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## Introduction

In Uganda, 56% of married women and 80% of all women have experienced domestic violence (DV) or Intimate Partner Violence (IPV)[1]. The Prosthetics and Orthotics (P&O) team at the University of Salford (UoS) collaborated with Knowledge 4 Change, a charity in Uganda to assist three female transhumeral amputees, all DV/IPV survivors. Local clinical teams lacked the capacity to fabricate above-elbow prostheses, so the project was embedded within a second-year prosthetics module, simultaneously advancing student learning, making prostheses and having global health impact.

## Method

An immersive interactive digital simulation was developed, incorporating elements of co-creation, simulation, virtual reality (VR), and artificial intelligence (AI). It provided a hyper-realistic authentic digital experience (Fig.1) for learners to understand the people, places, and environments in Uganda. AI was used to create virtual avatars, 360° environments, and voices, based on real stories, with consent. Learners explored the environments and generated suitable prescriptions, socket designs, and manufactured the sockets for the service users, which were shipped to Uganda with componentry to build the prostheses. Learners collaborated via live stream with the clinical team in Uganda to guide the fitting of the prostheses.

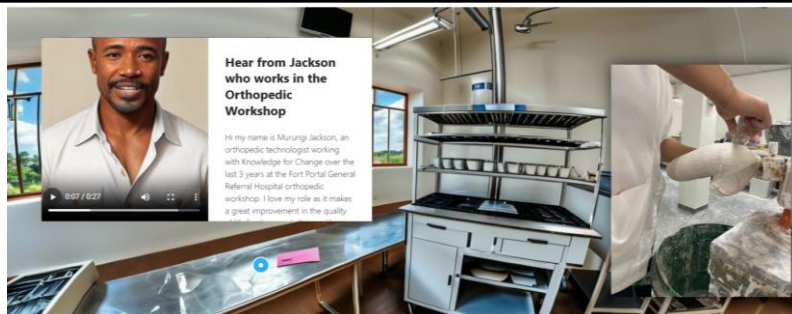


Figure 1: screenshot from the simulation with an AI-generated virtual environment, animated virtual avatar and a learner working on the casts in the UK.

## Results

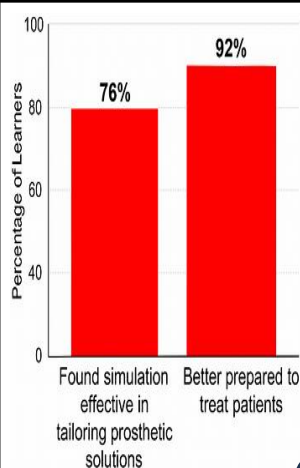


Figure 2: Quantitative learner feedback data

Anecdotal reflections from P&O learners highlight the Uganda Project as a transformative experience with 76% stating they found the simulation effective and 92% claiming they feeling better prepared to treat patients (Fig. 2). The simulation enhanced their global health awareness and clinical confidence. Key themes include the stark disparities in prosthetic care access, with students recognising the emotional and social impact of limb loss in Uganda, where amputation can carry stigma (Fig.3, 4). The project fostered adaptability in clinical decision-making under resource constraints and deepened empathy and cultural sensitivity. While some felt AI-generated media reduced the human connection, real-life patient stories—especially involving domestic violence—were profoundly impactful. Students emphasised the importance of holistic, patient-centred care and gained valuable hands-on experience in upper limb prosthetics. Overall, the project bridged theory and practice, preparing students for future placements and reinforcing their commitment to meaningful, compassionate care as well as teaching Ugandan clinicians in transhumeral prosthetic treatment.



Figure 3: Quotes from learners highlighting impact



Figure 4: Word cloud: key themes linked to learner feedback

## Discussion

- The module addressed international awareness, global citizenship, supply chain challenges, costs, IPV, and healthcare inequalities via an authentic simulated virtual experience.
- Learners developed significant global insight, with potentially life-changing impacts for service users.
- Collaboration with in-country professionals enabled real-time problem-solving of prosthetic fitting and deeper understanding of diverse P&O practices.
- Virtual learning showed strong potential for fostering cross-cultural teamwork.
- Formal evaluation is ongoing, with integration into future teaching planned.

## Conclusion



This authentic simulated virtual experience has allowed opportunity during the module to discuss themes related to international awareness, global citizenship, supply chain issues and costs, domestic violence and the inequalities in healthcare. Learners have gained valuable global insight, and the impact on the service users (Fig.5) will be potentially life changing. **Scan the QR code to access some of the Uganda Experience media.**

Figure 5: A service user being fitted with one of the prostheses.

## References & Acknowledgements

1. Black, E., Worth, H., Clarke, S., Obol, J. H., Akera, P., Awor, A., Shabiti, M. S., Fry, H. & Richmond, R. (2019). Prevalence and correlates of intimate partner violence against women in conflict affected northern Uganda: a cross-sectional study. *Conflict and Health*, 13, 1-10. <https://doi.org/10.1186/s13031-019-0219-8>

### ACKNOWLEDGEMENTS:

The Ninsima Centre for the Rehabilitation of people with Physical Disabilities, Fort Portal Regional Referral Hospital, Uganda, AM Healthcare Group & K4C

