The Virtual Museum Effect
Augmenting Learning Across Student Groups

Research Question
How can teachers utilize virtual museums to create a less restrictive learning environment while maintaining testing standards?

Summary
Virtual museums are a teaching and learning tool to utilize for guided exploratory learning that may still be mapped to standardized testing models.

Results and Characteristics
Prototype Online Learning Space (OLS)
This OLS features an embedded virtual museum widget for classroom implementation

Augment

Related Resources

Virtual History Museum (www.vhm.msu.edu),
the Virtual Victorians exhibit (http://www.virtualvictorians.org.uk)/
Smithsonian’s online exhibits (http://www.si.edu/exhibitions/)
Google Art Project (http://www.googleartproject.com/)
National Gallery of Art (http://www.nga.gov/exhibitions/vgwel.shtm)

Related Resources

Two Key Factors in Virtual Museums
• Interactive floor plan
• Zoom in on artifacts and art pieces

Engage

Prosser and Eddisford (2004) suggest a paradigm with virtual place-based learning: “The virtual learning domain must be sufficiently credible, compelling, and enjoyable, to create and sustain the virtual world in which they can believe” (p. 288). In other words, students must use their imagination because they are virtually “playing a real Burmese xylophone,” or the students “really asking a 12-year-old Victorian girl a question” (Prosser & Eddisford, 2004, p. 288). Asking questions of virtual historical figures is knowledge creation based on the established historical record. Prosser & Eddisford cite Roberts (1997) on how physical museums have tried to be “time machines” that take visitors on a sojourn back through time “to experience other periods and cultures” (2004, p. 288). With technological advances, virtual museums provide an even more compelling time machine than physical museums. The Virtual Victorians exhibit of the Tiverton Museum in the United Kingdom is not taking students “back” to a static past, however. Rather, the Virtual Victorians exhibit allows students to interact with a dynamic representation of the past. Students really do get to be a “creator of knowledge,” as Todd and Brinkman (2008) mention—but within the context of the traditional, physical museum. The study by Prosser & Eddisford (2004) on the interactive Victorian exhibit suggests that school children shift the tense in which they ask a question of the Victorian “child.”

• Students between the ages of 5-14 ask questions of the virtual Victorian exclusively in the present tense 35% of the time on average.
• Students aged 5-7 asked questions with mixed tenses (past and present) about 45% of the time.
• Students aged 5-11 asked questions exclusively in the past tense about 50% of the time on average.

The suggestion that the study revealed that 35% on average of all students between the ages of 5-14 asked questions of the virtual Victorian in the present tense is pedagogically significant. The data suggests that the virtual museum is a success in immersing students in the interactive component of studying the given time period and culture. The vast majority of students aged 5-14 referred to the virtual Victorians in the second person (about 80%) while only about 2% said “the Victorians” (Prosser & Eddisford, 2004, p. 290). These findings support the notion that students are interacting with history rather than passively receiving information about history.

This hypothetical equation to measure Learning Units Gained (a quantitative measure) may help bridge the gap between the standardized testing requirements of the No Child Left Behind Act (NCLBA) and qualitative assessments. Multiple choice questions and perhaps short answer questions may be mapped to virtual museum lessons.

Hypothetical equations to measure Learning Units Gained
(by A. Atwood)

LUG equation
LUG: Learning Units Gained
L = $\sum_{i=1}^{n} \left( S_{i} - S_{0} \right) /
\sum_{i=1}^{m} \left( T_{i} - T_{0} \right)

Symbols
\( S_{i} \) = virtual museum visited
\( T_{i} \) = (total of students) / (quantitative scores average)
\( p \) = percent score average
\( \text{Learning Units Gained} \)
\( \text{L} \) = sum of

L one virtual museum visited by 50 students
L one virtual museum visited by 50 students
L two virtual museums visited by 50 students
L three virtual museums visited by 50 students

Measure

Virtualized artifacts can be featured on an OLS or other presentation medium

Field Trips
• Hundreds of currences in medieval Europe
  – Local lords could mint their own money in some
  kingdoms (especially the Holy Roman Empire)
  because of feudalism

Anecdote
A student with a high-instance disability, did not complete a single paper-pencil activity in class through the entire observational period. However, he did participate in the online activities of VHM [Virtual History Museum] exhibits of Andrew Jackson and John Brown. VHM helped to move Rick’s participation from the periphery to the center, where he was able to contribute and demonstrate his knowledge as well as deepen the apprenticeship into the discipline of history.” (Bouck, Okolo, Englert, & Heusche, 2008, p. 36)

References