

Virtual Learning Community Model for a Freshman Engineering Design Project Course

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Abstract

This paper documents the successful implementation of Virtual Learning Community Model in a Freshman Engineering Design course at California State University at Los Angeles (CSLA) and its parallel implementation as a communication tool at Youngstown State University. A virtual learning community software based on client/server computing model was installed at CSLA. It allowed group of students to collaborate in real time through a graphics based chat facility. These were accessible round the clock since they reside on a World Wide Web server. As CSLA is predominantly a commuting campus this model was instrumental in bringing students together in their project when they are not on campus.

1. Introduction

The World Wide Web is emerging as a new medium for transmitting information globally, in multimedia format. Engineering educators have been using the Web the past few years in their classes, for posting course guidelines, homework, and to develop courseware [1-4] including interactive modules. Several virtual communities [5-7] have been created to enhance professional community. Examples of other virtual community creation tools are “Community Place” (<http://vs.spiw.com/>) [8] and “The Palace” (<http://www.thepalace.com/>) [9]. To exploit the latest achievements of technology of networked multimedia for instructional purposes the commercially available “Palace Software” (<http://www.thepalace.com/>) was installed at CSLA. The software is based on client/server computing model. It allows a group to collaborate in real time through a graphics based chat facility. The text based chat software has been used for real time communication for some time. However, the text from all the participants in the chat room appears in the same window. If several people are talking on different topics then it becomes difficult to follow the thread of the conversation. The Palace software eliminates this drawback

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by allowing the participants to represent themselves as “Avatars” who can move around in a known surrounding provided by graphics backdrop. This arrangement provides a more realistic environment when compared with the text based chat programs. Its graphics interface is visually appealing and allow participants to acquire a persona of their liking. This paper will review the format of the virtual learning community model and its implementation in a Freshman Design Project course.

2. Format of Virtual Learning Community Created

Using “Palace Software” several computer based virtual learning community rooms were created and customized on WWW with the Engineering and Technology Building of CSLA as the background. In this way group of students can access this site from various locations through the World Wide Web and communicate among themselves of their coursework, homework etc. in a virtual room of CSLA. Several pictures were taken using a digital camera of various locations of Engineering and Technology building at CSLA. These pictures were organized into several virtual community rooms using the Palace software. The Figure 1 shows the entrance to the

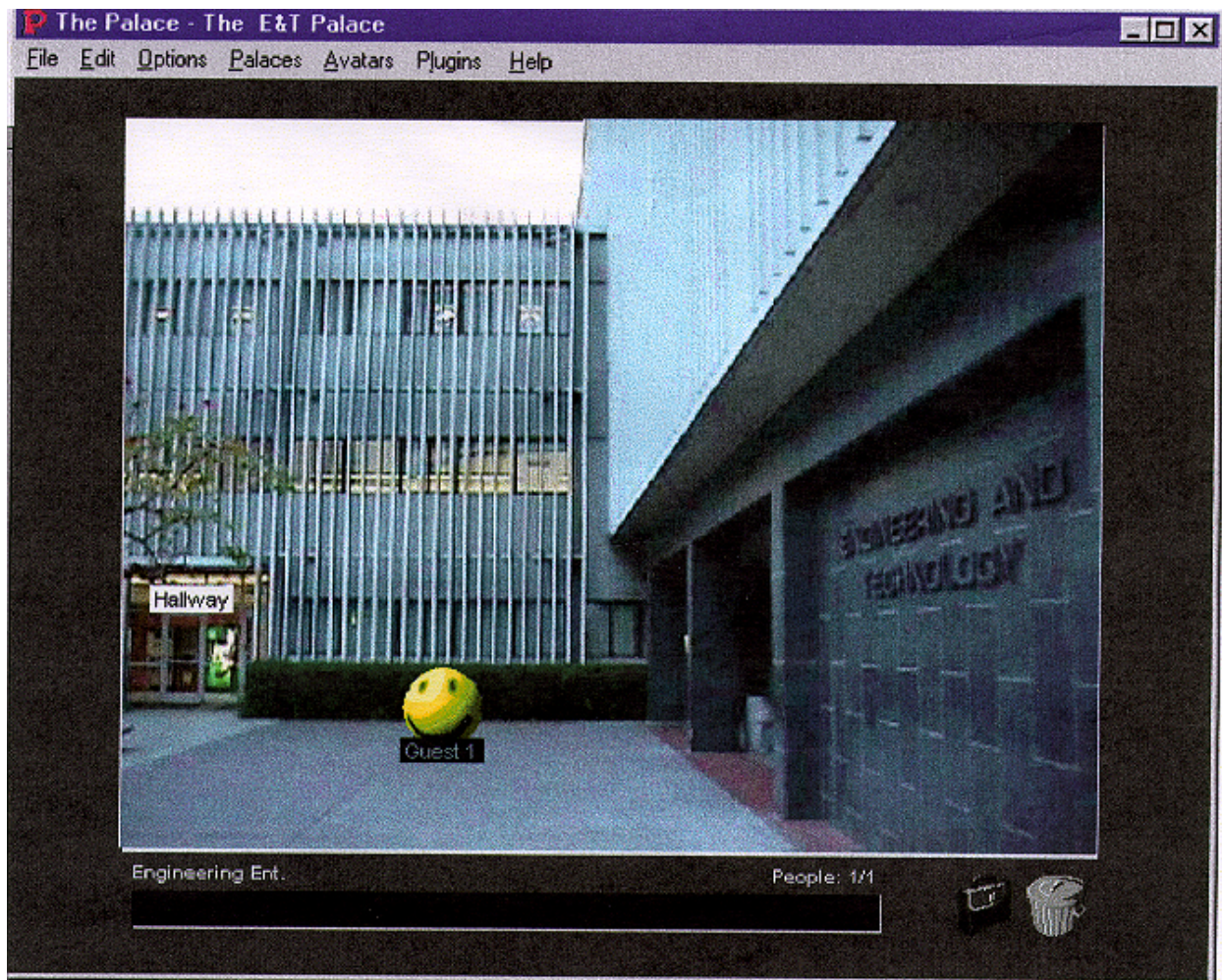


Figure 1: CSLA E&T Virtual Community Entrance: Communication Room 1

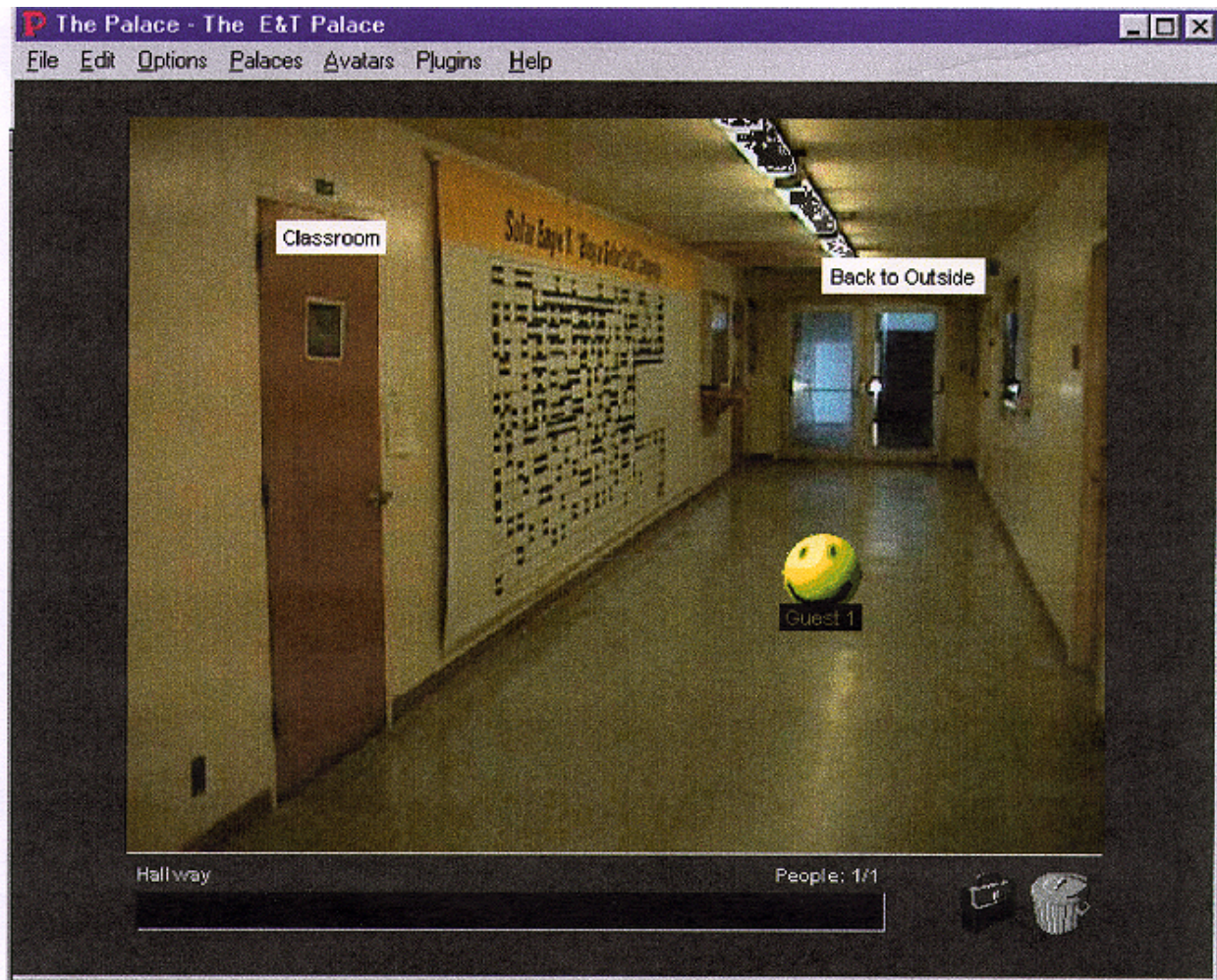


Figure 2: CSLA E&T Virtual Community Hallway: Communication Room 2

Engineering and Technology Building and becomes the first location for the virtual community. Several guests (students) can enter this virtual community room via the Internet World Wide Web. They can communicate each other in real time in a known graphical background of their School Building. If two groups of students want to have two different discussions, one group can click on the entrance door and they will enter the Hallway of the Engineering Building (Figure 2) which is in effect the second virtual community room. If another group of students want to have another discussion they can click on the class room door in Figure 2 and enter the third virtual community room (Figure 3) which is a class room in the School of Engineering and Technology. In all these community rooms even though only one guest (a student) is shown it is possible to have several persons engaging in a discussion.

3. Format of the Freshman Design Project Course and Implementation of Learning Community Model

In a view to emphasize the design aspects of Engineering throughout the curriculum, Civil Engineering Department at California State University at Los Angeles has developed a new

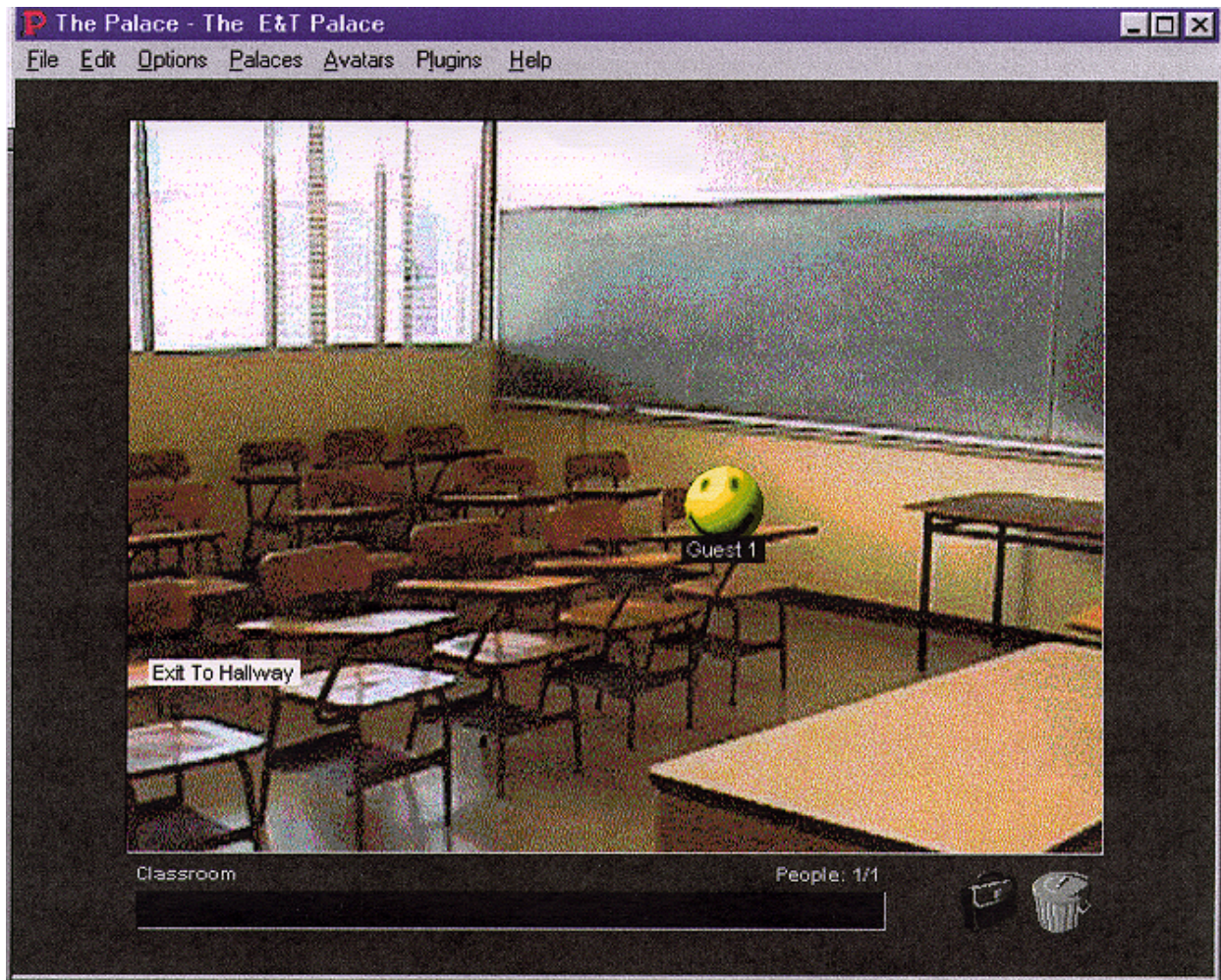


Figure 3: CSLA E&T Virtual Community Class Room: Communication Room 3

freshman year design project course CE 195 (Civil Engineering Design I). This open-ended design project course integrates various disciplines of essential design concepts. Since it's a freshman level course, many students enter the course lacking the knowledge of concepts to implement a comprehensive Engineering design project. Also, since CSLA is a predominantly a commuting campus, student centered learning model is a must for this kind of a course that has no standard textbooks. The material in the class centers on a real world design problems that are being solved. The specific project for this class was design of best route for a roadway given the topographical map and other details. The prerequisites for the course was Engineering Surveying and freshman CAD course.

Some parts of the project was to be completed by students individually and others to be completed by groups. In any event discussion among students were encouraged, and the Virtual Learning community model helped communication outside the classroom. The survey conducted at the end of the class showed the potential of the model used for enhanced learning.

A parallel communication tool site was created and tested at Youngstown State University,

another urban campus.

4. Conclusion

The paper demonstrates the use of Virtual Community Model in a Freshman Design Class. The Graphics Interface of the Virtual Community environment is visually appealing and allow participants to communicate effectively. As CSLA is predominantly a commuting campus this model was instrumental in bringing students together in their project while they are not on campus. This helped the students to be active participants than passive subscribers.

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Acknowledgments

The authors wish to acknowledge the partial support provided by the Center for Effective Teaching and Learning at CSLA through an Innovative Instructional Award for this project.

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