# Harnessing the Power of Immersive Virtual Reality

## A case study in healthcare assistant training

### Introduction

Immersive virtual reality (IVR) is increasingly a feature in education and training. It is therefore important to understand the role it can play in facilitating learning. IVR can place learners into an environment to participate in realistic and interactive scenarios. One of its most important contributions is that it offers learners repeated, safe practice of complex and demanding tasks.

In education, IVR can transform how learners learn by making the experience more engaging and interactive. This helps them understand subjects better by linking what they learn in theory with practical applications. It prepares them with the confidence to tackle future challenges (Marougkas et al., 2023).

### Case study

In 2024, Waterford and Wexford Education and Training Board launched its immersive virtual reality content required for two skills demonstrations which are part of the Quality and Qualifications Ireland (QQI) level 5 Full Healthcare Support Award. These skills demonstrations are: (1) Carry out a care check on a patient, and (2) Carry out a bed bath on a patient. The creation of these scenarios in a virtual hospital room is facilitating teaching, learning and assessment of learners.

Three modes of delivery are available. Practice mode includes visual and auditory prompts to help teach learners the correct steps in the task. Revision mode enables the task to be practised without the visual and auditory prompts. Exam mode, which is without any prompts, is accessed when the learner is carrying out their final assessment. Learners are externally displayed as avatars in the virtual hospital room, and the sessions are recorded and used as evidence to show completion of the skills demonstrations to an external authenticator.

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Immersive virtual reality is increasingly a feature in education and training. It is therefore important to understand the role it can play in facilitating learning. This article reviews a case study from Waterford and Wexford Education and Training Board, with learners performing tasks in a virtual hospital room and providing feedback on the experience.

## Learners' insights and experiences

In April 2024, learners began their healthcare module feeling a mix of excitement, curiosity, and some nervousness about using this new technology. Feedback was collected through interviews after completion of the module. Common themes emerged: learners found real engagement through interaction, presence, and autonomy. They highlighted that the realistic environment allowed them to actively participate by using items like blood pressure monitors and thermometers, checking pulses, and observing chest wall respirations.

Learners spoke about a stronger sense of presence because of the interactive and realistic environment, which enriched their learning experience. One learner discussed career paths, noting how IVR mimics real-world settings so accurately that it might help people make wise career decisions. Another learner, who had no prior knowledge of working in healthcare, felt that the authentic appearance of the virtual hospital room would benefit her when she begins working in healthcare.

The ability to perform tasks autonomously, free from distractions, was crucial for some learners. They felt that when they donned the headset, they were truly immersed in the environment, with no sense of being observed, as the outside world was completely out of sight. This allowed them to focus on their tasks; even if they made mistakes, there were no consequences, but another opportunity to practise and get it right.

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Challenges could arise for learners if they had never used IVR before. Getting accustomed to using the controllers for picking up objects or navigating the room required a certain level of skill. While this was not viewed negatively, it was noted that time for practice needed to be included. Transitioning from the virtual environment back to the real world could require some adjustment, which learners felt needed to be taken into consideration.

## Alignment with educational theories

From the learner feedback presented here, the immersive experience mirrors principles of experiential learning, where learning occurs through active participation and direct engagement with real-world scenarios (Dewey, 1938). Dewey advocated for authentic learning experiences, believing that education should incorporate real-life environments and challenges. The authentic layout of the virtual hospital room provided learners with a practical and genuine context, fostering deeper understanding and facilitating meaningful learning experiences, in alignment with Dewey's educational philosophy.

Autonomy was identified as an important part of the experience. Putting on the headset effectively isolated learners from the real world, allowing them to focus solely on the task at hand. This can be connected to principles of constructivist theory, as it emphasises how autonomy enables learners to explore and engage with the environment independently, crafting a personalised learning experience that fosters deeper understanding. The absence of distractions is essential in facilitating the construction of knowledge and learning.

Situated learning theory (Lave & Wenger, 1991) works alongside the virtual environment here, where learners can realistically simulate tasks. This theory supports the idea that this immersion can help them not only acquire practical skills but also gain insights into the nature of the profession. This could also be linked to social cognitive career theory, which looks at how people decide on careers (Lent et al., 1994).

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## Conclusion

One of the main benefits of incorporating immersive virtual reality into education is that it offers a more engaging learning experience, allowing learners to be transported to realistic environments. Feedback from this case study showed learners' positive experiences, and this article has shown how these experiences link with established educational theories.

It is important for educators to incorporate emerging technologies that enhance teaching, learning, and assessment. If IVR is to be considered a serious pedagogical tool in education, consideration must be given to how and where it aligns with educational theories. Thorough induction is essential for learners to become accustomed to the virtual environment, allowing them to navigate and interact confidently without too many challenges.

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