The Hadrian's Villa Project: The Very Real World of Teaching Using 3D Virtual World Technology

The prospect of using 3D virtual world (3DVW) technology in an undergraduate course may sound intimidating from the perspective of an instructor. But, what could be a more effective way of teaching the ancient world than offering students the opportunity to populate a virtual reconstruction of an ancient place? This paper discusses the ins and outs and ups and downs of designing and deploying undergraduate classes centered around a 3D virtual reconstruction of the emperor Hadrian's Villa, including a honest assessment of what worked and didn't work in the classroom.

From 2006 to 2012, the Virtual World Heritage Laboratory at the University of Virginia and the Institute for Digitial Intermedia Arts at Ball State University created a highly-accurate 3DVW of Hadrian's imperial villa at Tivoli, built between 117 and 138 C.E. An accompanying research study, funded by the National Science Foundation, investigated the combined impact of virtual world technology and problem-based learning (PBL) on student learning and on their perceptions of time, space, and structure (Taylor-Nelms, Kvapil, Fillwalk, and Frischer *forthcoming*). PBL is a mode of teaching and learning that asks students to develop a multitude of possible solutions for complex problems, and it is an method of teaching that has only recently begun to be implemented in humanities courses (Kvapil 2009) let alone in conjunction with 3DVWs. For the purpose of the study, a series of PBL activities for the face-to-face classroom and the virtual world was developed to be used in art history and classics courses that featured Hadrian and his imperial villa. Students in five different classes at the University of Virginia and Xavier University were asked to solve ancient-world problems in the personae of historical Roman figures. For

example, one problem asked students playing the role of the emperor's *cubicularius* (chamberlain) and staff to organize a lavish banquet in honor of a visiting embassy from Ostia. Other activities put students in the role of Ostians seeking audience with Hadrian, assassins plotting to murder the emperor, and even the emperor and his closest advisors as they received petitions from around the empire. Accompanying materials and data-gathering instruments, such as quizzes, surveys, and blogs, were also implemented for the purpose of gathering data on student learning.

Overall, the experiment of combining 3DVW technology and PBL was a success. Course design as well as day-to-day use of advanced technology and pedagogical approaches that are foreign to many students, however, presented significant challenges at times. Generating activities for use in both art history and ancient civilization courses, fostering productive collaboration among large groups of students, and coping with failures of technology were just some of the problems that arose over the course of designing and deploying the research study. Despite the problems, both qualitative and quantitative data and the knowledge gained from the classroom experience confirm the value of using 3DVW technology for instructors as well as the students, who had the chance to experience Hadrian's Villa in its ancient context.

Works Cited

Kvapil, L. A. 2009. "Teaching Archaeological Pragmatism through Problem-Based Learning." *Classical Journal* 105 (1): 45-52.

Taylor-Nelms, L., Kvapil, L. A., Fillwalk, J., and Frischer, B. forthcoming. "Investigating the Effectiveness of Problem-Based Learning in 3D Virtual Worlds. A Preliminary Report on the Digital Hadrian's Villa Project." *Proceedings of the 40th Conference in Computer Applications and Quantitative Methods in Archaeology, Southampton, United Kingdom 26-30 March 2012*.