Technology

Technology. Texas was the first state in the nation to explicitly recognize and define "electronic textbooks" as a type of textbook. In 1995, during the massive revision of the Texas Education Code, the Legislature recognized that publishers could offer materials in an electronic format. Since that time, many major publishers have offered districts choices: they can choose traditional print textbooks or they can choose the same or enhanced interactive versions of the same materials in formats such as CD-ROM or online. And the law also has encouraged new publishers to enter the field with all-online materials. Even with the traditional print offerings, publishers many times package textbooks with electronic components where technology can be effectively used, such as teacher quiz-makers or online help for individual student study.

Full-scale online materials have gone into Texas classrooms with:

- Six offerings available, starting with going into classrooms in fall 2001, for middle school and high school English Language and Composition
- Four offerings available, in fall 2002, for middle school Science and Integrated Physics and Chemistry
- Seven offerings available, in fall 2003, for middle school and high school Social Studies
- One offering available, in fall 2004, for Biology materials

Sales to date, however, have been relatively modest, versus programs in print, as most school districts have not made the transition to technology.

The watershed year for online materials will be fall 2005, when more than 75 offerings will go into classrooms if funding is approved. For Technology Applications, a new required course for which there are no materials, schools can choose among 11 offerings in middle school alone. The State Board of Education, for the first time ever, encouraged online materials by paying a license fee on an annual subscription basis for this new course, rather than paying most of the cost in the first year of the implementation. In addition, many of the materials in Career and Technology subjects, which will go into schools in 2005, are offered in an online version.

Implementation into schools will be contingent upon funding by the 2005 Legislature, which is scheduled to appropriate funding for these materials after it had to delay them for one year during the last legislative session because of a funding shortfall.

The next implementation of materials into classrooms, high school math materials in fall 2007, will undoubtedly see even more online offerings.

Cost of Online Materials. Many times the suggestion is made that online versions of materials will be cheaper because there are no printing, warehousing, and shipping fees. From looking at the prices for 97 online materials that went through the rigorous state adoption process and that meet state standards, this supposition has proven to be incorrect. Among the 97 online offerings in the state adoption process in four years, all but four offerings were within $1 of the state maximum cost (and two others were actually above maximum cost), while more of the print offerings in the same subjects, especially Career and Technology, had lower prices. (Note: This analysis does not include a handful of ESL materials that were bid on an annual subscription basis.)

Here is the reason that moving from paper to plastic doesn't mean that the content costs less, according to one major publisher:

- The great majority of our investment in any textbook program is devoted to research, editorial content development, authors' royalties, and art, design, and production. Except for production, these costs are largely the same for both formats. We do have some savings in costs for paper, printing, binding, and warehousing when we provide the texts online, but these are offset by the considerations below.
- Editorial and production costs include permissions fees that must be paid for the right to reproduce third-party intellectual property, including primary source materials, literary selections, artwork, and photographs. The fees for digital reproduction rights are usually higher—sometimes substantially higher—than those for print permissions.
- During production, pages are composed using Quark software in a process that allows us to go directly to print. In order to create a digital version, we must take an extra step and convert the content into xml for an interactive text or html for a PDF text. (Our Texas-specific online

texts are fully interactive, but some publishers have submitted materials in the static, read-only PDF format.)

- Our online texts contain embedded interactive activities and software at point-of-use within the core content. By clicking on a photograph of a volcano, to take just one very simple example, the student can activate a short film showing and explaining an actual eruption. Such dynamic resources provide students with a richer experience for the same price as a printed textbook, but they also increase our permissions, programming, and production costs significantly.

Each Texas-specific online text must be accessed through a dedicated Web site that requires the support of an extensive infrastructure. This infrastructure comprises hardware, such as servers linked and backed up to ensure continuous operation 24/7, and technical personnel, who are needed to maintain the system and also to provide ongoing help-desk assistance for users in the schools.