Virtual Drama as a Learning Medium:
The Caracol Time Travel Project

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Abstract

Virtual drama is based on the use of a shareable virtual world as a stage setting, with avatars controlled by actors and audience member. In this experiment, students built a virtual world to teach concepts of Mesoamerican archaeology and cultural history of the ancient Maya.

Figure 1: Caana, the great pyramid of Caracol

VE and Education. The authors have been developing concepts for the educational use of shared virtual environments with four to eight users and complex stories. The ExploreNet system was used for a series of experiments with elementary and middle-school students [1][2] using simple 2D cartoons. For the current project, we built a new VRML/Java-based environment [3].

The *Virtual Academy* learning model is based on roles:

- *Guests* are naïve first-time visitors to the virtual world.
- *Cast Members* are persons who have learned enough about the simulated world to play specific roles, "in costume" (by controlling human figures, or avatars).
- *World builders* define the world's learning objectives, develop scripts and theatrical scenarios, construct the geometric models and program the behaviors of the objects in the world. They also serve as the directors, in a theatrical sense, of the actual productions.
- *Tool builders* are technically adept persons who build or modify the tools used to construct the world.

The project's mission was to develop an educational virtual environment suitable for use by middle school students. During this first phase, all these roles were played by undergraduate students at the University of Central Florida. The presentation paradigm was as follows:

1. A host school would provide well-trained cast members, and offer to stage performances for other schools with appropriate Internet-accessible computing equipment.

2. The guest class would read background material about the Maya civilization before the performance. Two to four members of the class would be selected as guests; they would serve as the class' surrogates in the experience.

3. The guests would participate in three episodes, aggregating about an hour of interaction, as archaeology student trainees on the Caracol Archaeology Project. This behavior models the actual experience of university student trainees on the Caracol Archaeology Project, a major research undertaking in Belize, Central America [4].

Conclusions. Experimentation with virtual drama is very challenging. To have much of a chance of success, it is highly desirable to have a reliable and well documented technical substrate, including modeling systems, in place at the outset. The student team should include subject matter experts, skilled 3d modelers and programmers, as well as humanists with a flair for storytelling. Drama students would add ideas and know-how about how to organize a theatrical production.

This project's final product was perhaps 50% of the way toward being sufficiently mature to undergo field trials in middle schools. An extended techical report about the project is available at [5].

References.

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[4] www.caracol.org

[5] www.cs.ucf.edu/~moshell/CREAT/Caracol/
      TimeTravelReport.html