



Death by Printing: The Rise of Digital Textbooks



By Brian Bridges

A simple headline in the May 1 issue of *Tech & Learning* magazine sums up this article's theme: textbook deathwatch.

The provocative title accompanied data from Project Tomorrow's latest Speak Up survey, which indicated that students are more willing to leave paper behind. The study claims that 29 percent of middle- and high-school students are using some kind of online textbook or curriculum.

Twenty years ago, many of my friends believed that as computers and word processors became more prevalent, the amount of paper consumed by our schools would decrease. After all, having a computer to draft, write and edit work would seem to negate the need for large caches of printer paper.

While technology allowed us to improve the quality of our work, our need to print at every stage created the opposite effect. Instead of printing just a final version of our work, many of my friends and colleagues (myself included) print multiple drafts in our quest for the perfect document. Technology certainly has improved our writing quality as it enables the ability to continually revise and improve.

It's difficult to pin technology as the cause of the rapid rise in textbook size, though. One could make a case that with the advent of the content standards revolution in the late 1990s, textbook publishers were forced to push more content into their books. The 1999 Earth Science textbook from Holt, Reinhart and Winston spanned

616 pages, but the 2004 version of the same book weighed in at 799 pages, a 30-percent increase in size. However, a scan of textbook growth in other decades shows otherwise. The 1987 version of *Exploring World History* by Globe Book Company had 686 pages, while the 1994 version increased by 10 percent to 752 pages. 1984's *Explore People & Nation* by Houghton Mifflin started at 520 pages, but ended up four years later with 611 pages. Regardless of the cause, student textbooks have continued their increase in size and weight for at least the last three decades.

There are many reasons to leave printed textbooks behind, though, beginning with the sheer size and weight of current books. However, the six-year textbook adoption cycle also freezes content in time and space. When science books were last adopted in 2006, Pluto was still a planet. Our students won't see this information change until the next science adoption in 2012. The State Board of Education certainly has a valid concern that the content they approve should stay consistent during the adoption, but a digital textbook would more easily allow new facts, like the election of a new president or the discovery of a new element, to be presented to our students sooner.

The greatest argument for digital textbooks, though, may be the cost factor. According to the National Association of College Stores, 33 percent of a college textbook cost can be attributed to printing and freight costs. When you account for overhead, most experts



state that publishers could charge no more than half the current paper-based price.

County offices of education would benefit from this revolution. Learning Resource Display Centers (LRDC), large collections of adopted textbooks in all subjects for all grades, would no longer be a necessary feature of our county offices. Consider the square footage required to house a textbook collection as well as the extra space needed to house materials that have been submitted for adoption. Then take into account the labor spent in shipping, unpacking, and organizing these books, as well as removing older texts from the selves. Add in the square footage you have to set aside so that school teams can compare textbooks and collaborate about curriculum.

LRDCs may become unnecessary in a digital textbook world. If all selected textbooks were available as electronic downloads, district and school teams would no longer need to drive to their local LRDC, since they could download and view materials locally, saving travel expenses, time, and perhaps substitute costs. In return, county offices could better utilize staff and office space.

If we see the need for a digital textbook, why aren't our students using them? Ten years ago, most of us couldn't fathom that film would disappear, but disruptive innovations tend to destroy industries that don't change. We are in such a place now with digital textbooks. They've been around awhile and perhaps they've been waiting for a "killer" e-book reader like Amazon's Kindle. Not waiting for traditional textbook publishers to take the lead, though, open source textbooks as well as clearinghouses to promote them, have sprung up around the world. Here are just a few.

CK-12 (<http://ck12.org>), a California non-profit, specializes in creating high-quality, open-source textbooks. It has created a new model, the Flexbook, where users can customize the content in their books. The Commonwealth of Virginia recently took advantage of CK-12 by creating the "21st-century Physics" Flexbook to supplement their adopted physics text.

The Free High School Science Textbook project (<http://www.fhsst.org/>) is a University of Cape Town, South Africa initiative that has created physics, chemistry and mathematics books for high school students.

Textbook Revolution (<http://www.textbookrevolution.org>) is a student-run site dedicated to increasing the use of free educational materials by teachers and professors. The volunteers have assembled links to a variety of textbooks, which are organized by subject.

Merlot, short for Multimedia Educational Resource for Learning and Online

Teaching, is run by the California State University Chancellor's Office. Merlot (<http://www.merlot.org/>) has compiled a list of more than 200 open-source college textbooks, many of which are appropriate for high school classrooms.

It should be no surprise, then, that California has taken the lead with their Free Digital Textbook Initiative, which will review and post free, standards-aligned, textbooks designed for high school science and mathematics classes. The digital text-

book revolution has already started and it promises to change everything. ■

Brian Bridges is director of the California Learning Resource Network, a statewide education technology service that reviews electronic learning resources, web information links, and data assessment tools. CLRN was responsible for reviewing free digital textbooks for the Governor's initiative. Brian is also president of the Computer Using Educator's board of directors.



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