

Networked Fire Chief: A Research and Training Tool that Targets the Human Factors Causes of Unsafe Decision Making in Wildfires

Mary Omodei, Glenn Elliott, Matthew Walshe and Alex Wearing

Abstract

A case is presented for the use of computer simulated wildland firefighting scenarios (rather than only relying on field exercises, prescribed burns, and naturally-occurring incidents), for the targeted investigation of underlying causes of unsafe decisions in the context of wildland firefighting. We outline a set of requirements for a computer-based wildland firefighting simulation tool to be adequate for the systematic investigation of human factors underlying safety-compromising decisions. In introducing these requirements, we draw particular attention to: (a) the need to distinguish between the concepts of physical and psychological fidelity in simulation design; and (b) the relative importance of each type of fidelity for investigating human decision making. Networked Fire Chief (Omodei, Taranto and Wearing, 2003) is introduced as a proven research tool for meeting the identified requirements. Networked Fire Chief is a wildland fire fighting scenario generator specifically designed for research into psychological processes involved in decision making under conditions of complexity, time-constraint, risk, and uncertainty. In addition to use in human factors research, the program can also be used to generate training scenarios ranging from training in fire behaviour to training in large scale incident management skills.

Reference

Omodei MM, Elliott G.C, Walshe M (2004) Development of computer simulated wildfire scenarios for the investigation of unsafe decision making. Bushfire Cooperative Research Centre Report 2: 2004. Melbourne, Victoria, Australia. 56 pp.
[\[http://131.172.139.109/safety/D2_3_Report_2_2004_Safety_Scenarios.pdf\]](http://131.172.139.109/safety/D2_3_Report_2_2004_Safety_Scenarios.pdf)

The Presenting Author

Mary Omodei gained her doctorate in 1993 from the University of Melbourne, Australia, in cognitive psychology. Since 1994 she has held an academic research and teaching position at La Trobe University, Melbourne. Her overall research program focuses on decision making in complex socio-technical systems, including military command and control and emergency management. The research has led to the development of a range of complementary methodologies, including: 1) the programming of Networked Fire Chief, a networked forest firefighting simulation program; 2) the development of more sensitive interview methods for investigating emergency incident decision making; and 3) the development of head-mounted video cameras for non-invasively monitoring of decision making in field settings. Mary's current research interests include (a) the identification and mitigation of the human factors causes of unsafe and/or ineffective Fire Ground and Incident Management team decisions and (b)

Mary Omodei, Glenn Elliott and Matthew Walshe are with the School of Psychological Science, La Trobe University, Bundoora, Victoria, Australia. Alex Wearing is with the Department of Psychology, University of Melbourne, Parkville, Victoria, Australia. email: m.omodei@latrobe.edu.au

In: Butler, B.W and Alexander, M.E. Eds. 2005. Eighth International Wildland Firefighter Safety Summit: Human Factors - 10 Years Later; April 26-28, 2005 Missoula, MT. The International Association of Wildland Fire, Hot Springs, SD.

the use of computer simulated wildfire scenarios for research and training in Fire Ground and Incident Management Team decision making. She is the leader of the “Safety in Decision Making and Behaviour” Project in the Australasian Bushfire Cooperative Research Centre (see www.bushfirecrc.com) and is the coordinator of the Melbourne Complex Decision Research Group (see <http://www.latrobe.edu.au/psy/research/cdrg/index.html>).