Technology-enhanced case-based learning and small group teaching: a pilot study

Dr Athanasios Hassoulas, Owen Crawford, Dr Huw Williams, Saiyonora Hemrom, Dr Andreia de Almeida, Prof Marcus J Coffey, Megan Hodgson, Becky Leveridge, Diya Karwa, Dr Sarju Patel, Dr Keith Hart, Dr Hannah Shaw

School of Medicine
Cardiff University

The recent paradigm shift in teaching provision within higher education, following the COVID-19 pandemic, has led to blended models of learning prevailing in the pedagogic literature and in educational practice. This shift has also resulted in an abundance of tools and technologies coming to market. Whilst the value of integrating technology into teaching and assessment has been well-established in the literature, the magnitude of choice available to educators and to students can be overwhelming. The current study investigated the integration of key technologies in delivering technology-enhanced learning (TEL) within two separate student cohorts in a medical school in Wales. The first cohort was a sample of year two medical students who received TEL case-based learning in the form of having in-person tutorials delivered within an immersive learning suite, having access to 3D anatomy software to explore during their self-directed learning time, virtual reality (VR) guided anatomy exploration during tutorials, and access to a generative AI-based simulated virtual patient repository to practice key skills such as history taking. The second cohort consisted of medical students intercalating after their pre-clinic education in a BSc in Emergency Medicine. This cohort of students had access to an immersive learning environment within which they could practice key skills and apply knowledge acquired during taught sessions. Student formative assessment performance, engagement, and learning experience were assessed in both cohorts. The results revealed that students receiving technology-enhanced small group sessions outperformed their peers in successive formative assessments, engaged with the technologies at their disposal, and reported that these technologies enhanced their learning experience. The results are discussed in relation to the advantages key emerging technologies may play in enhancing student performance and experience.