

Addressing
Barriers to the
Acceptance and
Use of VR in
Teaching

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Project Snapshot
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Project Overview

The University of Leeds HELIX innovation hub and the support of our Digital Education Enhancement (DEE) and Production and Creative (P&C) teams make the use of virtual reality (VR) in teaching more straightforward and accessible than ever. Research shows that VR has many potential benefits for student learning, enhancing levels of motivation, self-efficacy, embodiment, and engagement in the acquisition of different forms of knowledge (Makransky & Petersen, 2021). Use of VR in teaching can also provide valuable exposure for students who may later encounter the technology in industry (Kumar et al., 2021), while higher education institutes themselves play an important role in the cutting-edge development of immersive technologies and their applications (see for example the [Centre for Immersive Technologies](#) at the University of Leeds). Despite these benefits, staff engagement with our sector-leading infrastructure and support provisions remains relatively low. The central aim of my LITE fellowship is therefore to maximise critical and effective engagement with these provisions, thereby enhancing student learning, ensuring meaningful returns on investment, and placing the University at the forefront of educational and industrial research in the sector. Drawing on the findings of a survey for all teaching colleagues and semi-structured interviews with expert practitioners, regular extended reality (XR) showcases and tailored training sessions have been established. Together, these initiatives will provide greater exposure to use cases, pedagogical applications, and pathways to implementation.

Project Objectives

- To maximise effective engagement with the University of Leeds VR and XR infrastructure.
- To foster a connected community of XR practice at the University.
- To encourage innovative, sector-leading use of immersive technologies in teaching.

Methods

My project used a mixed methods approach, consisting of an anonymous survey, directed at all faculty-based teaching colleagues, and a series of semi-structured interviews with nine expert VR practitioners at the University. I based the survey on the Universal Theory of the Acceptance and Use of Technology (UTAUT2; Venkatesh et al., 2012), which investigates the relationship between intention to use and actual use of a technology and variables including performance expectancy, effort expectancy, social influence, and infrastructure. The scope of the project did not allow for a full statistical analysis; however, the UTAUT model



provided a strong framework, giving rise to revealing data from 153 respondents across all 7 faculties at the University. The subsequent semi-structured interviews allowed for further interrogation of the survey data, including insights into key benefits, use cases, and challenges surrounding VR, as well as strategies to improve staff engagement.

Key findings

- Active use of VR in teaching and in personal life is still very low among teaching colleagues.
- There are generally positive attitudes towards its perceived benefits.
- There is a lack of understanding around support provisions.
- There is mixed confidence in the pedagogical relevance of the technology.
- Institutional expectations for use in teaching are currently low.

Implications for practice

- The HELIX innovation hub may use the data to produce more targeted support offers for teaching colleagues based on a current lack of awareness around pedagogy, use cases, and pathways to implementation.
- DEE teams can use the faculty-specific data to work with their teaching colleagues in producing bespoke VR resources using newly acquired design software (CenarioVR).
- The University may find ways to further incorporate the significance of immersive technologies within digital transformation strategy guidelines, in response to qualitative data highlighting the growing presence of VR technology and applications in industry, as well as changing student expectations.

Outputs

I presented my research at the 2024 Media & Learning conference in Leuven, Belgium and produced a [public report](#) at the request of the organisers. I also shared my findings at the International Conference of Education, Research, and Innovation (iCERi 24), in Seville, Spain. Details of my panel and my abstract can be found [here](#). Within the University, I was highly commended for my research poster at the 2024 Student Education Conference, and gave a [spotLITE workshop](#), offering participants the opportunity to reflect on their own practice and involvement with the technology. The project has also led to the establishment of regular XR showcases in HELIX, run in collaboration between DEE teams, HELIX staff, and the student XR society (more information can be found on the [HELIX events page](#)), as well as the



development and forthcoming implementation of induction sessions for staff looking to learn more about VR in teaching.

Challenges

As a learning technologist and musicologist with little experience in data-driven research, determining the research framework and a model for the survey design was a significant challenge. I overcame this challenge by working closely with my project supervisor, who introduced me to the UTAUT framework, and by reaching out to a network of experts at the University for consultation on the survey items prior to release. The survey design was broadly successful in eliciting insightful responses; however, I was overly granular in my breakdown of different use cases, which frustrated some of the participants and did not lead to meaningful distinctions in use and intention to use. If I could begin the project again, I would simplify this element of the survey and also spend more hands-on time with the technology at the outset to gain greater practical and contextual understanding of the medium and our XR infrastructure.

Next steps

In the early stages of my research design, I planned to use seconded time in the central phase of the project to learn the statistical procedures and software skills needed to fully analyse the data from my UTAUT survey, investigating correlations between variables and undertaking a full factor analysis. Despite some background in statistics and scientific publication, this ultimately exceeded the scope of the project. Therefore, while the raw data has been valuable in highlighting key trends and findings, with significant implications for practice, a full analysis, with implications for the immersive technologies sector and models of technology acceptance more broadly, and the potential for peer-reviewed journal publication, has yet to be undertaken. To do this would likely require the support of a more experienced statistician, preferably with expertise in the field of VR. I would be very open to such a collaboration in the future.

Bibliography

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