Using Emotional Intelligence in Training Crisis Managers: The Pandora Approach

Lachlan Mackinnon, School of Computing & Mathematical Sciences, Old Royal Naval College, University of Greenwich, London, UK

Liz Bacon, School of Computing & Mathematical Sciences, Old Royal Naval College, University of Greenwich, London, UK

Gabriella Cortellessa, Consiglio Nazionale delle Ricerche-Istituto di Scienze e Tecnologie della Cognizione, Rome, Italy

Amedeo Cesta, Consiglio Nazionale delle Ricerche-Istituto di Scienze e Tecnologie della Cognizione, Rome, Italy

ABSTRACT

Multi-agency crisis management represents one of the most complex of real-world situations, requiring rapid negotiation and decision-making under extreme pressure. However, the training offered to strategic planners, called Gold Commanders, does not place them under any such pressure. It takes the form of paper-based, table-top exercises, or expensive, real-world, limited-scope simulations. The Pandora project has developed a rich multimedia training environment for Gold Commanders, based on a crisis scenario, timeline-based, event network, with which the trainees and their trainer interact dynamically. Pandora uses the emotional intelligence of the trainees, through a behavioural modelling component, to support group dynamic and decision-making. It applies systemic emotional intelligence, based on inferred user state and rule-based affective inputs, to impact the stress levels of the trainees. Pandora can impose variable stress on trainees, to impact their decision-making, and model their behaviour and performance under stress, potentially resulting in more effective and realisable strategies.

Keywords: Affective Markup, Affective State Manipulation, Behavioural Modelling, Crisis Management Training Environment, Crisis Scenario Planning, Emotional Intelligence, Gold Commanders, Timeline-Based Event Network

DOI: 10.4018/jdet.2013040104
1. INTRODUCTION

When a crisis occurs, the resources to control and manage all the services and functions necessary to enable an effective response have to be released, coordinated and targeted, within the shortest possible time, to minimise the impact of that crisis on civil society. To achieve this, strategic plans are in place to mobilise and divert resources and personnel, under emergency measures, to deal with local, national and international level incidents. These strategic plans provide a general infrastructure in which specific strategic decisions, relative to the particular crisis, can be taken and then tactically and operationally enacted. The individuals responsible for developing the general strategic plans and then making the crisis-specific strategic decisions are entitled Gold Commanders, in the UK and a number of other countries. Those individuals who operate at Gold Commander level will usually be senior managers or executives within the services engaged in crisis management or control, or senior local authority or local government executives with direct responsibility for protecting the functions of civil society. As such, one can anticipate that these individuals will bring a wealth of knowledge and experience in their particular fields to the process of crisis management strategic planning, but the coordination, negotiation and pragmatic trade-offs necessary to deal with a real-world major crisis scenario still have to be learnt.

Recent developments in rich multimedia environments, in particular in computer games and serious games technologies, offer the opportunity for the development of realistic computer-based simulations of complex real-world crisis scenarios. This in turn offers the opportunity to develop training environments, utilising such technologies, in which Gold Commanders can hone and develop their strategic planning and decision-making skills, in multi-agency negotiation situations, set against timeline-based unfolding crisis scenarios. Techniques taken from the games industry in the creation of effective simulation of real world scenarios are already well understood in the creation of learning environments (Atkin, 2004; Graven & MacKinnon, 2006), and much of the serious games industry has grown up around the concept of “Serious Games for Serious Training” (Chan, 2007) with applications being developed for a range of situations from military and security, through health and education (Graven & MacKinnon, 2008), all the way to politics (Ochalla, 2007). However, creating realistic representations of real-world situations requires more than just the provision of information in multimodal forms, the stresses associated with decision-making in a constrained time frame, with conflicting requirements for different services that have to be negotiated and prioritised, also need to be replicated.

The context for this work, therefore, is very specifically related to the requirements for the training of Gold Commanders, and all design decisions taken in the development of the work are motivated by that consideration. In this context, we can consider issues of emotional intelligence from two perspectives. Firstly, the development of a systemic capability to engage with the emotions and behaviours of trainees, to replicate the stresses and emotional affects of a real world situation. Realistically, the provision of systemic emotional intelligence can be considered, as it is in the affective computing community, as an application of artificial intelligence (AI). This would involve the use of inferencing mechanisms and rule-based consequences and actions, which are invoked at appropriate points during the training session to increase or decrease the stress of an individual trainee or group of trainees. Secondly, to consider the group dynamics of an on-line training situation, from the perspective of individual trainees utilising emotional intelligence to achieve consensus or personal goals. In this situation, the application of emotional intelligence is entirely human in its form, but the use of that intelligence to negotiate and manipulate on-line activities and decisions is embedded in, and supported by, the training system.
Related Content

On-Demand E-Learning Content Delivery Over the Internet
[www.igi-global.com/article/demand-learning-content-delivery-over/1669?camid=4v1a](www.igi-global.com/article/demand-learning-content-delivery-over/1669?camid=4v1a)

Exploring Massively Multiplayer Online Gaming as an Emerging Trend in Distance Education
Kay Kyeong-Ju Seo and Cass Johnson (2014). *Handbook of Research on Emerging Priorities and Trends in Distance Education: Communication, Pedagogy, and Technology* (pp. 91-102).
[www.igi-global.com/chapter/exploring-massively-multiplayer-online-gaming-as-an-emerging-trend-in-distance-education/103594?camid=4v1a](www.igi-global.com/chapter/exploring-massively-multiplayer-online-gaming-as-an-emerging-trend-in-distance-education/103594?camid=4v1a)

Availability and Utilization of Classroom Computers Across Urban and Rural Schools in Southwestern Nigeria
[www.igi-global.com/chapter/availability-utilization-classroom-computers-across/50184?camid=4v1a](www.igi-global.com/chapter/availability-utilization-classroom-computers-across/50184?camid=4v1a)
Integrating Collaborative and Decentralized Models to Support Ubiquitous Learning


[www.igi-global.com/article/integrating-collaborative-and-decentralized-models-to-support-ubiquitous-learning/117278?camid=4v1a](http://www.igi-global.com/article/integrating-collaborative-and-decentralized-models-to-support-ubiquitous-learning/117278?camid=4v1a)