

THE 'LIGHT BULB' MOMENT

DR KATHERINE LAMB, INCIDENT COMMAND & DEVELOPMENT (OXFORDSHIRE FIRE & RESCUE) SUMMARISES HER PAPER ON HOW THE FRS USES A VIRTUAL ENVIRONMENT TO TRAIN INCIDENT COMMANDERS IN MAKING BETTER MACRO-COGNITIVE DECISIONS UNDER PRESSURE.

Over the last decade the number of operational incidents responded to by the UK Fire and Rescue Service has diminished by approximately 40%. This has reduced the learning opportunities at operational incidents for both Incident Commanders and firefighters. It has also reduced the opportunity for the incident commanders to practise their evaluation skills. The direct outcome of this skill fade could arguably have resulted in fatalities that could have been prevented, or the loss of saveable property through the application of overly defensive firefighting tactics.

The biggest question is, how to effectively bridge this skill gap? Traditionally, training within the UK fire Service has revolved around the fire station drill yard or larger regional and national training centres with their purpose-built training environments. The challenge with these training environments is the ability to accurately portray the required incident and the large number of crewmembers, instructors and facilitators needed to run them. The Incident Command Development

(ICD) team in Oxfordshire Fire & Rescue service (OFRS) has spent the last six years using commercially available software to deliver simulation-based training and assessments to improve the standards of its incident commanders at all levels of their service, in an attempt to redress this 'incident exposure – skill fade' imbalance.

Historically, the biggest hurdle to conducting training in simulation was scenario credibility and realistic interaction by the candidate. This hurdle has been easier to overcome in recent years due to software development and improved candidate's familiarity with gaming platforms and their functionalities. Also, software improvements have made it easier for the facilitators to replicate 'real' incidents, for the candidates to become immersed in – and react to – the realistic visual stimuli the software can provide. In order to create immersion and to ensure credibility, the scenarios used need to be achievable and manageable given a candidate's current level of command skill, expertise, and importantly to be appropriate to their role. It is also essential

to ensure that the psychological impact of time pressure, uncertainty and tensions are appropriate to the incident. The ICD team in OFRS recreate the appropriate level of disorder, complexity and importantly dilemma within a simulated environment. To be realistic and immersive, simulations must be designed so that they mirror the reality of command.

For the past three years OFRS has used software called XVR produced by a Dutch company (E-Semble) to produce scenarios for assessments and development sessions. Using a joystick, XVR allows one or more candidates to walk around in the simulated reality of an incident and interact with civilians, casualties, and other crew members (eg additional fire officers or emergency services professionals). The candidate can request actions to occur during their resolution of the incident, which are facilitated dynamically by the ICD team. No other simulation software currently on the market facilitates this degree of interaction with the environment. This also enables OFRS to



Tactical level assessment involving multi-agency interaction.

The Incident Command Development Team at Oxfordshire Fire and Rescue has taken decisive steps towards developing training that helps Incident Commanders make the right decision at the right time.



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recreate simulations of actual incidents to use in training, development and debrief sessions.

All of the simulated incidents used in both assessment and development sessions are story-boarded by the ICD team, and the level of complexity is relevant to the specific role-map of the candidate. They all incorporate the same six phases (information gathering, incident evaluation, objective setting and planning, command and control, communications and review), which align directly with the decision making model documented by Klein (1) and the recently peer-reviewed and published 'Introspect model' of incident command assessment developed by the ICD team in OFRS (2).

The application of this 'Introspect model' of assessment provides a simulation-based development and assessment tool to identify and monitor nationally recognised competencies, specific to Fire and Rescue Service role-maps. However, the aspect that makes this assessment model unique is the reflective debrief which gives the candidate a specific opportunity to reflect and discuss their own performance with sector-competent facilitators and assessors.

It has been well documented that Incident Commanders use the Recognition-Primed Decision (RPD) model to make dynamic decisions on the fire-ground. This type of decision-making has also been described as macro cognitive. Macro cognitive decisions are often complex, involve data overload, risk or high stakes. They are also made under extreme pressures with ill-defined or conflicting goals and involve conditions where few things can be controlled or manipulated (3). These macro cognitive situations are commonplace during the time-critical decision-making associated with operational incidents, and this information overload can drastically reduce the ability of the incident commander to accurately evaluate the situation they are faced with.

When incident commanders need to make a decision they quickly match the situation they are facing to the patterns they have learned, whether from previous incidents, training or procedures. If they find a clear match, then they continue to carry out the most typical course of action or follow a clearly defined procedure. However, there is more to RPD than just pattern matching. Recent studies by Klein in 2008 found that incident commanders evaluate a course of action by using mental simulation to imagine how their decision would pan out within the current context or situation, constantly reviewing the plan until they found the most appropriate option. Therefore the RPD model is a blend of intuition and analysis. The pattern matching is the intuitive

part, and the mental simulation is the conscious, deliberate and analytical part (4). But how do we train to develop for these competencies in lieu of operational incidents, further how do we assess their attainment and subsequently maintain them?

The answer is for the candidates to understand where the decisions they made were 'right', and more importantly understand the rationale behind the decisions, which made them 'right'. Decision making and command of an incident is a cognitive process and the use of a scenario in which the facilitation team retain 100% control, provides a unique opportunity for the candidate to explore and understand their decision making rationale, through a self-reflective, introspective approach.

Whilst using the 'Introspect model' the facilitators have witnessed many 'light-bulb' moments by candidates who, while debriefing and explaining their decisions, have suddenly understood mechanisms related to a process they were doing naturally. Fundamentally, they were making the 'right' decisions for the 'right' reasons on a subconscious level and demonstrating a state of unconscious competence.

These particular candidates then progress to a conscious awareness of their unconscious competence. Therefore, confirming that they are; the 'right' person, making the 'right' decisions at the 'right' time, for the 'right' reasons. Through implementation of this model and the use of simulation during both training and assessment, the performances of Incident Commanders in risk-critical areas will go from strength to strength, reducing the personal, financial, and moral losses experienced. This will add weight to the acknowledged fire and rescue service mantra of 'in a highly calculated manner we will risk our lives to save saveable life' because the calculated manner is about the 'right' person making the 'right' decision at the 'right' time and very importantly for the 'right' reason.

References

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