Practical Application of VR Virtual Environments in Medical Interpreter Training

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Abstract:

This study aims to develop, implement, and evaluate practical and immersive virtual reality (VR)-based training materials specifically designed for learners of medical interpreting. With the increasing demand for qualified medical interpreters in multilingual healthcare environments, there is a growing need for effective training methods that can bridge the gap between classroom learning and real-world medical encounters. To address this need, we created a virtual clinical environment that closely replicates real-life healthcare scenarios, such as doctor-patient consultations. This immersive setting allows learners to actively engage in simulated interpreting tasks that mirror the complexity, pressure, and unpredictability of actual clinical situations.

The VR-based materials were developed with input from experienced interpreters, and language education experts to ensure both linguistic accuracy and clinical authenticity. These materials were designed for flexible use: as self-study resources for independent practice, and as structured instructional tools for use in university-level medical interpreting programs. Learners could access the VR simulations through internet, making the training accessible even in remote or resource-limited settings.

During the implementation phase, participants were asked to perform interpreting exercises in a virtual clinical encounter. This included health check-ups with medical device such as CT, MRI. The participants' interpretation performances were recorded and collected online via a secure system, allowing for detailed analysis of linguistic accuracy. The data collected included audio recordings, transcripts, which were used to assess the learners' progress and identify common challenges in interpreting performance.

This paper reports on the practical integration of the VR materials into educational

settings and evaluates their effectiveness. The findings reveal that the immersive nature of VR enables learners to acquire practical interpreting skills. Exposure to lifelike medical dialogues helps learners internalize specialized vocabulary, improve their listening and memory retention skills, and build confidence in managing challenging interactions under time constraints.

Furthermore, the controlled yet realistic VR environment provides learners with the opportunity to make mistakes and receive feedback without the risk of harming actual patients. This feature encourages a more active and fearless approach to learning, which is especially important in high-stakes medical settings where accuracy and clarity are critical. Unlike static role-playing exercises or pre-recorded materials, the dynamic nature of VR simulations allows for adaptable scenarios that can be tailored to different levels of learner proficiency.

In conclusion, this study demonstrates that VR-based training offers a promising and innovative approach to enhancing the education of medical interpreters. By combining technological immersion with pedagogical structure, the VR materials support learners in developing the linguistic competence needed for effective communication in healthcare settings. The results underscore the value of incorporating VR technology into interpreter training curricula, and suggest that such tools can serve as a powerful supplement to traditional teaching methods. Future research will explore longitudinal impacts, cross-linguistic applications, and the scalability of VR training in diverse educational and clinical contexts.

Keywords: medical interpreting, VR education, virtual simulation, interpreter training