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Shaping the Future of Healthcare: The University of Manitoba's Virtual Reality Interprofessional Education (VR-IPE) Program

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Abstract. In many health sciences academic programs, interprofessional collaboration among students and faculty is an accreditation requirement. Time, curriculum alignment and physical location continue to be significant barriers to providing experiential learning opportunities, which require innovative means to provide interprofessional education experiences. Virtual Reality (VR) is a growing area of simulation-based learning that removes obstacles like physical co-location and can join interprofessional groups of students to engage in experiential learning activities. Members of the presentation panel met in February 2023 and were overwhelmingly in favour of exploring the development of a metaverse within the Rady Faculty of Health Sciences (Dentistry, Medicine, Nursing, Pharmacy, Rehabilitation Sciences). Funding from a Strategic Initiatives Support Fund allowed us to secure the hardware and software necessary to create a metaverse in our faculty that would allow for inter- and intraprofessional learning activities.
This panel will present the phases of implementing a virtual reality program in a large health professions faculty of over 3500 students.

Keywords: Virtual Reality Interprofessional Education (VR-IPE), Virtual Reality in Healthcare, Cross-Disciplinary Communication.

1 Introduction and Relevance

Recognizing the urgent need for effective teamwork in healthcare, the University of Manitoba's Rady Faculty of Health Sciences has developed a groundbreaking Virtual Reality Interprofessional Education (VR-IPE) program. This initiative aims to overcome the limitations of traditional educational models by fostering interprofessional collaboration, a critical element for high-quality patient care and tackling complex healthcare challenges.

Interprofessional education (IPE) is a collaborative pedagogical approach for preparing future healthcare practitioners to be effective team members in the healthcare system [1]. It is an initiative that involves students from different health professions learning about, from and with each other toward a goal of delivering safe, patient-centered care [2]. The Canadian Interprofessional Health Collaborative [3] has identified six competency domains for interprofessional collaboration. These include team communication, team functioning, patient/client/family/community-centred care, role clarification, collaborative leadership and conflict resolution. As the health care system undergoes seismic change, concerns are raised about the increase in complex medical issues and the need for collaborative interprofessional teams.

In 2010, the Lancet Commission criticized the current curricula of health professional education programs as fragmented, outdated, and static, as they were delivered primarily on a single professional basis, not reflecting real-world, collaborative team-based clinical practice [4]. Traditional health care education occurs in silos, seriously jeopardizing collaboration, and patient safety [5]. The shift from educational “silos” to “streams” enables students to relate to other health care professionals and gain comprehensive experience through a shared competency channel [5]. While the Rady Faculty of Health Sciences (RFHS) currently has an Office of Interprofessional Collaboration (OIPC) that schedules interprofessional activities for students, it is challenging to ensure that all students are provided IPC experiences. These challenges will increase as some programs in RFHS undergo program expansion to address the shortage of healthcare providers.

Interprofessional simulation (sim-IPE) provides health profession students with an opportunity to develop collaborative competencies, recognize and appreciate their own and other team members' roles, improve overall communication skills, and establish adequate patient care in a risk-free environment [6]. Despite the emphasis on sim -IPE, many obstacles remain in the implementation process, including scheduling conflicts, location accessibility, institutional constraints, lack of faculty support and the large amount of human and material resources expended on designing and sustaining a sim-IPE program [5]. There is a pressing need to develop new didactic modalities to remove these barriers.

The metaverse is a 3-dimensional virtual environment in which participants interact as avatars, and has been useful in health professions education, especially during the global pandemic [7]. The technologies that make up the metaverse include augmented or virtual reality in which users are immersed and have feelings of being on the scene. Examples of immersive virtual reality (IVR) technologies include VR 360 immersions, UbiSim, Second Life® (SL), Clinispace® VR, vSim and SimX [8,9]. These VR platforms have been used in simulated patient interactions, disaster preparedness and other educational activities [10]. Virtual simulation offers an environment for simulated clinical experiences and has been shown to provide an immersive and engaging learning experience [9]. As such, the integration of IVR in interprofessional education has significant potential in affording repeatable experiential learning opportunities for students to learn collaboratively within and across disciplines to gain knowledge and skills while overcoming the barriers of time and place constraints in traditional IPE activities [5]. The IPE activities should include evidence-based teamwork interventions to enhance collaborative competencies among students from varying professions and transfer them into real-world clinical practice. However, most of the existing research is focused on integrating interdisciplinary collaborative competencies in health care education but few of them involve IPS experience in the virtual environment [6].

2 Description and Discussion

The VR-IPE program, encompassing three campuses and students from various health disciplines, utilizes virtual reality to synchronize learning experiences, thus overcoming scheduling difficulties. It bridges theoretical knowledge with practical application, creating an environment where students from different healthcare fields can interact seamlessly. The program features immersive, simulations that replicate clinical complexities, enhancing communication, teamwork, and critical thinking skills through virtual reality. Instructors guide and provide feedback, ensuring learning objectives are achieved.

The VR-IPE program has garnered significant interest. The program's anticipated outcomes include improved communication, deeper role understanding, and enhanced problem-solving abilities, leading to improved

patient care and outcomes. Distinct for its innovation, the VR-IPE program transcends geographical limitations and offers a scalable interprofessional education solution. It caters to modern learners' preferences for immersive and interactive experiences, integrating emerging healthcare technologies and practices. This pioneering approach is transforming healthcare education, equipping future professionals with essential skills for excellence in their roles.

3 Conclusion

This presentation aims to present the phases of implementation of this project, including a needs assessment and goal setting, research and selection of VR tools and content, and infrastructure setup. Currently we are engaged in faculty training and development, development of VR learning activities, and are pilot testing the VR learning activities. Join us to explore the journey and insights gained from the University of Manitoba's VR-IPE program. Discover how this innovative approach in healthcare education is not only bridging gaps in interprofessional learning but also shaping the future of healthcare by equipping professionals with essential skills for collaborative and effective patient care.

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