

Technology-enhanced Learning - Examining multimedia options in bushfire behaviour training

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Background

The intensive work conditions during bushfires place great demands on bushfire workers and those managing the bushfire response. The challenge of devising ways to prepare workers for these intensive conditions is a critical future project, especially in the context of climatic warming and the prospect of increased frequency of extreme fire danger days¹ over the coming years.

Effective training is a key component to preparing workers for bushfire mitigation and incident management. This PhD study examines new approaches to the delivery and development of training in bushfire behaviour and management.

"Australia would be hurt more than other developed countries by unmitigated climate change...."

Garnaut Climate Change Review Draft Report²

Possible scenarios

The tools to be developed will vary depending on the group's specific needs, the trainees level and specific outcomes required in the given situation. The possibilities might include finding unique ways to use purpose-built software, to repurpose content on a website, for example, or to redesign explanatory presentations.

One group of trainers who are reviewing their 'General Fire-fighter' course, and who are looking to expand their strategies and to find better ways to build trainee knowledge of practices; are interested in redeveloping existing video into new packages for easier delivery and to explore the possibilities of 'interactive' learning units.

If this sounds like a project that you'd like to explore further, there is still time to get involved. Please contact Annette Salter.

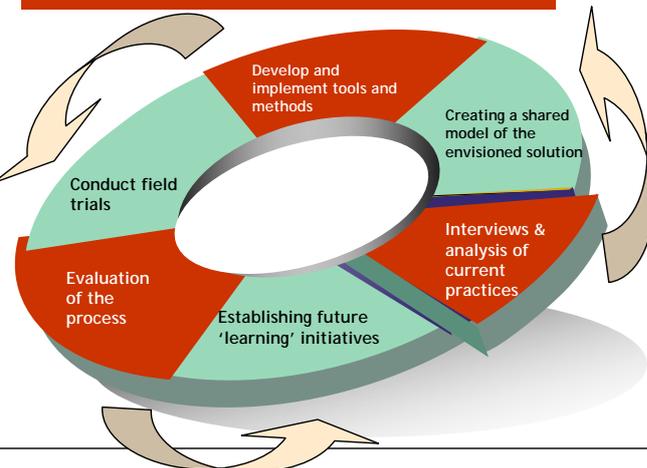


Aim and intervention

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

A design approach will be taken whereby trainers co-design learning tools. After identifying authentic problems in current training, the trainers develop and implement appropriate solutions. The researcher provides support by introducing tools, models, templates and workshops on building training practices where appropriate. This learning-by-doing approach provides a rich context for sustained inquiry and revision³ and aims to build the trainers' practices along with innovative learning tools.

Design cycle⁴



	Enabling Trainer pedagogy	Developing digital tools
Focus	<p>The design approach provides the context for trainers to build their training capabilities.</p> <p>The 3 key foci are ...</p> <p>Technology - knowing how to teach with digital tools Pedagogy - building training strategies and approaches Subject - knowing curriculum and content</p> <p>As the bushfire behaviour tools and knowledge is underpinned by science knowledge, there will be particular focus on developing practices that specifically advance this knowledge (known as pedagogical content knowledge - PCK⁵).</p>	<p>The use of digital tools provides many benefits to trainers and trainees. For example, visual modes of presentation have been demonstrated to aid understanding of concepts and processes.⁷ The purpose of this work is for trainers to develop digital tools and practices around these tools and to map the benefits and effective uses of these tools.</p> <p>There are a number of simulation and modelling tools already available in this field which include animations and virtual environments. There are also a growing body of information resources which are available on the internet and on DVD/CDROMS and come in the form of pictures, animations, video and text and in some cases have interactive components. For more advanced exploration, spreadsheets and graphing tools for data handling and analysis are also available.</p> <p>The object is for trainers to explore ways of adapting, modifying and repurposing these tools in order to design purposeful learning modules.</p>
Questions	<ol style="list-style-type: none"> How does the design approach lead to development of PCK? How does the design approach lead to development of the trainers' understanding of how to teach with technologies? How does delivery and development improve through educational multi-media applications? 	<ol style="list-style-type: none"> What is the role of visual representation and simulation techniques in understanding, acquisition and retention of bushfire behaviour concepts? What factors are required for effective use of tools?
Research Methods	<p><i>Trainer profile tool</i> - this instrument measures trainers' confidence with technologies, their teaching repertoire and knowledge when using technology in training.</p> <ul style="list-style-type: none"> Design and reflective sessions will be recorded Other sources for analysis involve iterations of 'tool' progress, interviews and video-tape of trial. 	<ul style="list-style-type: none"> Co-developed resources will be tested in training environment Trainees will be tested for conceptual understanding
Expected Outcomes	<ul style="list-style-type: none"> Best practices in adult training and education Building learning models to meet specific industry needs Building trainer capability 	<ul style="list-style-type: none"> Innovative learning products for end users Understanding of learning benefits of specific tools Empirically tested solutions

References

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