



The search for 18 Rabbit: Virtual archaeology and games based learning

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This poster presentation documents the development of an exemplar teaching resource that uses a games-based learning approach to engage learners in the study of the archaeology of ancient cultures. “The Search for 18 Rabbit” is a game based in a virtual 3D world that engages learners in a quest to discover the facts surrounding the demise of *Uaxaclajun Ub'aah K'awiil*, also known by the title “18 Rabbit”, the last significant ruler of Copán (Mayan title: *Xukpi*), a major city of the southern Mayan region (now western Honduras). The site was chosen because it combines interesting architectural features, including a game-based cultural space called the Ball Court, with a wealth of historical facts and supporting myths; providing the game creators with a rich mix of primary resources to use in development.

The relatively recent development of free, easy to use open-source game engine environments such as Platinum Arts Sandbox and other commercially available applications (e.g. Unity 3D) means that educators who want to actively engage learners in historical studies or related disciplines can now offer them an immersive, dynamic experience as they explore virtual ancient cities such as Mayan cultural centres that thrived in the 7th to 10th centuries.

Keywords: games based learning, educational technology, virtual worlds, online learning

Rationale

Virtual simulations engage learners on a number of different levels:

- a first person 3D view immerses the user in the landscape. Navigation *through* a virtual city gives users a better idea of its scale and distance compared to measurements made on a static illustration.
- virtual environments can engage users on an emotional level, such as climbing the steps of a virtual pyramid as if a participant in a religious ceremony.
- exploration of a virtual space can be encouraged by setting it in a quest-based game, where the object is to collect artefacts by searching the site, or questioning the virtual inhabitants to obtain facts.
- handing learners control over a virtual environment (Sandbox allows in-game editing) encourages active, constructive participation in learning.

Background

The development of the game “The Search for 18 Rabbit” was the result of recent discussions between educational developer colleagues regarding the potential of virtual learning environments to extend

teaching practice and to meet the expected high expectations of current and future students regarding technology use in educational settings. This simulation was designed to serve as an exemplar resource and to provide a vehicle for the exploration of easy to use tools for the development and deployment of virtual learning environments and their application to games based learning.

Until the advent of accessible computer graphics applications, conceptualising the original appearance of an archaeological site was a difficult and inevitably subjective exercise, relying on the skill of an illustrator trained in the presentation of ancient architectures to present a view of a city as it may have appeared at the peak of its influence.

In the case of Aztec city sites, the conquering Spanish had little appreciation of the existing culture and left few Aztec structures untouched, in some cases pursuing a deliberate policy of building cathedrals and churches on former Aztec religious sites such as sacrificial pyramids and temples. Fortunately, illustrators attempting to portray Aztec culture in pre-Columbian times have been able to access accounts of major Aztec cities such as Tenochtitlán that were recorded by Spanish eyewitness observers present at the time. Mayan cities, by contrast, were largely abandoned and overgrown by the time the Spanish arrived in the New World, and most of the major sites such as Tikal, Palenque and Copán were not “discovered” by European historians until the mid-nineteenth century.

The ruins at Copán, a major centre until the 10th century, were first depicted in detail by Frederick Catherwood, an English architect, in 1844. More recently, architect Tatiana Proskouriakoff produced an illustrated “Album of Maya Architecture” (1963) containing notional reconstructions of the city, including its famed Ball Court, the setting for a variation of the ball game common to both Aztecs and Mayans and which constituted an important part of the city’s cultural and religious life. A major creation myth of the Mayans, discussed in a corpus of mythistorical narratives known as the *Popol Vuh* includes an account of the ball game and influenced the design of the virtual game that is the subject of this poster.

Methodology

A search of text and web-based resources was conducted, resulting in a range of contemporary photos of the Copán site, illustrations of notional reconstructions, and historical and mythological sources. The collected resources were then used to devise a game-play approach based on a quest. Platinum Arts Sandbox was used to create the virtual world, centred on the architecture surrounding the Copán Ball Court. Animated characters were then added to the world to provide learners with hints to move them forward in their quest to discover what happened to the city’s ruler “18 Rabbit”

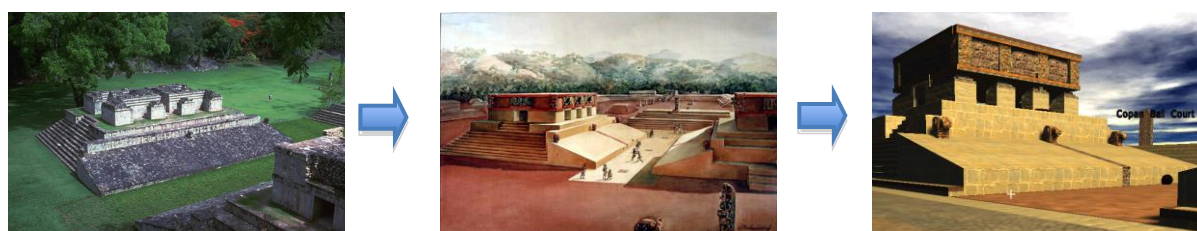


Figure. 1: 3 Steps in virtual world creation – site photo, reconstruction illustration and virtual world screenshot (Middle illustration copyright Tatiana Prouskouriakoff)

Thoughts on future directions for virtual archaeology

There has been an unexpectedly large increase in the use of virtual world technologies in the field of archaeology over the last two years. Sites such as “Giza 3D” (2010) give students the opportunity to use an internet connection to explore major archaeological sites on the Giza plateau, in accurate three dimensional representations. Second Life hosts a number of accurate virtual archaeology sites, including two Mayan cities. With higher broadband access speeds now being offered, the field of virtual education is set to expand rapidly, paving the way for virtual presentations of sites and graphic objects in a range of disciplines. The development of “The Search for 18 Rabbit” is one such contribution to the field.

References

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