



# Educational strategies in fire behaviour training: the case of the bushfire behaviour table

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## Introduction and aim

Understanding fire-behaviour is an important component of fire-fighter training and the overall aim of this study is to examine how different kinds of educational media-teaching strategies employed by trainers might enhance learning in this area. This research draws on social constructivist theories of learning to frame the problem of how people learn bushfire fighting work. The study then examines training for entry-level fire-fighters in order to analyse the pedagogical challenges and possibilities.

## Research questions

The research questions include:

- How do instructors facilitate learning for entry level fire-fighter trainees?
- What are their theories of pedagogical practice?
- How do trainees experience this instruction and what do they learn?
- In what ways does the opportunity for learning change with the introduction of a new medium (the bushfire simulation table) and what are the implications?

## Research Methods

A qualitative approach was used, including semi-structured interviews with 25 trainees and 8 trainers. Other data sources included training coursework documents and materials, classroom observations and transcribed video data of teaching sequences (one using a traditional instructional format and another using the introduced fire-behavior simulation approach).

## Findings

The findings of this study show that trainers typically use a lecture-style delivery with an emphasis on instruction rather than a model that focuses on learning. Learners tend to disengage with this training and become passive.

When instruction is socially situated, as when the fire simulation exercise is employed to deliberately engage trainees and lift their thinking skills in analysis and evaluation, trainees are able to become actively engaged and develop a higher order of understanding.

The implications of these findings suggest that trainers' pedagogical practices as well as the curriculum assessment processes will need to change in order to promote the higher level of understanding and skills needed to tackle the challenges facing the industry. A model of learning is proposed based on an analysis of approaches now in use.

The key assumptions of this model, known as the cognitive apprenticeship model, includes providing:

- authentic activities* which have real-world relevance
- authentic contexts* which reflect the way the knowledge will be used in real life.
- a collaborative learning environment where the co-construction of knowledge is a priority.
- access to expert performances and to the modelling of processes (Collins, 1988; Collins et al., 1989).

## Practical and theoretical implications

Successfully implementing the model requires that, in addition to strong workplace practice skills and experience, trainers should have good skills and knowledge of delivering training using this model. Investment in developing these skills is needed to establish the best way to integrate the model effectively into the curriculum.

The research contributes to a growing body of research into how these principles support vocational learning with simulation-based learning approaches for complex work environments. Until recently this literature has tended to focus on basic skill acquisition but this research is adding to an emerging research field in identifying principles of learning which support higher order thinking processes.

## End-user statement

“ Currently the training of new fire-fighters involves a large amount of sitting in a classroom hearing about the factors that affect bushfire behaviour. For a skill-based role like fire-fighting this not the best training model. The *bushfire simulation table* gives trainers an opportunity to introduce real bushfire situations into the classroom. However, we are currently just beginning to understand the teaching and learning possibilities of *the table*.

The research that Annette has undertaken helps us to understand more about the learning processes associated with the use of *the table*. This will also provide some good practical information about how to enhance trainers' skills and knowledge in order to improve the learning outcomes in this area.”

**Greg Harry, Fire Training Officer, Department of Sustainability and Environment .**



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