Using VR to train paramedics how to perform triage in complex situations

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Background

Training of paramedics to carry out a triage in complex situations is either a costly procedure when carried out with real people, or a more theoretical practice when done in simulation. In co-creation, we developed a virtual reality (VR)-based training that allows paramedics to exercise a triage in an accident environment with various levels of complexity (number of patients) and environmental features (e.g., bystanders and sound). In this study, we carried out a field evaluation to assess how well the prospective users experience the training.

Methods

We recruited 32 paramedics (12 females) from 5 different regional ambulance services in the Netherlands to test our VR training (briefing, VR experience, debriefing). Five participants were also a trainer in their regional service organization. In total, 4 discontinued their training due to motion sickness felt. The remaining 28 participants were asked to fill in a questionnaire composed of the RIMM and the UEQ (both on a 5-point scale), and a few other questions. The RIMM contains questions asking about motivation and the UEQ about the user-experience (Cronbach alpha's > 0.72 for all categories).

Results

Participants were highly motivated: Mean scores were around 4 on Attention (M=4.04; SD= 0.94), Confidence (M=3.83; SD=0.93), Relevance (M=4.10; SD=0.65) and Satisfaction (M=4.34; SD=0.85). Participants scored the user experience comparably high: Attractiveness (M=4.24; SD=0.79), Efficiency (M=3.84; SD=0.64), Novelty (M=4.39; SD=0.57), Perspicuity (M=3.71; SD=0.65) and Stimulation (M=4.30; SD=0.68).

Discussion/Conclusion

While the current evaluation does not quantify the effectiveness of the VR training, the results clearly indicate a high potential that the current VR prototype has for training triage in complex situations. While further improvements are necessary (e.g., regarding motion sickness in VR), our study not only provide a set training, but also a roadmap for how to design VR training environments for paramedics and possibly other (medical) services.