

Virtual Reality Firefighter Training for Firefighting in High Rise Buildings

Tall Building Conference – Indianapolis, USA

Mark (Ted) O'Brien

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Agenda

- Speaker's background
- The science of learning
- The challenge in fire & rescue training
- Immersive learning
- Case study Newcastle International Airport





Your speaker – Mark (Ted) O'Brien

- Joined Greater Manchester Fire & Rescue Service, January 1987
- Operational Firefighter, 1987 1999
- Junior Officer, 1999 2004
- Station Manager/Middle Management, 2004 2007
- Group Manager, Operational Training Manager, 2007 2013
- Area Manager, Head of Operational Training/Policy & Procedure, responsible for 8 Operational Fire Station in the Borough of Manchester 2013 2017
- Director of Product & Quality, The Fire Service College, Moreton-in-Marsh 2017 - 2022
- **Director of Customer Experience**, UK & Ireland FLAIM Systems







Practice isn't the thing you do once you're good. It's the thing you do that makes you good.

Malcolm Gladwell, Outliers: The Story of Success



Gladwell M. Outliers: The Story of Success. Little, Brown and Company; San Francisco, CA: 2008.

The challenges of practising in dangerous and difficult-to-conduct operations

In 2022, the NFPA reported 10 firefighter deaths to have occurred during live fire training¹

Some scenarios are too dangerous, difficult or expensive to replicate e.g. bushfires, explosives and chemical fires





Four key challenges of live fire training

Human Hazards

Long-term health implications

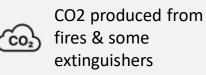
+8000 Training injuries per year in USA

Potential for Training deaths

Environmental Impacts



+60 GPM Foam produced = **PFAS** Contamination



Efficiency

Inability to conduct objective training

Difficult to deliver consistent & Standardised Training

Train indoors during Extreme weather

Unable to replicate all scenarios e.g. Tall **Buildings**, Aviation

Inability to build skills critical to the mission

Cost

Expense of props and refills

Expense and logistics of getting students in one place

Expense of students failing live fire training



https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/firefighter-injuries-in-the-united-states https://www.cdc.gov/niosh/fire/data.html

BOOST LEARNING CAPACITY AND COGNITIVE RETENTION THROUGH IMMERSIVE LEARNING

With immersive learning, students are:



Faster to learn than in the classroom

275%

More confident to apply skills learned after training

3.75x

More emotionally connected to content than classroom students **4**x

More focused than their e-learning peers



Trainer

Trainer was developed to complement live fire training by providing firefighters with on-demand access to a broad range of environments, scenarios and incidents that cannot be viably replicated in the physical world.

Trainer delivers a range of scenarios that enables skills and drills to develop motor skills and build cognitive awareness so that they have a better awareness of how to react and communicate when confronted with real-life hazards.



Classroom training

A theoretical understanding of fire, firefighting, search and rescue operations, techniques and equipment.







Immersive learning

Kinesthetic learning with haptic feedback to learn crucial skills and practice techniques individually and as a team.

Practice scenarios that are too difficult or expensive to replicate in live fire training. Live fire training

Firefighters are equipped with the skills needed to get the most out of a high value live fire training event.

Better prepared for the mission ahead



FLAIM Trainer

FLAIM Trainer offers a safe, smart and scalable fully immersive firefighter training solution, combining high fidelity virtual hazardous fire environments, haptic feedback and industry standard equipment. Through a multi-sensory experience, firefighters can train essential skills to prepare them for dangerous and difficult-to-conduct conditions.



Train Remote as a Team or Individually



Replicable Training for Practice & Skill Building



Reduces Environmental Impact



Access Performance Data to Inform Training

Reduces Logistics & Cost of



Consistent & Standardised Training Methodology



Requires No Live Fire Equipment



Train for a Variety of Relevant Fire Scenarios





Reduces Human Health Hazards

Live Fire

FLAIM Trainer – Creating organisational memory

HANDS-ON INTERACTION

Combines industry equipment with a fully immersive experience to deliver real-time feedback on techniques used and decisions made.

• FEELS-REAL SCENARIOS

Offers immersive and authentic situations to mimic real-life firefighting challenges that engage the students' senses, boosting situational awareness for high risk low frequency of event incidents.

PROGRESSIVE LEARNING

Scenarios cater to varying learner skill levels. The organisation can adjust difficulty based on the student's progress, transitioning from basic instructions to greater autonomy, thereby enhancing advanced firefighting skills and decision-making capabilities.

FEEDBACK AND ASSESSMENT

Facilitates continuous performance-based feedback and assessments using organisational criteria and customised after action reviews and debriefings.

IMPROVED METHODOLOGY

With replicable training, organisations can achieve a consistent, replicable and standardised training methodology, aligned to Policy & Procedures.





FLAIM Trainer T3

Scenarios tailored to your unique Fire & Rescue needs

Helping individuals and teams train in high-risk environments that cannot be replicated safely in the real-world, such as bushfires, petrol tank explosions and lithium battery fires. With a gallery of over 80 scenarios, select the most relevant scenarios for your curriculum.







Airport

Air Base





Country Farm



Refinery





Residential

Docks

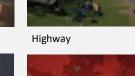




Highrise



Warehouse









National Parks

Navy









Suburban & Rural Interface

Gas Station



FLAIM Trainer

Trusted by 400+ customers across the globe



THANK YOU: Any Questions?

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Safer | Smarter | Deeper Learning