Technology-enhanced Learning - Examining innovative options in 'bushfire behaviour' training

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Introduction

This PHD study explores two aspects of training - the use of ICT and other tools, and ways to support trainers to develop skills when using these tools. There has been considerable progress in the tools available to support training; training tools like simulation games, videos, graphics, 3D maps and others, and these can go a long way to enhancing the learning experience. However, the research literature clearly shows that trainers experience difficulties using tools *effectively*.

This research tracks groups of trainers as they develop prototypes of technology tools for training in 'bushfire behaviour'. The focus is on taking a practical approach to collaborative design and to examine what this design work reveals about technology-enhanced learning in this field and how trainers develop professional skills.
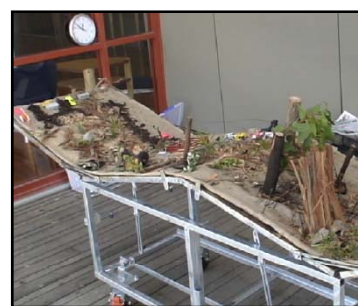
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Aim

The broad aim of this PhD study is to understand more about how approaches to 'bushfire behaviour' training can be improved, with a particular focus on the role of technologies and other tools in this training.

Phase 1 involved examining current approaches to General Fire-fighting (GFF) training, with the aim of shedding light on, and provide direction for, new approaches to training.

Phase 2 of the research is focussed on understanding more about these new approaches and takes a particular approach to developing trainers' knowledge and skills when using these new tools. In this phase their development will be tracked and what is learned about the use of the tools will be documented.

Phase 3 will see the tools trialled and tested with the aim of understanding how effective the tools are for the learners.

Method

- Three GFF training camps were observed in phase 1 including...
    - 12 days of training,
    - 8 hours of video and audio data, and
    - 27 interviews.
- The interviews along with an analysis of the video/audio recordings collected forms the basis for building understanding of the practices and knowledge of trainers as they teach 'bushfire behaviour' concepts and what trainees understand about these concepts.

Three GFF training camps were observed in phase 1 and 'practical' sessions were found to be very successful.

The focus in phase 2 is the use of a 'bushfire simulator' which is being trialled and further developed by the DSE. *

The 'bushfire simulator' is a portable table that provides a 'simulated fire ground'.

Preliminary results

Phase 1 results provided feedback to participating agencies on their current approaches to the training which included....

- 'Practical' sessions are highly regarded by trainees.

- A limited repertoire of teaching approaches when delivering the 'theory' based content was observed. However, DVDs, graphics, animations and photos provided effective support to the current delivery approaches.

'Bushfire Behaviour' Field trip# - in this camp run by 'Melbourne Water', GFF trainees were taken to 3 locations on a nearby mountain. At each location, typography, vegetation and fuel were discussed and as they moved up the mountain contrasting elements were identified. Areas where previous back burns and bushfires had occurred provided additional focus for discussion.

Other Phase 1 findings...

- The trainee group represents a diverse group with a broad range of 'learner skills' including some who find 'standard' training challenging. This places greater demands on trainers as they need to build skills in working with a range of learners.

- Difficulties arise with building trainer skills because trainers have multiple roles (including high level fire-fighting duties) and because training occurs only once a year, in a block time.

- By involving trainers in the 'design' approach the aim is to build trainers' repertoire of practices, and their knowledge and skills in using the 'simulator' and other delivery modes.

Trainees get the chance to interact with the 'bushfire simulator' which provides new opportunities. This can also lead to a number of challenges.

For the DSE trainers, phase 2 data analysis looks specifically at the trialling of the 'bushfire simulator'. This phase provides details of the how the use of the 'simulator' reshapes the content and changes the teaching practices. This analysis will provide guidance to a group of trainers who are developing their expertise in using the 'simulator' over a series of workshops.

Outcomes

- Using best practices in adult training and education

- Building learning models to meet specific industry needs

- Building trainer capability

- Innovative learning products for end users

- Understanding the learning benefits of specific tools

Acknowledgements

* The Department of Sustainability and environment (DSE) is the primary participating agency in this study. The 'bushfire simulator' was first used in Australia by Queensland Rural Fire Service.

photo taken by Blair Poulton.

Want to know more?
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