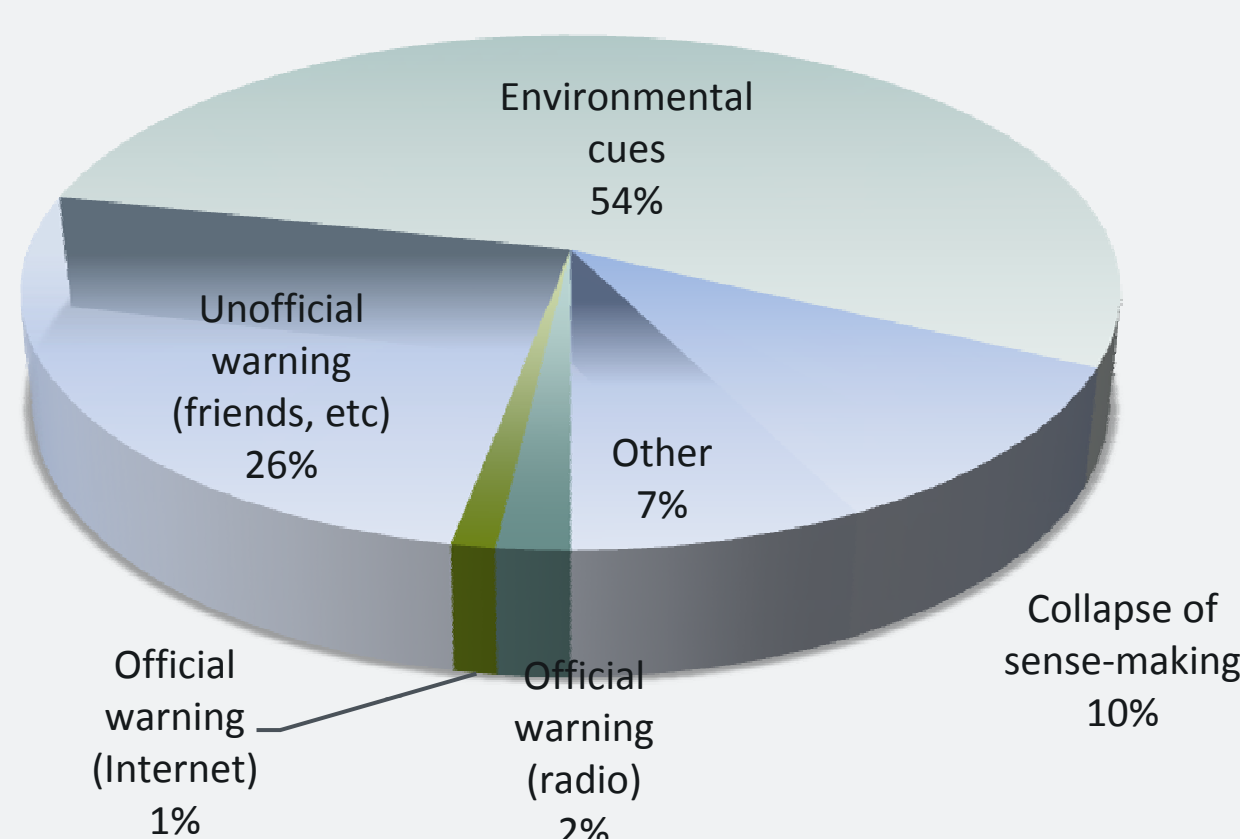
Use of information on Black Saturday

Analysis of 351 Kilmore-East interviews suggests that although 12% of interviewees accessed agency web-sites on Black Saturday, only 1% of interviewees described this information source as the trigger for enacting their fire plan;

Sources of information



Triggers for action



Common usability issues and quotes from the Black Saturday interview transcripts:

1. Perceived lack of information updates:

“My wife and family - I drove through a firestorm down the bottom of Whittlesea. At that stage, because we had been looking at the web site, it hadn't been updated” [Int. 388]

2. Ambiguous information:

“I went on the CFA web site and searched for fires and there was a small grass fire first thing in Wandong. I know where Wandong is. I know about the area. It is a very open - if there is a small grass fire there, it should be well contained” [Int. 244]

3. Perceived absence of threat warnings:

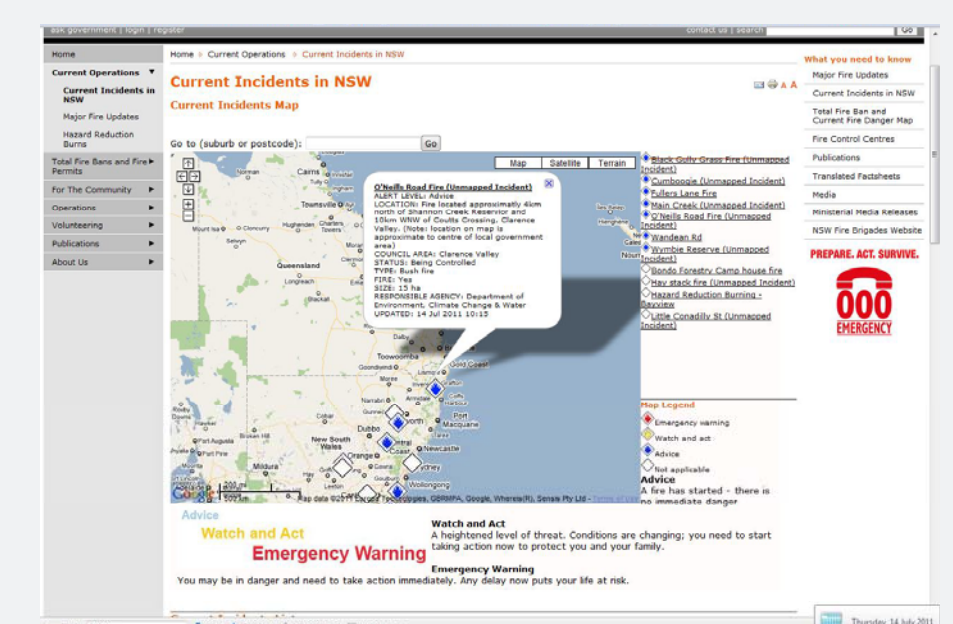
“How did it sneak up on us and no – and we were watching the tellie and the radio and the kids were on the internet watching what was going on there...we were listening and we were watching and there was no warning at all” [Int. 579]

4. Poor signal to noise ratio (i.e. warnings not prominent enough to trigger action)

“We were around at Rob's place for a while, like an hour, just looking on the Internet and listening to the radio, then I saw smoke coming up from down south and I said “We'd better go” [Int. 502]

Key challenges for emergency services websites

1. Keeping information updated in a timely manner (including pages auto-refreshing rather than relying on user memory)
2. Present important information only, using direct and unambiguous information and wording
3. Presenting information to be meaningful for users who are naive to bushfire behaviour (e.g. providing information about the number of trucks attending an incident often led to confusion as to the level of bushfire threat)



^ The current NSW-RFS incident update page incorporates many principles of good usability design, (e.g. safety warnings and their implications for residents are easily available on the one page)^{††}

TAKE AWAY #1: USER TESTING

We believe our data highlights the importance of end-user testing during the design phase of public safety web-sites. This will help reduce uncertainty and ambiguity of content.

Usability guru Jakob Nielsen suggests testing as few as 5 end-users on multiple tasks, can reveal 80% of usability problems within a web site[#]

References:

- [†] http://www.ema.gov.au/www/emaweb/emaweb.nsf/Page/Publications_AJEM_AJEMVolume26_OpinionFireServicesCommissionerforVictoria
^{††} http://www.rfs.nsw.gov.au/dsp_content.cfm?cat_id=683
[#] Nielsen, J. <http://www.useit.com/alertbox/20000319.html>
^{##} McLennan, et al. (2011). Bushfire Survival-Related Decision Making: What the Stress and Performance Research Literature Tells Us. *Australasian Fire & Emergency Services Authorities Council Conference Proceedings, Sydney 2011*

TAKE AWAY #2: SIGNAL TO NOISE RATIO

Research suggests that stress impairs a number of mental processes^{##}

Importantly for web-page design, attention narrows and the ability to scan for and find critical information in a visually rich web-page is impaired.

This suggests that non-critical information for residents should be removed (and placed elsewhere), while critical safety messages and their implications need to be ‘front and centre’.

