

FIRE UPDATE

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THE HUMAN FACTOR IN FIREFIGHTING RESULTS FROM FIREFIGHTER INTERVIEWS CONDUCTED OVER THE '04-'06 FIRE SEASONS

Human factors are those factors that influence both how the human body operates (physiological factors such as dehydration, fatigue etc.) and how the human mind operates (psychological factors such as situation awareness, planning, etc). The main focus of this Bushfire CRC research is on psychological factors.

INTERVIEWING FIREFIGHTERS - DEVELOPMENT OF A SPECIAL INTERVIEW PROTOCOL

Due to a lack of existing methodologies, the Human Factors Interview Protocol (HFIP) was developed by the research team specifically for this project. The HFIP was designed to help firefighters to relive and recount their firefighting experiences relatively free of hindsight bias and the need for self-justification. The HFIP, however, can be adapted, with relatively minor modification, for use in wildfire accident/near-miss investigations, and for contributing to lessons-learned knowledge systems.*

INTERVIEW DATA: '04-'06 FIRE SEASONS

Over the 2004/2005 and 2005/2006 fire seasons the Human Factors Interview Protocol (HFIP) was used in interviews with firefighters, as soon as possible after a shift, usually within two days of a fire.

- Number of fires covered: 25
- Number of interviews: 120
- Number of interviewers: 11
- Typical length of interview: 60-80 mins

The interviews were transcribed and coded by the research team for all issues that were judged likely to impact upon firefighter safety: either directly or indirectly by compromising sound decision making. The probable validity of the key findings has been endorsed by senior fire agency staff, who have included them in pre-season operational briefings.

MAIN FINDINGS

1. Inherent error traps in wildfire decision making

- Underestimating fire activity.
- Lack of anticipatory thinking (planning ahead).
- No mention of LACES.
- High levels of mental workload.
- Failure to modify plans as a situation changes.

2. Operational issues impacting upon decisions

- Some confusion over AIMS-ICS implementation.
- Inconsistent quality of handover briefings.

3. Fire-ground 'Culture' impacting upon decisions

- Trust (vs. mistrust) of people personally known.
- In-group (vs. out-group) bias.
- Frustration and lowered morale on being tasked with menial jobs or required to "hurry up and wait".

4. Crew welfare issues that compromise decision making ability

- Excessive fatigue (eg; long shifts).
- Maintaining adequate hydration.
- Maintaining adequate nutrition.
- Dangers associated with working near heavy machinery.
- Heat exhaustion with risk of heat stroke.

FUTURE DIRECTIONS

Workshops with key agency personnel are being scheduled to determine (a) which of the above issues are of primary interest to end-users warranting further investigation or (b) issues we might have missed (requiring either re-analysis of the existing interview data or conducting further targeted post-incident firefighter interviews).

* The HFIP, as a Bushfire CRC-funded tool, is freely available to fire agencies for use as is or for adaptation for their own purposes. Training in its use can be provided. Requests for a copy of the interview protocol should be made to Glenn Elliott, g.elliott@latrobe.edu.au



▲ ABOVE: CHANGES IN COLOUR OF SMOKE WAS A CUE FIREFIGHTERS USED TO ANTICIPATE FIRE DEVELOPMENTS.

◀ LEFT: BUSHFIRE CRC RESEARCHERS (ESCORTED BY AGENCY PERSONNEL) RECRUIT FIREFIGHTERS FOR POST-INCIDENT INTERVIEWS.

ABOUT THE PROJECT

The Bushfire CRC project 'Safe Behaviour and Decision Making' is led by Dr Mary Omodei (project leader), and Glenn Elliott (project manager) of La Trobe University in Victoria

PHOTOS: GLENN ELLIOTT.