



UPLOADS Progress Report August 2013

Project Title

Understanding and preventing injury in the led outdoor activity domain: A theory driven approach to injury surveillance and prevention

Aims

The aim of this project is to develop a novel injury and accident surveillance system, underpinned by the systems approach to accident causation and analysis, for the led outdoor activity industry in Australia. This involves translation of the latest thinking on accident causation in the led outdoor activity industry.

Statement of Progress

A prototype UPLOADS incident reporting, data storage, and analysis system has been developed based on a number of research activities. A number of research activities are currently underway to refine the prototype system, prior to a large scale trial next year. This includes:

- 1) **Six month trial of the prototype system.** 15 organisations have agreed to trial the prototype for a six month period. This involves using UPLOADS to collect incident data, contributing participation data, and participating in a series of evaluation activities. The organisations operate across Australia (NSW = 5, QLD = 4, SA = 1, TAS = 1, VIC = 4, WA = 1). The type of organisations involved include: Government agency/public sector = 2, Not-for-profit = 7, Commercial enterprise = 6. Number of locations/operating sites: Range = 1 – 7, Mean = 2.85. Data has been collected for the first month of participation.
- 2) **Expert evaluation of the prototype system.** 24 outdoor education/recreation experts and 15 Human Factors experts have volunteered to evaluate the prototype system. This involves performing a number of tasks using the software, commenting on the associated documentation and completing a HCI Checklist. The results will be used to refine the usability and structure of the system.
- 3) **Reliability of coding taxonomy and incident severity scale.** 15 outdoor education/rec experts will be asked to code a series of incidents using the taxonomy and incident severity scale. The results will be used to refine the usability of these aspects of the system.

Publications

To date the UPLOADS collaboration has produced a total of 8 journal articles (1 published, 1 in press, 4 under review, 2 in preparation), 2 industry articles, and numerous conference articles. In addition, Ashgate publishers have approved a proposal for a book on the project. Selected publications include:

Project team:

- Salmon, P. M., Cornelissen, M., Trotter, M. (2012). Systems-based accident analysis methods: a comparison of Accimap, HFACS, and STAMP. *Safety Science*, 50:4, pp.1158-1170

- Goode, N., Finch, C., Salmon, P.M., Lenné, M. G. (Under review). What would you like? Identifying the required characteristics of an industry-wide incident reporting and learning system for the led outdoor activity sector. *Australian Journal of Outdoor Education*
- Salmon, P.M., Goode, N., Lenné, M. G., Cassell, E., Finch, C. (Revision under review). Injury causation in the great outdoors: a systems analysis of led outdoor activity injury incidents. *Accident Analysis and Prevention*
- Goode, N., Salmon, P.M., Finch, C., Lenné, M. G. (in preparation) Injury causation during hiking activities: a systems analysis of reports from the NZ National Incident Database. *NZ journal of outdoor education*.
- Goode, N. (2013) Accident causation during outdoor activities. Research Connections July 2013 - Issue #07 Qld Research Projects.
- Salmon, P. M., Cornelissen, M. (2012). Understanding accidents in the great outdoors: the human factors approach. *Active Education Magazine*, 5th September 2012.
- **Book proposal** (accepted, to be published in the Ashgate Human Factors book series): Bridging the gap between accident prevention theory and practice: A guide to developing and implementing systems thinking-based incident reporting and learning systems

PhD students:

- Trotter, M.J., Salmon, P.M., Lenne, M.G. (Under review). Impromaps: Applying Rasmussen's Risk Management Framework to Improvisation Incidents. *Safety Science*.
- Trotter, M. J., Salmon, P. M. and Lenné, M. G., (Under review). Improvisation in Led Outdoor Activities: An exploratory investigation into its occurrence and influencing factors. *Australian Journal of Outdoor Education*.
- Trotter, M. J., Salmon, P. M. and Lenné, M. G. (In Press). Is improvisation a systems phenomenon? Review and case studies on improvisation in complex sociotechnical systems. *Journal of Battlefield Technology*
- Gray, S., Finch, C., Goode, N., Salmon, P.M., Lenné, M. G. (in preparation) Review of injury surveillance, incident reporting and hazard identification systems.

Presentations (2013)

To date research findings from the UPLOADS collaboration have been presented at various International and National safety and led outdoor activity conferences. Selected presentations include:

- Goode, N. (2013). An incident reporting and learning system for the outdoor sector. Queensland Outdoor Recreation Federation Big Ideas Forum. May 2013.
- Goode, N. (2013). Understanding and Preventing Led Outdoor Accidents Data System. Outdoor Educators Association Queensland Annual Conference Think Outside the Box.
- Salmon, P. M., Goode, N., Lenné, M. G., Finch, C., & Cassell, E. (2012). Understanding and preventing accidents in led outdoor activities: theory, methods, and UPLOADS. Presentation at the Wilderness Risk Management Conference, Portland, Oregon, USA, October 25th 2012
- Salmon, P. M., Goode, N., Lenné, M. G., Finch, C., & Cassell, E. (2012). Understanding accident causation in led outdoor activities: Development of an accident analysis framework. Poster presentation at the Safety 2012 World Conference, 1-4 October 2012. Wellington, New Zealand.
- Finch, C. (2012). Update on project: Injury prevention in the Australian led outdoor activity domain 17th National Outdoor Education Conference 16-18 January, 2012 [Keynote presentation].
- Salmon, P. M. Understanding and preventing accidents during led outdoor activities in Australia: Where have we been, where are we now, and where are we going? Presentation at the International Camping Congress, Hong Kong, November 7th 2011.

Spin out to other safety critical domains

An important feature of the UPLOADS collaboration is that the research outputs are being used to inform the safety literature in other safety critical domains. For example, the book describing the project (to be published 2016) will present a process for designing and implementing incident reporting and learning systems that can be used by organisations across the safety critical domains. Further, in addition to led outdoor focussed publications, the findings are also being published in the wider safety literature in journals such as Accident Analysis and Prevention, Safety Science and Ergonomics.

If you would like further information about the project, or would like to participate, please contact:

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This research is conducted by researchers at:



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