EXPLORING FOREST-FIRE EVENTS ON WEBSITES - VIEWPOINTS OF PEOPLE OF DIVERSE CULTURAL BACKGROUNDS

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Abstract:

From 2004 to 2006, my project "*Potential of the internet for enhancing residents' bushfire preparedness*" [PIB] was conducted. Focus: Analyzing the capability and the utility of information sources provided by authorities for the public via the Internet and especially the WorldWideWeb (WWW). Crucial research questions were: How well are these new risk communication means utilized by residents, and why or why not? How likely are they to significantly advance problem awareness, preparedness and coping with actual fires? How can the usability and effectiveness of these tools for individual risk management be improved?

Conceptually, this Australian project is based on the author's socio-psychological Risk Communication Model. The investigation comprises six studies, which combine several approaches, including focus groups, experiments, surveys and expert panels. Last year, sub-study PIB-E "*Surveying bushfire events on websites - experience of people from different cultural backgrounds*" was carried out. The participants had to survey: How the then present fire situation in Australia was covered in pertinent websites; which bushfire preparedness advice they offer; how internet information compares to reports in newspapers, and what the strengths and deficiencies are. An assessment questionnaire was developed for this. Partakers were 6 experienced students; 2 Australians, 2 Asians, 2 Europeans.

The survey was focussed on websites of fire authorities in the states of South Australia (CFS), Victoria (CFA), and New South Wales (RSF). All were found to be generally helpful and informative. Some examples of quality ratings on a 1-to-5 scale: "Understandibility" 4.3/4.4/3.7; "Own info need met" 4.0/4.0/3.8; "Motivating for fire preparation" 3.8/3.7/3.0; "Better than brochures" 3.6/4.0/2.8; "Clarity of fire safety actions" 4.2/4.6/3.3. Regarding media, the websites are appraised as far more comprehensive in scope, yet newspapers are easier to obtain, usually less demanding and likely to be more explicit and emotive.

The respondents also identified shortcomings, in both content and presentation of fire preparedness information for residents, and stated limitations of addressing cultural variety. Obviously there is considerable potential for the improvement of websites. Pertinent suggestions are outlined and resultant research needs discussed.

1   Introduction: Problem area

Websites as information source pertaining to forest fires

In countries such as Australia, large areas inhabited by many people are regularly exposed to the risk of fires in the environment (called wildfires, forestfires or bushfires). Consequently, emergency management is a permanent task. Risk information/communication/education about bushfires near residential settings are crucial components. Residents need to be properly informed about relevant hazard characteristics, preventative measures and appropriate behaviours during the onset

of an emergency situation and after the event. Information campaigns for enhancing disaster preparedness make use of media activities (television, radio, internet) meetings with residents, and a variety of visual communication means, such as information leaflets and brochures and video-tapes. Internet-based information provision, especially websites run by authorities have been commonly established within the last decade. They are widely available and accepted as essential and increasingly indispensable information source for both experts and residents; however, they are not yet 'mainstream' procedures.

Research on the value of fire websites.

Given the increasing relevance of fire authority websites, the capability and utility of information sources provided via the Internet became a significant issue. In order to get empirical data, from 2004 to 2006, my project "*Potential of the internet for enhancing residents' bushfire preparedness*" [PIB] was conducted. Conceptually, this Australian project is based on the author's socio-psychological Risk Communication Model. The investigation comprises six studies, which combine several approaches, including focus groups, experiments, surveys and expert panels. Last year, sub-study PIB-E "*Surveying bushfire events on websites - experience of people from different cultural backgrounds*" was carried out. The research questions to be clarified are summarized below in table 1.

Table 1:

Project PIB *Potential of the internet for enhancing residents' bushfire preparedness* **Research issues**
Focus: How are events, i.e., current bushfires in an area, represented and explicated on websites of pertinent fire authorities. *Crucial research questions*: ◊   How well are new risk communication means using the InterNet utilized by residents, and why or why not? ◊   How is information provided in websites perceived in comparison to reports in local newspapers? ◊   To what degree does website information advance problem awareness, preparedness and coping with actual fires? ◊   How can the usability and effectiveness of these tools for individual risk management be improved? *Critical perspective:* Explorations and expectations of residents (rather than fire experts), and differences between people from diverse cultural backgrounds.

The focus of this study are experiences of residents, both local ones and those from a different linguistic and cultural background.

2 Research method

Study design

The research plan was to focus on a current bushfire during the 'fire season', to choose the most relevant websites of the pertinent governmental fire authorities, to ask experienced people for a continuous appraisal of these internet information sources, to examine newspaper reports during the same time period, and to

incorporate people from different cultural backgrounds into the study. Details are listed in table 2.

In January 2006, the largest bushfire happened in South Australia, claiming 9 lives and destroying 83000 hectares of farmland.

Table 2:

Project PIB -- Sub-study PIB-E -- 2005
Surveying bushfire events on websites - experiences of people from different cultural backgrounds
Project design
Information sources: Monitoring and assessing of three websites: ◊　CFS = South Australia's Country Fire Service　(Adelaide; responsible for the area which had disastrous fires in Jan 2005)　=>> http//www.cfs.org.au/ ◊　CFA = Country Fire Authority of Victoria　(Headquarter in Melbourne; a large institution; in parts progressive)　=>> http//www.cfa.vic.gov.au/ ◊　RFS = New South Wales (NSW) Rural Fire Service　(located in Sydney; is the world's largest fire service)　=>> http//www.bushfire.nsw.gov.au/ *Newspapers:* The Age; Herald-Sun (both from Melbourne).
Participant sampling: Sampling of six people who are knowledgeable about bushfire issues from a residents' point of view, familiar with InterNet and website features, and are from different national and cultural backgrounds: South Australia & Victoria (i.e., Australia), HongKong & China (i.e., Asia), Germany & Netherlands (i.e., Europe).
Timing: Regular website observation for 1 month, mid-Jan to mid-Feb 2005; during the same time, checking for newspaper articles about bushfires.

Website assessment

The websites listed above were regularly inspected by the participants and finally assessed using the author's "Questionnaires for the Appraisal of Website Utility for Residents".

Furthermore, an agenda for describing and comparing reports in Melbourne newspapers was developed.

3　Empirical findings

Only selected results can be presented here, regarding the appearance of the websites of fire authorities, their usefulness for residents' hazard preparedness, and the eminence of internet-based information in relation to newspapers.

Appraisal of the 'face' of the websites

As the results in table 3 (next page) demonstrate, the governmental websites of interest were generally rated positively, including their navigation features. However, basic requirements, such as an organisation's name and contact provisions, are not always transparent.

Table 3:

	Project PIB -- Sub-study PIB-E -- 2005 *Surveying bushfire events on websites - experience of people from different cultural backgrounds* **Mean responses compared for websites of CFS (S.A.), CFA (Victoria), RFS (N.S.W.)** **A: Assessment of the overview & introductory page of the website**				
Facet	*Variable content*	*Response scale*	CFS	CFA	RFS
A1	Name of authorisation stated	% "yes"	100%	50%	83%
A2	Contact details provided	% "yes"	100%	67%	83%
A3	Organisation of home page	1= very poor to 5= excellent	4.5	3.7	3.7
A4	Ease of navigation	1= not at all to 5= very	4.5	3.7	4.0
A5	Ease of locating relevant information	1= not at all to 5= very	4.2	4.5	4.0
A*	Ratings as favourite site	1= most, 3= least favourite	1.7	1.7	2.7

Assessment of information regarding "fire preparedness"

In table 4 the main results regarding the convenience and utility of information for residents are presented, focussing on preparedness for fire hazards. The observed websites were found to be generally helpful and informative. Positive evaluations include: "Understandibility", "Clarity of fire safety actions" and "Motivating for fire preparation"; they are seen as "Meeting own information need" and "Better than brochures".

Table 4:

	Project PIB -- Sub-study PIB-E -- 2005 *Surveying bushfire events on websites - experience of people from different cultural backgrounds* **Mean responses compared for websites of CFS (S.A.), CFA (Victoria), RFS (N.S.W.)** **B: Evaluation of information regarding "Fire preparedness"**				
Facet	*Variable content*	*Response scale*	CFS	CFA	RFS
B1	Interesting to look at	1= not at all to 5= very much so	3.8	3.7	2.7
B2	Understandability	1= not at all to 5= very much so	4.3	4.4	3.7
B4	Visual appeal	1= not at all to 5= very much so	4.0	4.0	2.2
B5	Helpfulness of pictures/illustrations	1= not at all to 5= very much so	3.2	3.7	2.4
B7	Comprehensiveness	1= not at all to 5= very much so	4.5	4.3	3.7
B9	Length of section safety/preparedness	1= far too short to 5= far too long	3.3	3.0	2.7
B10	Keypoints & summaries provided	% "yes"	100	83	100
B11	Good examples given	1= not at all to 5= very much so	4.2	4.2	3.5
B12	Clarity of fire safety actions	1= not at all to 5= very much so	4.2	4.6	3.3
B13	Own info need is met	1= not at all to 5= very much so	4.0	4.0	3.8
B15	Extent of motivating fire preparation	1= not at all to 5= very much so	3.8	3.7	3.0
B16	Difficulty remembering information	1= not at all to 5= very much so	1.8	2.5	2.7
B17	Seen as reliable source of information	1= not at all to 5= very much so	4.2	4.3	3.7
B18	Clarity of where to get assistance	% "yes"	100	100	83
B19	Better than brochures	1= much poorer to 5= much better	3.6	4.0	2.8
B22	To be recommended to lay people	1= not at all to 5= very much so	4.0	4.0	2.8

Relevance of linguistic and cultural background

The ratings of the participants from a European or Asian background tended to be slightly less positive - they are less familiar with the English language (which dominates in the examined websites) and the significance of forestfires for Australians.

Evaluation of newspapers in relation to websites

Regarding alternative media, the websites were appraised as far more comprehensive in scope, yet the respondents emphasized that newspapers are easier to obtain, usually less demanding and likely to be more explicit and emotive. This judgment is stricter for websites which deal with principal bushfire matters rather than current events.

4 Discussion and outlook

Evaluation of websites' strengths and weaknesses

All study participants identified shortcomings, either regarding the content or the presentation of bushfire impacts and proposed procedures to enhance preparedness for hazardous events; see the list in table 5. Information complexity and comprehensibility for non-australian citizens are core issues, i.e., limitations of addressing cultural variety were stated.

Table 5:

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Project PIB -- Sub-study PIB-E -- 2005
Surveying bushfire events on websites - experience of people from different cultural backgrounds
Appraisal of websites – criticisms and suggestions
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Perceived shortcomings:

◊ Some information and instructions too 'texty',
◊ information about present bushfires not as current as newspaper or TV reports,
◊ some parts difficult to understand for people with a 'non-english' linguistic and cultural background,
◊ some summaries of key points too complex,
◊ explanation of technical terms occasionally hard to find and/or to understand,
◊ inconvenient if information comes in 'pdf" format and needs a printer.
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Suggested improvements:

◊ Reflecting the (restricted) awareness and knowledge of residents,
◊ using more maps, pictures, diagrams, charts to convey information,
◊ providing downloadable videos for demonstrating fire risks and enhancing preparedness,
◊ including facilities for those with not-so-good eyesight,
◊ adding information aimed at children,
◊ placing up-to-date information about current bushfires on prominent frontpage position,
◊ making core information usable for all website users, including those who have restricted download capabilities, no flash player and can't print website texts,
◊ enhancing accessibility for the wider Australian audience, by providing information in languages other than English.
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Clearly there is considerable potential for improving websites (cf. part 2 of table 5). When working on website enrichments, some audiences deserve particular attendance, e.g., children, elderly people, and residents with an non-australian background.

Considerations for further research

Improving the potential utility and actual utilization of a website has better chances if based on empirical research about residents' responses to the content and appearance of forestfire information. In table 6, a set of pertinent research topics are suggested. These issues refer to the presentation mode (e.g., the role of pictures), the links to other media (e.g., radio), the fire situation (before versus during versus after an event), linguistic and cross-cultural problems (e.g., non-australian residents), and website requirements regarding specific groups (e.g., children).

Research projects about the soundness and efficiency of internet-based fire information should be conducted both before and after re-designing a website.

Table 6:

Project PIB
Potential of the internet for enhancing residents' bushfire preparedness   **Research suggestions**
◊   Comparing the communication efficiency of pictures versus diagrams versus charts versus videos as visual enrichments of text information,   ◊   critically analyzing the options for providing multi-language bushfire information and preparedness advice,   ◊   exploring differences in website utilization across people of high or low familiarity with internet & web-browser procedures,   ◊   website utilization regarding specific information needs 'before' versus 'during' versus 'after' bushfire events/disasters,   ◊   empirically investigating the links between website features and the real behavior when preparing for or coping with actual fires,   ◊   testing the linkage and potential mutual enrichment of information provided by various media, such as websites, newspapers, television and meetings of community groups such as 'fireguard',   ◊   investigating necessary features in case children and/or the elderly are to be addressed in websites.

Final considerations

It appears almost certain that 'electronic' information channels will become as commonplace in disaster preparedness as in many other fields of public information, communication and education. In fact, WWW-based risk communication has considerable advantages: Information can be updated regularly and quickly, users can bookmark and store relevant hazard info, access is fast and blockage unlikely (unlike telephone contacts).

The results from the current study, "*Surveying bushfire events on websites - experience of people from different cultural backgrounds*", will help to better identify (1) why and how residents seek and utilize information regarding forestfire preparedness, (2) whether current websites of fire authorities meet the reading style and information needs of residents, and (3) which features of websites are essential and deserve substantial improvement in order to maximize their potential for enhancing residents' preparedness.

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