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## Developing culturally responsive practice using mixed reality (XR) simulation in Paramedicine Education

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### Abstract:

The department of Paramedicine at Auckland University of Technology is committed to establishing informed evidence and strategies representative of all ethnicities. The MESH360 team propose that immersive mixed reality (XR) can be employed within the learning environment to introduce critical elements of patient care through authentic environmental and socio-cultural influences without putting either students, educators, practitioners or patients at risk.

Clinical simulation is a technique that replicates real-world scenarios in a controlled and nonthreatening environment. However, despite the legal and moral obligations that paramedics have to provide culturally competent care, a lack of evidence and guidelines exist regarding how to adequately integrate simulation methods for cultural competence training into paramedicine education. In our curriculum, clinical simulation has been used mainly to teach the biomedical aspects of care with less focus on the psychological, cultural, and environmental contexts. A potential therefore exists for high-fidelity clinical simulation and XR as an effective teaching strategy for cultural competence training by providing learners with the opportunity to engage and provide care for patients from different cultural backgrounds, ethnic heritages, gender roles, and religious beliefs (Roberts et al., 2014). This is crucial preparation for the realities of professional practice where they are required to care for patients that represent the entirety of their community.

This presentation explores the MESH360 project and the development of a theoretical framework to inform the design of critical thinking in enhanced culturally diverse simulation clinical scenarios (ResearchGate, n.d.). The project aims to develop a transferable methodology to triangulate participant subjective feedback upon learning in high stress environments within a wide range of cultural-responsive environments. The implications for practice and/or policy are the redefinition of the role of simulation in clinical health care education to support deeper critical learning and paramedic competency within cross-cultural environments within XR.

The aim of the research is to develop simulation based real-world scenarios to teach cultural competence in the New Zealand paramedicine curriculum. Using a Design-Based Research framework in healthcare education the project explores the impact of culturally-responsive XR enhanced simulation for paramedicine students through the triangulation of participant subjective feedback, observation, and participant biometric data (heart rate) (Cochrane et al., 2017). Data analysis will be structured around the identification and description of the overarching elements constituting the cultural activity system in the study, in the context of XR in paramedicine education (Engeström, 1987).

Our research objective focuses upon using XR to enable new pedagogies that redefine the role of the teacher, the learner, and of the learning context to:

- Develop clinically appropriate and contextually relevant simulation-based XR scenarios

that teach students how to respect differences and beliefs in diverse populations whose world view may be different from ones' own.

- Inform culturally-responsive teaching and learning in paramedicine education research and practice.
- Implementation of pedagogical strategies in paramedicine critical care simulation to enhance culturally-responsive understandings and practice.

## References

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