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The National Fire Chiefs Council encourages all fire and rescue services (FRSs) to use body worn cameras as it looks to reduce the mindless attacks on firefighters; the Association of Ambulance Chief Executives reports on a worrying increase on violence and aggression against UK ambulance staff; the Fire Brigades Union urges FRSs to consider new firefighter health report recommendations; and Sergeant Simon Kempton from the Police Federation of England and Wales looks to bust some myths around HIV.

An in-depth look at the work of the Scottish Multi-Agency Resilience Training and Exercise Unit (SMARTEU), part of Police Scotland; the importance of 'realism' in firefighter training and how that can be balanced with protecting the environment; embracing Virtual Reality (VR) for skills training; and how the COVID-19 pandemic saw an increase in adoption of immersive VR technology for remote training.

As the number of electric vehicles within blue light fleets increases, a look at Project Rapid, a Government funded scheme to invest in charging sites and infrastructure with the ambition to provide a consistent charging experience across the UK; Microsoft looks at how digital transformation within public safety, as a result of the pandemic, can be for the better; the Welsh Ambulance Service publishes a new digital strategy; and Bristol Uniforms launches its new EOS structural fire fighting PPE, which provides protection through technology and design.

VR for firefighter skills training

The interest in the use of VR (virtual reality) for education and training has grown during recent years as the technology became more accessible and affordable. For firefighter skills training, simulation and immersive VR technologies can complement hot fire training by providing realistic incident scenarios in a physical-like learning environment. The Project VR Effect, led by the Western Norway University of Applied Sciences, aims to validate the effectiveness of VR in firefighter skills training.

In October 2020, 20 experienced and 14 new recruit firefighters took part in a course at the Fire and Rescue Service Östra Skaraborg in Skövde, Sweden. Around the same time, on an airbase in Latvia, 20 experienced firefighters, and four instructors took part in a parallel Project VR Study. The overall aim of both studies was to examine the participants' experiences of using simulators. In both studies, every firefighter was confronted with three incident scenarios, for 20 minutes. The Swedish study also included driving a fire appliance for 20 minutes, to the incident, in a driving simulator. The firefighters reported their experience in structured questionnaires before and after the VR training. The study also involved professional instructors.

Increased understanding

"The overall objective of the project is to increase the understanding of the use of VR in firefighter skills training," says Cecilia Hammar Wijkmark, Research Coordinator in Project VR Effect, who has over 20 years' experience with virtual simulation and serious games for training for emergency responders. She continued, "During the last two decades, I have experienced a noticeable attitude change towards 3D simulation and VR. Initially, the often heard opinion was that you cannot become a firefighter by playing computer games and that the simulation is not realistic."

Hammar Wijkmark explains how the opinion to 3D simulation and VR started to change. "About five years ago, we saw a shift to respondents starting to say that they thought this technology might be used in the future," says Hammar Wijkmark, who believes that, today, most respondents believe that 3D simulation and VR provide added value and are realistic enough to be included in every education. "Results in the study show that above 86% of the firefighters want to use more VR training. This attitude shift brings about that the key questions today are no longer about the technology but about the learning outcomes that can be achieved with VR technology and questions about how VR can be integrated into existing training programmes."

Cecilia Hammar Wijkmark, Research Coordinator in Project VR Effect.

The VR technology used in Skövde and Latvia was the FLAIM trainer, developed by the Australian company FLAIM.

Validate effectiveness

The Project VR Effect aims to allow fire and rescue service training providers to try out VR technology in training courses and at the same time collect data, which is necessary to validate the effectiveness for the corresponding organisation. This data can also be used to suggest how an organisation might produce values from these technologies. By collecting comparable datasets in many different countries, a growing user experience data set will be available for further analysis by research organisations. The research results will provide research organisations, firefighter training providers – and developers of VR solutions – a deeper understanding of immersion, experiences and realism of current technologies. The vision of the Project VR Effect is to contribute to further advancement of technology, its use, and the development of training methods supported by research.

Sune Fankvist is an experienced firefighter and instructor, with a broad experience of virtual simulation in command and skills training. Fankvist, who has observed firefighters in well over 100 VR training sessions, can clearly see the value of VR as a complement to hot fire training in containers. Fankvist says, "VR provides believable scenarios to train risk assessment, communication, procedures and extinguishing techniques. VR also entails effective training, by allowing to experience several scenarios in short time, without being exposed to carcinogens. I am convinced that VR and simulation will be a natural part of the firefighters' training in a couple of years."

Driving simulator training

The research shows that 70 percent of the experienced firefighters stated that including driving simulation training and other driving training would increase the value of training. The driving simulator is focused on driving safety training, and includes hazards such as: users with bikes crossing the road suddenly; stressed drivers that do not give right of way; and wildlife crossing the road.

"Simulation and immersive VR technologies can complement hot fire training by providing realistic incident scenarios in a physical-like learning environment."

The Project VR Effect focuses on user experiences of off-the-shelf products. "We want the solutions we validate to be immediately accessible to the end-users and not only a demo product that is still in research and development," says Cecilia Hammar Wijkmark. The VR technology used in Skövde and Latvia was the FLAIM trainer, developed by the Australian company FLAIM and the driving simulator used was developed by the Swedish company Skillster.

Since the introduction of Project VR Effect a few weeks ago, seven more training organisations and four research centres have joined the project and are preparing combined training research sessions. The participating firefighter training organisations include The Fire Service College in the UK and The Portuguese National Fire Service College. The Project VR Effect invites training organisations to participate in the research.

www.vreffect.net
www.flaimsystems.com
www.skillster.se

The driving simulator used was developed by the Swedish company Skillster.