Enhancing ATLS Simulations: Designing Collaborative XR For Interdisciplinary Trauma Team Training

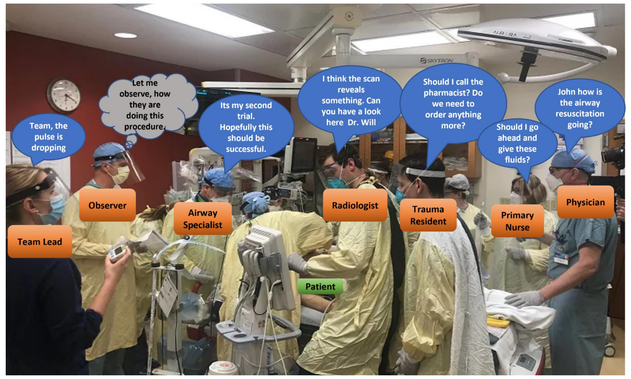
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Introduction

- In healthcare, Interdisciplinary Teams (IDT) consist of professionals from various disciplines who collaborate to address a patient's complex physical and psychological needs.
- Traditional simulation methods, while effective for individual skill-building, often fall short in fostering true interdisciplinary team dynamics.
- Collaborative XR bridges this gap by enabling immersive, multi-user environments that replicate the complexity of real-world trauma care.
- Existing collaborative XR-based training simulators often fail to replicate the dynamic and interactive nature of real-life clinical scenarios, relying heavily on verbal instruction and static simulations.
- This research focuses on identifying the key factors to implement that impacts the success of IDT training in collaborative XR.

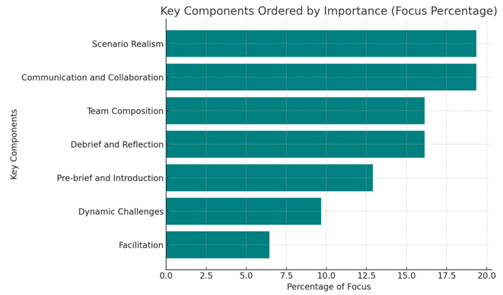


Methods

- A qualitative interview study conducted with stakeholders to explore perceptions of effective IDT training.
- Six participants were interviewed, representing diverse roles: two resident instructors (P1, P5), one resident doctor trainee (P2), two registered nurse trainees (P3, P4), and one nurse instructor (P6)
- The interviews followed a semi-structured format.
- It aims to address key topics such as communication, role clarity, decision-making, and simulation tools.

Results

- The study results reveal the relative focus placed on critical training components as visualized in the figure below.
- Scenario Realism and Communication & Collaboration emerged as the most emphasized, each receiving 19.35% of the focus, followed closely by Team Composition at 16.13%
- Scenario Realism is incorporated through virtual avatars representing family members and dynamic audio responses from patient mannequins
- Communication and Collaboration are addressed through a synchronized multi-user XR trauma bay.





Conclusion

This research contributes to the design of Collaborative XR for interdisciplinary trauma team training. This platform advances the field of simulation-based medical education towards an immersive and effective IDT training. Future research will focus on usability studies and controlled trials to evaluate the platform's impact on training outcomes, with an emphasis on interdisciplinary communication, leadership, and patient safety.

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