

Interactive hazard preparation strategy efficacy: considerations for future community engagement programs

Dr Holly Foster provides findings from two primary research case studies on interactive community engagement strategies.

ABSTRACT

The emergency services have assumed a significant role in building resilience in Victoria. The extent of instruction, advice and information provided by emergency service organisations is critical to engage communities to prepare for hazards. To better engage communities, some agencies have adopted face-to-face, interactive community engagement strategies. These strategies can be effective as they overcome many barriers of passive information transfer. This paper forms part of a larger research project exploring the efficacy of community engagement programs in the emergency management sector. This paper explores the benefits and limitations of interpersonal community engagement strategies, highlighting implications for future engagement undertakings. ^R

Introduction

Extreme weather events such as bushfire, heatwaves, storms and floods have occurred more frequently, with greater ferocity and, in some cases, longer duration (Hennessey 2011, Jones 2011). In addition to response and recovery responsibilities, the Victorian emergency services sector has assumed communication roles within their communities. The community engagement functions of emergency service organisations (ESOs) include:

- education on different climate hazards
- providing timely and accurate warnings
- preparation advice, and
- response and recovery advice.

In assuming these roles, many communities have become dependent on ESOs for advice, warnings, instruction and physical assistance during severe events. The level of detail of these messages has increased, with some communities expecting address-specific warnings and preparation information (Comrie 2011).

Community resilience

Community resilience is a multi-disciplinary phenomenon: a function of different elements within a social system. A resilient system is one that functions well under stress, can successfully adapt, is self-reliant and displays social capacity (COAG 2011). The extent of disruption to any of these elements can influence the impact of an extreme event within a community.

Developing and empowering communities to recognise and manage disruption can reduce the time, involvement and resources of ESOs post-disaster (Dufty 2011, Cutter *et al.*, 2010). The extent to which individuals prepare themselves for climate hazards can be encouraged through community engagement at the individual and household level (COAG 2011, Paton *et al.*, 2010, Tompkins and Adger 2004).

Community engagement

Community resilience can, in part, be bolstered by engaging with communities about their roles and responsibilities in preparing for extreme weather events. However, numerous contextual factors mediate the impacts of these strategies (Hartel and Pearman 2010, Stern 2002). This is because sustained hazard preparation is a function of how people interpret information, social and community contexts (Frandsen *et al.*, 2011). Figure 1 depicts some of the broad factors influencing the impacts of engagement strategies.

Figure 1. Factors influencing community engagement.

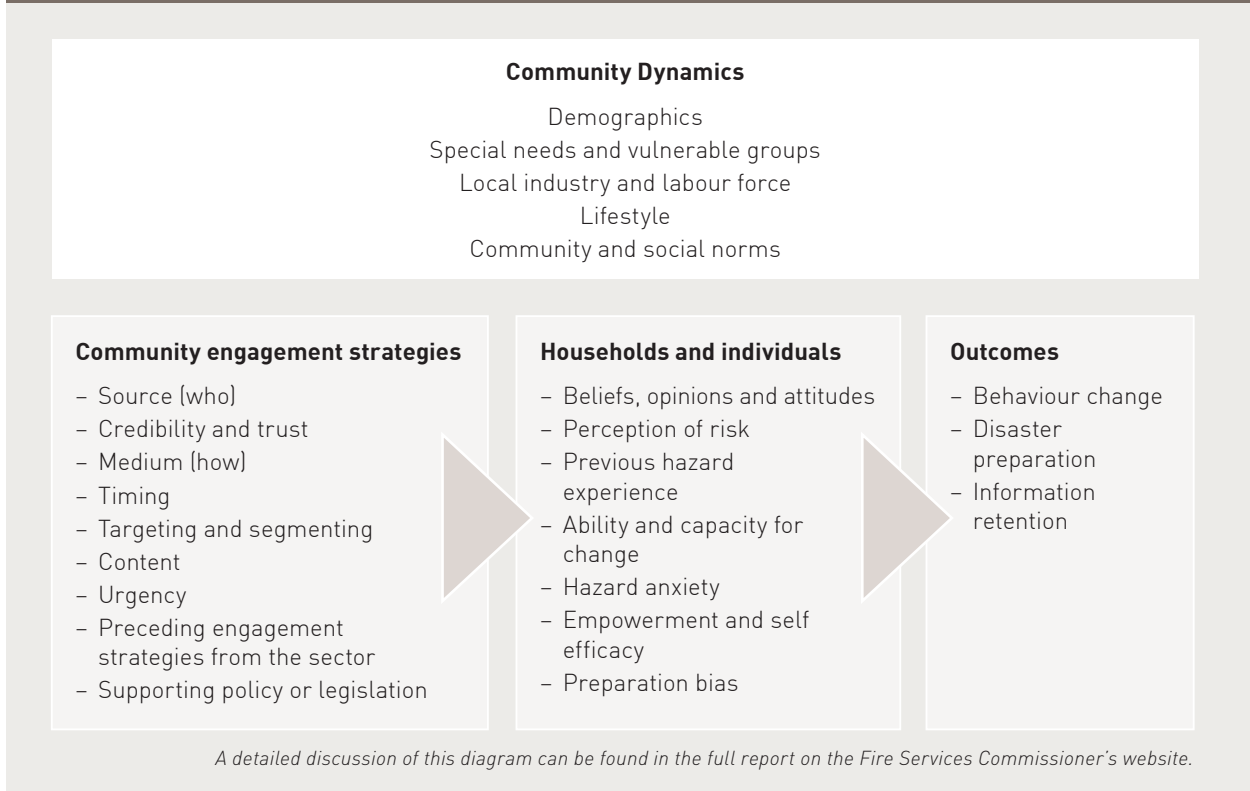


Figure 1 demonstrates that many forces influence information retention and preparation uptake of households. The process is also influenced by the degree to which message transfer is passive (Paton 2008, McIvor and Paton 2007). The availability and/or transmission of generic disaster mitigation information does not ensure its understanding or acceptance as it fails to:

- meet the diverse needs of communities
- explain the significance of risks and how they will impact individual households, or
- offer personalised, specialised solutions for households to mitigate their risk (Frandsen *et al.*, 2012, Paton 2008, Paton and Johnston 2001).

To overcome known barriers to information transfer and instigate preparation activities in the community, some emergency service agencies are developing personalised, face-to-face community engagement strategies. These strategies enable agencies to tailor engagement activities to the unique characteristics of the communities in which they work and the context of their environment. Purpose-built, tailored engagement activities are being developed that:

- deliver complex messages and hazard information
- justify to individuals and households the need to act
- provide personalised advice and recommendations of how to act
- provide real-time, two-way communication

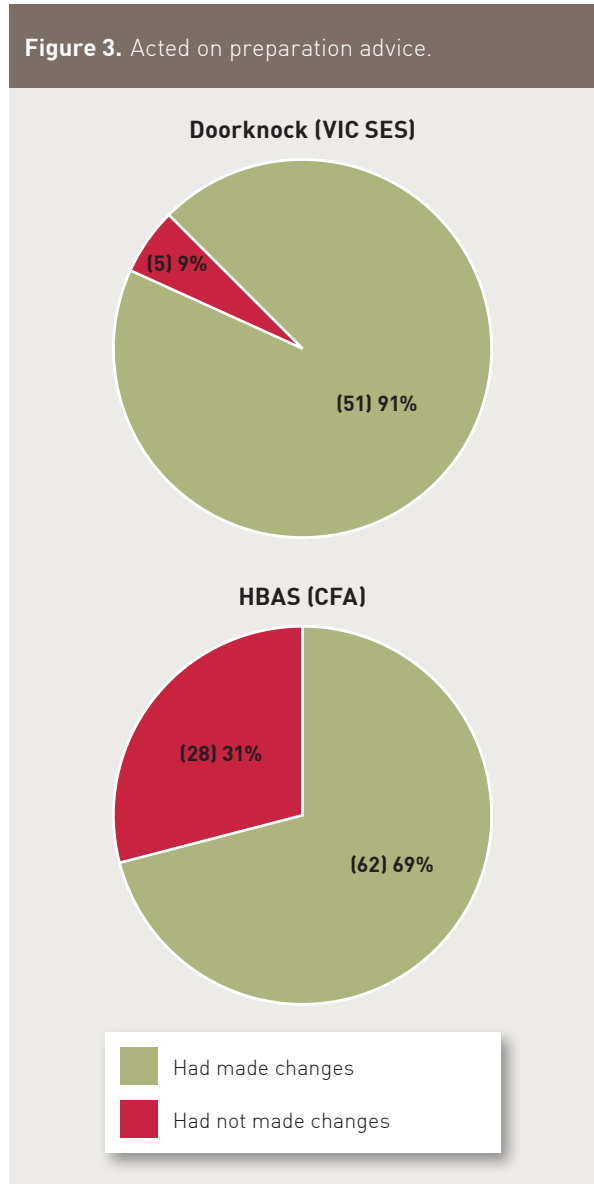
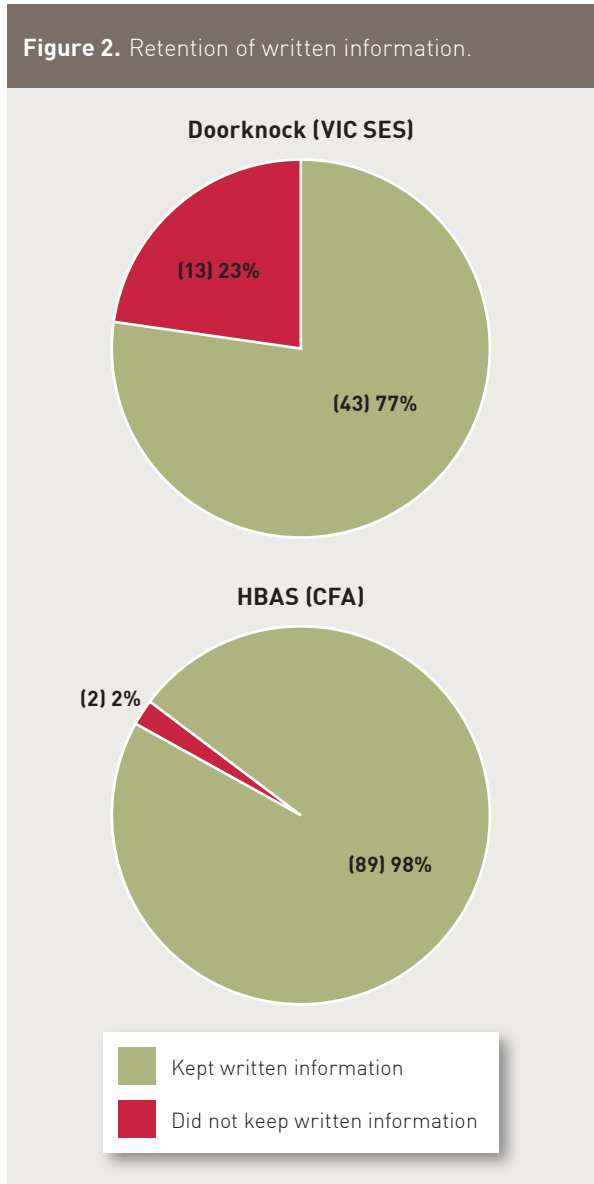
- allow for perceptions of 'credible' message sources (via experts), and
- support, through supplementary information (written material), rather than dependent on it (Spittal *et al.*, 2011, Paton 2007, Dann and Dann 2005, Tompkins and Adger 2004, Nielsen and Lidstone 1998).

Engagement strategies that consider these factors are more likely to result in campaigns that promote information retention, including uptake of disaster mitigation activities (CFA 2011, Paton and Wright 2008, Paton 2007). This study explores the impacts of these strategies by exploring the extent of behaviour uptake, the information retention and the contextual factors influencing these actions.

Research design

The literature recognises that hazard awareness, understanding and preparation are important aspects of community resilience. The aim of this paper is to explore the efficacy of interactive engagement strategies in instigating hazard preparation and information retention.

This paper examines how households have responded to the engagement strategies of two different ESOs. The first strategy explored is the Victorian State Emergency Services (VIC SES) 'Community Education Doorknocks'. The second strategy explored is the Country Fire Authority's (CFA) 'Home Bushfire Advice Service' (HBAS). These strategies focus on preparing for different hazards – bushfire and floods – and were carried out in different geographic locations.



The VIC SES doorknock campaign was developed in collaboration with several working partners. It involved pairs of volunteers visiting households at risk of over-floor flooding. Volunteers discussed with householders the possible impacts of flood and ways to minimise those impacts by preparing effectively. An information kit was used to guide discussion and a copy was left at the household at its conclusion. The doorknocks were carried out without prior notification and, in cases where no one was home at the time of the doorknock, an information kit was left on the doorstep with an invitation for the householder to contact the VIC SES for further information, or arrange a time to call back (VIC SES 2011).

The HBAS is a free service offered by the CFA and involves a Fire Safety Officer visiting the property to provide specialised information on reducing the risk of bushfire. A follow-up written report summarising key points made during the assessment is posted to householders one to two weeks after the HBAS has been completed (CFA 2011). Householders are able to book a HBAS by contacting their local CFA.

The engagement activities outlined employ some commonalities, including:

- face-to-face interaction
- visit to the homes of community members
- provision of specific information relevant to their household, and
- provision of supplementary, written information to prepare for the hazard.

The engagement activities also have some noteworthy differences, including:

- the CFA engagement strategy is instigated by the householder and a suitable time is determined
- the VIC SES engagement strategy is instigated by the agency and is carried out without a time being pre-arranged with the household
- the CFA engagement strategy has been running for three years, and
- at the time of the study, the VIC SES engagement strategy was in pilot phase.

Sample

A targeted sampling method was used to ensure respondents surveyed had participated in the engagement strategies being studied. The scope was narrowed to two suburbs where either engagement campaign had been carried out—the CFA HBAS in a peri-urban suburb and the VIC SES doorknock in an urban suburb. Both suburbs had recent experience with the hazard under study (that is, fire in the HBAS study area and flood in the doorknock study area). Contact details of participants were provided by each agency and the survey carried out within three months of the engagement activities being performed.

The study surveyed 90 participants of the HBAS and 106 households doorknocked by the VIC SES. Of those contacted, 50 householders did not recall being doorknocked by the VIC SES or that they had received an information kit. Of the 56 respondents that were familiar with the doorknock, 27 were present and interacted with volunteers, while 29 respondents were absent, but received an information kit.

Results

The following extracts from the larger research report detail some of the findings.

Retention of written information

Both the CFA and the VIC SES engagement programs provided supplementary, written information to households about preparing for climate hazards.

Table 2 shows that 98 per cent of respondents (89 people) who participated in the HBAS kept their written report, while 77 per cent of respondents (43 people) doorknocked by the VIC SES kept their information kit.

Changes made as a result of information provided

Participants in this study were asked if they had acted on the advice by adopting changes or suggestions made to prepare for climate hazards. The results are displayed in Figure 3.

Figure 3 demonstrates that nine per cent of respondents (five people) adopted recommendations made during the VIC SES doorknock. Respondents who were doorknocked by the VIC SES had developed emergency plans, repaired gutters and made other structural changes to prepare for flood.

In contrast, 69 per cent of respondents (62 people) adopted recommendations made from the HBAS. These participants had cleared gardens, purchased fire fighting equipment or generators, and relocated combustible materials.

What prevented households making changes?

Respondents were asked to explain what, if anything, had prevented them from adopting recommendations to prepare for climate hazards.

Table 1: Barriers to preparing for hazards

Doorknock (VIC SES)	HBAS (CFA)
Too busy/No time	Cost/Expense
Not at risk - does not flood much	Nothing stopping us making changes
Not at risk - home is elevated	Too busy/No time
Cannot be bothered	Amenity/Landscape
Nothing stopping us making changes	Council regulations

Table 1 shows the top five barriers participants believed prevented them from taking on suggestions to prepare for climate hazards. The most frequent barrier for preparing for flood was time. However, the data indicate collectively that the perception of flood risk was low and this prevented many householders from preparing. Many respondents expressed they were not at risk due to the infrequent occurrence of floods or, alternatively, the elevated location of their home. Some respondents admitted that 'they could not be bothered' and admitted nothing was preventing them from acting on the information provided. In addition, the cost of some suggestions made during the HBAS deterred participants from taking on the changes. It was noted that many changes adopted by HBAS recipients were 'low hanging fruit'—non labour intensive and inexpensive property modifications. However, other amenity and landscape preferences overrode the urgency to make changes. Some respondents indicated that while they could afford to make changes (such as fit metal shutters, remove sky lights, change roofing material), they refused to compromise the aesthetics of their home.

What motivated or facilitated households making changes?

Respondents were asked to explain what, if anything, had motivated them or facilitated them in adopting the advice to prepare for climate hazards.

Table 2 shows that those who had adopted advice from the VIC SES (five people) were primarily motivated by their previous experience with flood. This data suggests the engagement instigated few people making tangible changes to prepare for flood. However, the study also found householders who were present and interacted with volunteers during the doorknock were more likely to have read the information kit, kept it (not thrown it out), and be able to recall key flood messages from the written information.

Table 2 illustrates that respondents who participated in the HBAS were motivated by the specialised information provided by the Fire Safety Officer during the HBAS. Many respondents stated the personalised information encouraged their hazard preparation actions.

Table 2: What motivated or facilitated households to prepare for hazards	
Doorknock (VIC SES)	HBAS (CFA)
Previous experience with flood	Getting an assessment from CFA
	Advice given from the Fire Safety Officer
	Being told explicitly what to do
	Better understanding of what changes are required
	Being better informed

Action taken to prepare for more frequent and severe events

In closing the survey, participants were asked to comment on their likely response if, as expected, climate events become more frequent and severe. The five most frequent responses from either sample are shown in Table 3.

Table 3: Likely actions for more frequent and severe events	
Doorknock (VIC SES)	HBAS (CFA)
Move out of area	Leave on high fire danger days
More rigorous property maintenance	More rigorous property maintenance
Would not change/just live with it	Will leave and not defend home
Modify home or property	More thorough home bushfire plan
More thorough emergency plan	Move out of area

Table 3 demonstrates that householders who participated in the VIC SES doorknock were less likely to adopt practical, tangible actions (or behaviours) to prepare for increased occurrences of flood. A third of respondents (18 people) stated they would move, 14.5 per cent (eight people) indicated they would make structural changes to their property, while 13 per cent (seven people) said they would not make any changes and ‘deal with’ higher instances of disruption.

In contrast, householders who participated in the CFA HBAS were more likely to adopt new, or increase

existing prevention strategies. Most respondents (32.7 per cent, 29 people) said they would leave on high fire danger days, 20.4 per cent (18 people) said they would prepare their homes more rigorously while others (17.7 per cent, 16 people) said they would leave early and not attempt to defend their home.

Summary

This study highlights the intuitive, practical efforts of two Victorian ESOs and their working partners to promote tailored, hazard-preparedness messages to their communities. While only a small sample, this data demonstrates that interactive engagement activities can be effective in instigating hazard preparation and information retention. However, subsequent desired action by householders depends on a number of variables. Table 4 summarises the most salient of the contextual contrasts identified in the larger research study that may have moderated householders preparing for climate hazards.

While the study was limited by its small sample size, the data shows that interactive community engagement strategies are useful to adapt to the heterogeneous needs of communities. However, the willingness, capacity and readiness of communities to prepare for hazards depends greatly on the community context, perceptions of the risk and varying levels of engagement within the community. Identification and analysis of these issues is important to ensure continuous improvement of engagement strategies, to better target information to the nuances of communities and, ultimately, strengthen community resilience.

Strategic issues

Interactive community engagement strategies are a useful tool in educating communities about hazard preparation. In many places, community expectations have evolved to anticipate increased levels of detail and personalisation of emergency messages. The following list outlines opportunities and challenges to adapt to community engagement functions.

Supporting legislation for agencies to perform their functions

To advance the community engagement function of ESOs, a review of supporting legislation is necessary to remove ambiguities and make explicit ‘implied’ roles. Community engagement functions require specification to avoid task duplication, foster task ownership and encourage an ethos for evaluation and continuous improvement of strategies.

Importance of partnerships and networks

Partnerships and strategic networks are essential in building message credibility and targeting audiences. The development and sustainability of strategic relationships is integral to delivering robust, effective community engagement now and into the future.

Table 4: Contextual differences between the VIC SES doorknocks and CFA HBAS

	VIC SES	CFA
Extent of interaction with agency staff - extent of engagement and ability to discuss the householder's property, answer questions and provide verbal advice (Spittal <i>et al.</i> , 2011, Wiseman <i>et al.</i> , 2010, Stern 2002).	Participants present during the doorknock (27 people) had high information retention. Those absent during the doorknock retained less hazard information and made no tangible changes.	All households surveyed actively participated in the HBAS. They had high information retention and many acted on preparation advice.
Credibility of the threat of the hazard to the household - does the householder believe the hazard is likely to occur and/or be disruptive (Dann and Dann 2005, Mileti and Peek 2002)?	Many respondents did not perceive flooding was likely to occur and, if it did, would not affect them, impacting their behaviour.	Many respondents in the survey recognised they lived in high fire danger areas and perceived the risk of bushfire to their home as credible.
Extent of marketing and other information sources - has the campaign been promoted through other communication channels or have working partners which bolster message credibility (Johnston <i>et al.</i> , 2012, Chia 2010)?	The agency worked with key partners to develop the doorknocks. Moderate advertising was used to promote the doorknocks.	The agency advertised through numerous channels and worked with key partners to promote the service.
Previous experience - has the household or any of its members had experience with the hazard under investigation (Johnston <i>et al.</i> , 2012, Paton 2007)?	The five participants in the study who prepared for the hazard were motivated by previous flood experience.	Most respondents had not experienced (first hand) bushfire in their area, although the memory of recent bushfires was prevalent in the sample.
Engaged community - how engaged is the community with local hazards and their personal responsibilities in preparing for them (Frandsen <i>et al.</i> , 2012, Hartel and Pearman 2009, McIvor and Paton 2007)?	Many respondents did not perceive the need or personal responsibility to prepare.	Many respondents believed they were responsible for their own safety and took action accordingly.

Further discussion on social and contextual factors moderating household preparation activities can be found in the full report.

Viability of face-to-face engagement strategies

While effective, interpersonal, interactive engagement strategies are time and labour intensive. Agencies will have to determine the viability of these intensive campaigns in the long-term, particularly when carried out by volunteers.

More people living in new and more challenging environments

Population projections across Victoria suggest population growth in fringe areas and greater population transfer. This means there will be more people without existing knowledge of hazards living in a range of hazard-prone areas. There will be an ongoing need to educate, inform and find new ways of sharing local hazard information to these communities.

Increased frequency and ferocity of events

While only a small sample, this study has indicated that people have vastly different responses to the notion of

increased climate hazards. This is dependent on where they live and (among other factors) home ownership. Building knowledge of hazards that will move with people will create greater resilience across Victoria.

Outsourcing or collaborating in future community engagement strategies

ESOs carry out concurrent community engagement campaigns across Victoria, targeted at different climate hazards. These campaigns are often challenged by budget and staffing constraints. Collaborating future engagement campaigns to create synergies and efficient use of resources may offer opportunity for greater message penetration, credibility and potentially bolster preparedness for all hazards.

Furthermore, some agencies may be more equipped than others to carry out community engagement functions. There may be opportunities to outsource these capabilities to other organisations as the task of community engagement becomes increasingly critical to establish and sustain community resilience.

About the author

Dr Holly Foster is the Senior Researcher at the Fire Services Commissioner in Victoria and the primary researcher on the 2021 research program. Holly is a social researcher with extensive research background in climate change, water pricing and regional economics.

This paper forms part of a larger research report carried out under the Office of the Emergency Services Commissioner, supported by the then current Project Manager, Julie Hoy.

The complete report is available at <http://www.firecommissioner.vic.gov.au/our-work/research/climate-change/>.

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