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Engaging in a Dialogue with History through Digital 3-D AutoCAD Models

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Opus Citation
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Purpose

While computer-based analysis, modeling, and computer aided design are widely used in the fields of architecture and interior design, few Roman architectural components have been developed and few authentic Roman architectural materials have been categorized into CAD libraries for Roman architecture education and research. Designers are seeking an effective way to create modern interior spaces to recapture the spirit of classical architecture. This need strongly supports the rationale of this study which is engaging a dialogue with history through the building of digital 3-D models. Generally, 3-D AutoCAD is taught in a traditional way, which means students follow a tutorial text book and learn the software. This study explores a new pedagogy of teaching 3-D AutoCAD. The purpose of this new teaching method is to let students not only learn digital 3-D model building, but also to reinforce their knowledge of Roman architecture. The other outcome of this study is to predict the future design by 3-D computer generated models which reflect the spirit of Roman architecture.

Process

Field Data Collection

To explore Roman architecture, a study trip to Rome, Italy was taken July 8 – July 22, 2004. Field data was collected in the form of digital pictures of Roman architecture and its components. Roman interior space, decorative materials, and the ruins of the Baths of Caracalla were studied intensively. In addition, freehand sketches and field measurements were recorded while teaching Roman architecture on site.

Render Library Development and Pre-Test

To categorize Roman architectural components and authentic materials into a CAD render library, digital images were imported into AutoCAD. The CAD render library was used to build a model of a portion of the Baths of Caracalla as a pre-test of this newly developed CAD render library.

Course Design and Students Projects

In the newly revised syllabus, the first project is to create a simple interior space which recaptures the spirit of Roman architecture while students are learning the basic 3D AutoCAD commands. The final project is to reconstruct a ruined house in Pompeii. The architectural components created in the previous class session are to be used in the final project. The authentic Roman architectural materials and finishes, as well as lighting design, are to be demonstrated and applied to the 3-D models.

Summary
This new approach to teaching AutoCAD should reinforce student’s knowledge of Roman architecture, and let students learn the digital method to reconstruct ancient Roman buildings by using 3-D AutoCAD. Through the dialogue with history while using modern technology, students not only will develop skills of 3-D model building for both new design concepts and reconstruction of ancient Roman buildings, but also will be able to create the modern interior space which reflects the spirit of classical architecture. This new pedagogy will be used and expanded through the teaching process.

References


