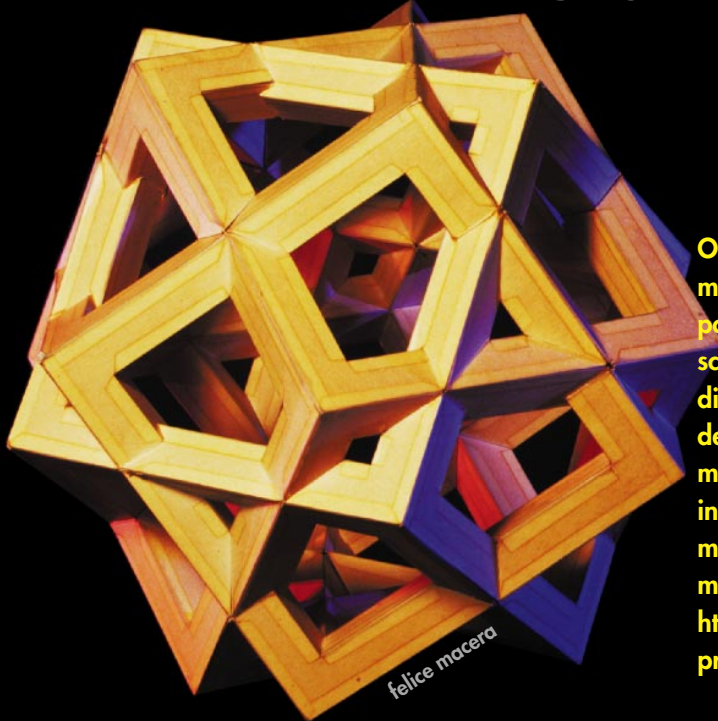


media power

BY JOHN MACDERMOTT



One of the most exciting aspects of new media technologies is the creative power they have put in the hands of scholars. The two Penn projects discussed below illustrate how academic inquiry and disciplined research methods are driving these technologies into the mainstream of education. For more information about interactive media initiatives developed at Penn see http://www.upenn.edu/newmedia/projects/academic_projects.html.

Polyhedral explorations

“You start with a cube, you cut the corner off ... and you stick it back in the hole, and then ... you cut the opposite corner off and turn that piece around ... and shove it back in the opening, that intersects with the first piece that you shoved in the other corner, so that you cut the opposite corners off, you’re going along the diagonal of the cube, and you end up with a little cube inside.”

—Robinson Fredenthal

Most sculpture lasts a long time. Figures in bronze or stone endure and no one needs to rely on verbal descriptions to share an artist’s experiment in geometry. But what if sculpture is perishable? Must the experiment disappear with the physical medium?

Sculptor and Penn alumnus Robinson Fredenthal has explored three-dimensional geometry not only in large, durable works but also in hundreds of fragile paper models. In 1995 he approached Penn’s Architectural Archives to see how his large body of perishable work might be preserved. Director Julia Moore Converse, along with Jeff Cohen and Mark Aseltine of the Graduate School of Fine Arts and GSFA student Brian Phillips, decided to try using new media technologies to document and analyze Fredenthal’s work.

Cohen and Phillips cataloged over 1,000 works,

identified several “families” of shapes, and photographed arrangements in Fredenthal’s studio. They recorded interviews with Fredenthal, discussing the specific pieces and how they related to each other. Using 3D graphics software, they reconstructed some of the shapes Fredenthal had described and developed step-by-step illustrations of how they were derived. They also used Apple’s QuickTime Virtual Reality (QTVR) software to simulate the experience of handling a sculpture. QTVR “object movies” allow users to interactively rotate an object on screen and view it from all sides. Cohen and Phillips have generated QTVR movies both from photographs of sculptures and from their 3D graphics.

Phillips’ work on this project has become an independent study course, and Aseltine is now his faculty advisor. Phillips has created a Web site devoted to Fredenthal that includes a photographic catalog of his works, videos, QTVR movies, text transcribed from interviews, biographical material, and critical commentary (<http://dolphin.upenn.edu/~gsfa/rf/>). The site is organized around families of shapes and offers detailed analysis of key works.

This semester Phillips is photographing QTVR scenes of some of Fredenthal’s large outdoor pieces, including the “Black Forest” sculpture on Penn’s campus

at 34th and Walnut Streets. These QTVR scenes are interactive, 360-degree photographic panoramas that allow viewers to simulate the experience of viewing the sculpture in its surroundings. Phillips also continues to create QTVR object movies of the paper models and new 3D graphics to illustrate selected geometric principles.

“Es que somos muy pobres”

Spanish Language Coordinator Julia Aguilar thinks there’s something missing in the traditional reading experience for intermediate Spanish students. For those lacking a cultural context to draw upon, reading assignments can become rote translation exercises and literary appreciation is diminished.

Aguilar’s doctoral research has indicated that the reading process involves more than decoding words to reconstruct a message. Because a reader’s background knowledge also contributes to understanding, reading in a second language can be constrained not only by unfamiliar vocabulary and linguistic structures but by the reader’s limited cultural knowledge. As part of her dissertation work, she has created a multimedia-enriched reading exercise to help her study how cultural empathy affects reading comprehension.

She began by traveling to Mexico to videotape footage to supplement “*Es que somos muy pobres*” (It’s because we’re poor), a story from Spanish 140 about a farmer’s efforts to provide his daughter a dowry and keep her from a life of prostitution. Aguilar taped interviews with a *campesino* (farmer), a young girl, and with prostitutes. Other footage showed the environment of rural Mexico. Back at Penn, she worked with her dissertation committee to develop an instructional design and with Jay Treat at the SAS Prep Center to prepare the media elements. Professor Ralph Ginsberg, one of Aguilar’s dissertation advisors, made his research

assistant, Ralph Ranjit Bhatnava, available to develop HyperCard scripts.

The exercise begins with pre-reading activities that help students supplement their background knowledge about Mexico and develop awareness of issues in the story. Students enter words they associate with Mexico: *Calor, playa, sombrero, cerveza, mar, tacos, and pobre* are commonly mentioned by students, who admit their responses are stereotypical.

Students then view pictures showing the realities of rural Mexico. Students also record their associations with the word *campesino*. They scan the story text, identify the characters, view video clips, and answer

questions about them. The clips include the material shot in Mexico plus interviews with critics and the author Juan Rulfo. Students can hear the first paragraph read aloud in the voice of the story’s narrator, a young Mexican boy.

While reading the text, students use an online glossary. They click on an unfamiliar word to obtain a definition that may be either written or presented visually with photos and video clips. To complete the exercise, they answer not only questions about events in the story but also about the Mexican world-view in general. Finally, students take away a printout of their word associations, answers to questions, and vocabulary inquiries.

Preliminary results have indicated positive effects on comprehension compared to a control group, and superior vocabulary recall. Testing in full begins this semester as students in several sections of Spanish 140 use the program and provide the data on which Aguilar will base her formal analysis.

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Multimedia provides students a window on rural Mexico in Julia Aguilar’s new CD-ROM for Spanish 140. The CD-ROM enriches students’ understanding of the short story by Juan Rulfo, “Es que somos muy pobres” (It’s because we’re poor).