INTERACTIVE 360-DEGREE VIDEO TRAINING TOOL AND TRAINING SCENARIO DEVELOPMENT FOR EMERGENCY MEDICAL SERVICES – A CO-DESIGN AND PARTICIPATORY STUDY

Romain Herault[1]* and Martin Olsson[2]

[1]*Department of Computer Science and Media Technology, Faculty of Technology, Linnaeus University, Sweden, romain.herault@lnu.se*
[2]*Department of Health and Care Sciences, Faculty Health and Life Sciences, Linnaeus University, Sweden, martin.k.olsson@lnu.se*
(*Main presenter and corresponding author)

ABSTRACT
Since 2018, we have conducted a few studies exploring how to introduce a new approach to training for emergency medical services (EMS) in Sweden using interactive 360-degree videos (Herault et al., 2018a; Herault et al., 2018b). During the course of last year, we improved the methodology for planning the next EMS scenario recording and presented our findings at the 1st International Symposium on Digital Transformation 2022. Our efforts bring together in a collaborative manner different domains, namely Health and Care Science, police education, and Media Technology. In our paper, we discussed the process of selecting a suitable scenario for recording, which involves considering factors such as the complexity of the procedure, the relevance to EMS training, and the availability of resources for filming. We also discussed the importance of ensuring that the scenario is realistic and accurately represents the challenges EMS personnel face in the field. The methodology described in our abstract provided a detailed and thorough approach to planning and recording interactive 360-degree videos for EMS training. By carefully selecting and designing scenarios, using specialised equipment and welltrained film crews, and ensuring the final product is carefully reviewed and edited, providing a valuable new tool for EMS training in Sweden. This approach is closed to co-design and participatory design principles. The goal of the study was to answer the following research question: How would co-design and participatory design influence the development of interactive video training scenarios for Emergency Medical Services?

Co-design and participatory design for immersive systems involve a collaborative design process involving stakeholders, users, and designers in creating immersive systems. This approach emphasises the importance of understanding the needs and desires of users and incorporating their feedback throughout the design process. Codesign and participatory design for immersive systems can help ensure that the resulting systems are more user-friendly, accessible, and engaging. The approach involves various techniques and tools, such as workshops, prototyping, and user testing (Stappers & Giaccardi, 2018). A study by Cascone et al. (2020) used co-design

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to develop a virtual reality training system for medical students, involving end-users in the design process to ensure the system was effective and user-friendly. The authors found that involving end-users in the design process led to a more engaging, motivating, and effective system teaching medical skills. The EMS field has used these design principles in recent years (Eriksen et al., 2020; Meingold et al., 2021).

In 2022, encouraged by the previous study's positive results and valuable feedback and recent literature related to co-design in EMS, two scenarios were created using co-design and participatory design in collaboration with the police training program at Linnaeus University, Växjö. The training goal is to guide police officers arriving on site before medical services and how to react to different situations.

EMS professionals tested the scenarios in group testing to validate the knowledge provided and the different elements seen on the screen. The focus on co-design allowed us to be more accurate and efficient in their creation. Using this methodology significantly reduced the creation time of a training scenario, allowing the possibility of creating multiple scenarios per year with the right resources. It also streamlined the design and communication process with all the parties involved. It validates the method envisioned previously, allowing experience growth for the people using it, further reducing the creation process time. It also avoids educational mistakes found in previous scenarios, which required modifications.

It is also important to remember that these scenarios will evolve as the Swedish authority constantly improves its intervention methods. Thus the training scenario and information they contain will need to be changed. These scenarios are designed in consequence, with the possibility to change data quickly.

The scenarios will be provided to students in 2023 with questionnaires to collect User Experience data. Focus groups will be conducted to discuss the value of such training tools, with their possible positions within the training tools they already have, such as theoretical, static video recordings, and real-life simulation exercises It is essential to understand when the tool should be used in association with the other training methods.

Keywords: Interactive video training, EMS, 360-degrees video, Co-design, Participatory Design

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