

UNISDR Scientific and Technical Advisory Group Case Studies - 2015 What are the best ways to teach children about bushfire risk?

The problem

On February 7th 2009, bushfires (wildfires) of unprecedented intensity burned 450,000ha of Victorian bushland, killing 173 people (including 27 children) and destroying over 2000 homes¹. In the immediate aftermath of what is now referred to as 'Black Saturday', the Victorian Government established the Victorian Bushfires Royal Commission, which attributed the magnitude of losses to a fundamental lack of bushfire knowledge and awareness within the affected communities. Identifying bushfire education for children as the most promising means of addressing this issue, the Commission formally recommended that bushfire education be integrated into the Australian National Curriculum.

At this time, however, there was very little research on how children understand bushfire hazards or natural hazards more generally. This was a significant issue because when hazard education is designed without regard for how different groups understand and experience hazards, it fails to achieve the kind of learning that facilitates protective action. Understanding the existing knowledge of the learner is also the central tenet of several prominent psychological theories which emphasise the influence of existing conceptual networks on the interpretation of new information. Hence, in order to develop evidence-based bushfire education for Australian children, it was necessary to conduct in-depth research on how these children understand bushfire hazards.

The science

For this research, focus group interviews were conducted with 141 school children who were living in high bushfire risk areas in the southern Australian states of Victoria and Tasmania. The children, aged between five and 12 years old, were asked a wide range of questions about the causes and consequences of bushfire hazards and disasters and what people can do to prevent those consequences. The use of child-centred qualitative methods ensured that the children were able to articulate their understanding of bushfire hazards from their own perspectives. To understand the role of the family in the construction of children's knowledge, 70 parents were also interviewed about their household's bushfire preparedness activities and the extent to which they had involved their children in those activities.

The research found that the key factor influencing children's knowledge bushfire hazards was their involvement in household bushfire mitigation and preparedness activities. When children had been afforded a high level of involvement, they exhibited more sophisticated understandings of bushfire hazards: for example, they understood the dangers of radiant heat exposure and the role of embers in fire spread and home ignition. When children had not been involved in household activities, their knowledge of bushfire hazards were often characterised by misconceptions. For example, many children believed that a river or dam would prevent a bushfire from reaching their house or that a bathtub filled with water would provide a safe refuge as a bushfire passed over. Many children also believed that they would be able to 'outrun' a bushfire once it had arrived.

The application to policy and practice

Research results were used to inform an animated television bushfire safety campaign targeted at primary school children. The 10-part *Li'l Larrikins** series was a collaboration between Australia's peak emergency services body, the Australasian Fire and Emergency Service Authorities Council (AFAC) and the Victorian Country Fire Authority. Knowledge of how children understand bushfires was a key consideration in writing the content and designing the scripts. The series aired across south eastern Australia during children's viewing time over the 2009-2010 bushfire season. The series laid the foundations for emergency agencies to develop and deliver

school-based bushfire education programs. A project is currently underway to create a national school education program based on the series.

In 2010, the research was used for the development of a bushfire preparedness scenario for the Triple Zero Kids Challenge, an online safety game for children. In developing the script for the scenario, Fire and Rescue New South Wales drew heavily on the research to ensure that the game would accommodate the knowledge and misconceptions of children. For example, the game includes explicit information about the importance of leaving early, well before a bushfire arrives. The research was also used to inform the Triple Zero Kids Challenge Teacher's Guide, a companion resource for the online game, consisting of 14 lessons about house fire and bushfire safety. In each lesson, guided discussion which enables children to articulate their knowledge and perspectives constitutes the starting point for each new learning activity. The guide also includes homework activities aimed at fostering dialogue between children and their parents and increasing levels of preparedness in the household.

In 2011, the research was also used by AFAC, the Australian Children's Television Foundation, the Australian Attorney-General's Department and State Emergency Services' across the country to produce a second *Li'l Larrikins* series that focussed on a broader range of natural hazards, including flood storm and cyclone. In addition, a teacher's resource kit was developed to help teachers educate children about the risks of natural hazards. The 10-part series and the teacher's resource kit emphasised the importance of open discussion - in both the classroom and the household - in ensuring that children's existing knowledge and perspectives are understood and accommodated. The *Li'l Larrikins** program received two national awards - Nationally Significant category winner in the 2011 Australian Safer Communities Awards presented by the Commonwealth Attorney-General, and Best Primary Education Video Resource in the 2011 Australian Teachers of Media Awards.

2013 saw the release of an eBook by the Bushfire CRC aimed at parents, to help them talk to their children about bushfire preparation and safety. The eBook is interactive, allowing parents to share the reading experience with their children, promoting discussion within the family. The eBook was distributed widely throughout fire agencies and local governments into communities.

Did it make a difference?

By exploring children's ideas about natural hazard risk, this research helped to ensure that education programs accommodate children's existing knowledge and perspectives. It has also provided educators, emergency services and other authorities with an evidence-base for the development of more effective education campaigns.

A major limitation of the work so far is that the various programmes and materials have not been formally evaluated. In both Australia and internationally, formal monitoring and evaluation mechanisms for children's hazard education programmes are rare. Budget constraints and scarce human resources mean that very few programmes are evaluated and there are persistent issues concerning methodology and measurement that need to be resolved. The development of monitoring and evaluation mechanisms for new and existing programmes is a major focus of a new three year project being funded by the Bushfire and Natural Hazards Cooperative Research Centre. This project, titled "Building-Best Practice in Child-Centred Disaster Risk Reduction", will evaluate the above mentioned programmes and materials to measure their impact over both the short and long-term.



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