



Curating student learning in virtual galleries

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Development of digital and creative literacies among students of biology is ongoing, and the threshold of entry for students and staff to engage in the creation and experience of digital content continues to shrink. In addition, we are moving into a world that is increasingly adopting 3D technologies for education and training. We have used the Unity game engine as platform to (1) create virtual medical science museums to allow first-year students to explore the depth and breadth of human biology as a complement to their other learning materials and (2) enable students to create and curate their own 3D exhibitions of their learnings. These galleries can be viewed on either a flat screen or virtual reality headset.

Initially, the platform enables students to readily explore and explain complex biological concepts in immersive and interactive ways that can be shared with others. It has been designed to be accessible to students with a wide range of prior knowledge and experiences and we are currently working on extending it to cover more advanced topics. Virtual galleries may have great potential in aiding not only student engagement but also consolidating and communicating their learning. An important additional outcome is in promoting scientific literacy among the general public.

First, human biology students were given the chance to explore a medical science museum that was created by 3rd year MD student projects. Later in the semester, we conducted a series of workshops to teach the basics of Unity. The students (500 in groups of five) used templates to create their own virtual galleries, populating them with objects from all aspects of their studies, from lectures to practicals and masterclasses. As part of the instructional activities, students were introduced to Object-Based Learning pedagogy by museum curators.

These galleries demonstrate the students' mastery of the basics of working in and navigating virtual environments, a graduate quality/attribute that is foundational in any future career in medical science. We also deployed some of the student galleries into VR headsets which provides an unparalleled immersive and interactive experience. Subsequent surveys of first- and third-year medical science students, and members of the general public revealed that virtual reality is an engaging supplement to teaching human biology. This is a unique way to collaboratively curate evidence of their learning across the semester and to communicate that understanding to a general audience. This is a new and novel approach to developing digital literacies and can readily form the basis of a 3D portfolio of achievement in undergraduate science students.