

Making the Move to Digital Content



Digital learning environments are the key to addressing what one might call the “three C’s” of learning today. 21st century students are required to be sophisticated consumers, interpreters and users of content. Our schools need to teach them to:

- **Consume** (read and interpret text and imagery)
- **Collaborate** (share what they’ve learned and work with others to extend their knowledge)
- **Create** (demonstrate understanding by synthesizing and using higher-order thinking and creativity skills to build *new* content)

Electronic versions of textbooks (or e-texts) address some of the problems of print in that they are lightweight and easily updated. But merely consuming content – from printed or digital texts – is an internal and passive way of learning and neglects the other two C’s: collaboration and creation. This is particularly true of e-texts designed to be used with special-purpose readers. As an article in the winter 2008 issue of the *Educause Review* puts it, “Whereas textbook publishers have spent the past decade creating rich multimedia material to accompany their texts, ... these e-text readers are designed for displaying black-and-white text and images one page at a time. ... On the most basic level, faculty and students are likely to find these devices’ physical and software controls difficult to use for common classroom tasks. ... E-text readers occupy a niche new to computers but old in the classroom: that of the ordinary textbook.”



The invention of the printing press in the 15th century revolutionized communication and education, providing the world at large – not just a privileged elite – with widespread access to books and the knowledge contained within them. Today’s digital technologies are, once again, revolutionizing the way people communicate and learn, causing many education experts to re-examine the role of print content in the classroom.

The Promises of Rich Digital Content

The textbook – the staple of the 20th century classroom – is beloved by many, but it has its limitations. (See “Will Print Textbooks Disappear?”) A move away from a reliance on print textbooks to the use of multimedia or online content offers many advantages, including cost savings, increased efficiency, timeliness, improved accessibility, and enhanced learning opportunities in a format that engages today’s tech-savvy students.

Finding the Right Solution

In order to transform today’s classrooms into appropriate 21st century learning environments, we need to provide students with *rich digital content* that goes far beyond digitized print textbooks delivered over scaled-down devices. In making the move to digital content, it is important for schools to consider two factors: the ideal platform and the form in which the content is delivered.

Budget-conscious schools might be tempted to purchase “inexpensive” eBook readers or netbooks with fewer features than full-fledged computers, but such a move can actually cost a district more if the new devices do not meet all the needs of the students or teachers who will be using them. In selecting a mobile device for classroom use, it is important to view it as a total learning platform and look for a device that supports all three C’s, and a variety of curriculum uses, not just one of them. It is possible that child-friendly netbooks such as Intel-powered Classmate PCs are the ideal solution for primary grade users but likely that secondary grade students will need full-fledged notebooks or tablets that offer the flexibility to do everything from cut, paste and annotate text-based content to create multimedia projects and participate in global simulations.

Rich digital content can take many forms. It can be provided in standards-based packages that build upon textbooks, with teacher’s guides, assessments and multimedia content all included and aligned to standards. It can be created collaboratively, in open source format, by a variety of experts. Or it can be drawn from multiple sources – subscriptions, free online resources and other digitized material – customized locally to meet the needs of a particular classroom, grade or district.

Rich digital content, delivered on flexible mobile computers, can revolutionize the ways in which elementary, secondary and post-secondary age students learn and grow. The most effective digital learning environments bring together the three C’s of consumption, collaboration and creation by:

- Engaging students through a rich and varied array of innovative media and learning experiences;



- Being flexible and adaptable, allowing students to learn at their own pace, and in their own style;
- Offering teachers and administrators the power to select and modify content as desired;
- Connecting students with outside resources as well as experts and mentors to support their learning;
- Providing a seamless continuum of instruction and assessment, thus providing data to inform teacher practice and improve student performance;
- Offering opportunities for students to share ideas and collaborate with one another through such tools as wikis or social/academic networks;
- Challenging and motivating students to create their own meaning in the form of blogs, multimedia presentations or other original content that builds on what they have learned and is delivered to an authentic audience.

Getting the Best for Less

Rich digital content is a powerful way of providing today's students with high quality, relevant and up-to-date instructional materials. Through multimedia elements and interactivity, it engages students and addresses multiple intelligences and learning styles. Through embedded and seamless assessments — both formative and summative — it enables data-driven instruction and, with the support of appropriate professional development, informs teacher practices. And through the use of a new generation of creative and collaborative tools, it encourages students to be active learners who refine, demonstrate and share their understanding with others.

At the same time, digital content offers states and districts the potential for genuine savings by eliminating an expensive line item and replacing it with a better and less costly alternative, running on computer technology that can serve a variety of different purposes. No longer will schools need to rely on an "all or nothing" adoption approach that forces them to select — and stay wedded for years to — a single text from a single provider. Instead, they will have the opportunity to pick and choose "best of breed" solutions from a variety of sources and pay incrementally for updates as they are needed.

Never has the need been greater to conserve precious dollars while delivering high-quality learning experiences to students in our nation's schools. Rich digital content gives us the opportunity to both.

Will Print Textbooks Disappear?


With a number of states now offering schools the option of purchasing digital content and equipment with funds previously earmarked for textbooks, some are predicting the demise of the print textbook as we know it today. How likely is this? And how desirable? Critics of textbooks point to the following drawbacks:

- **COST:** K-12 textbooks cost the state of California over \$400 million/year according to the California Open Source Textbook Project, while the Texas Education Agency (TEA) reports that Texas schools spent



Common features of digital content include:

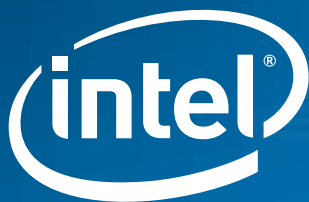
- Multimedia elements such as still images and graphics, video, virtual reality, animations, simulations, audio, music, interactive, and gaming elements;
- Embedded tools (survey, calculator, spreadsheet, etc.) to facilitate student highlighting, annotating, calculations and more;
- Additional tools (wikis, video/graphics editors, academic networking tools) to support collaboration and creation;
- A variety of languages;
- Adaptive and assistive technology designed to meet special needs;
- Embedded links to external sources and access to remote experts and mentors;
- Technologies that evaluate student responses, provide customized content and redirect students to data-indicated areas of need;
- A seamless continuum of instruction and assessment;
- The ability to be updated and enriched continuously and seamlessly;
- Site licenses or subscriptions that ensure a dependable supply of "perfect" copies;
- The ability for teachers to search, sort and select by standards-based needs and queries;
- Options for exporting, reformatting and combining text and other content so it can be used beyond the original package for presentation and dissemination in various ways.



\$621 million in 2006-7 and, on average, about \$500 million/year on textbooks. And costs are rising. Between 1986 and 2004 college textbook prices nearly tripled. While less precise numbers are available for K-12, the trend is alarmingly similar.

- **SIZE AND WEIGHT:** According to a 2001 study by the Simmons School of Health Sciences, "Many school children are carrying backpacks far too heavy for their developing bodies" – exceeding the 15 percent of body weight recommended by American Academy of Orthopedic Surgeons. Tremendous amounts of time and energy are consumed loading and unloading pallets of new textbooks as they are delivered to districts and schools, distributing books to individual classrooms, and having students sign books in and out in order to track their location. Valuable warehouse space – complete with energy-consuming climate control equipment – is typically required to store thousands of textbooks during summer months and serve as an ongoing repository for unused and unwanted books.
- **LACK OF FLEXIBILITY:** As new students enroll or textbooks are lost, it is difficult to respond quickly. For example, according to the California Performance Review, in 2005 more than half a million students did not have textbooks to use in class and approximately 2 million could not take textbooks home to do homework. With California, Texas and Florida representing close to 30% of the textbook adoption market, it is hard for districts in other states to find texts customized to their standards and needs. And the fact that the typical adoption cycle is at least six years means that students are perpetually learning with textbooks that are out-of-date – and in some cases, entirely obsolete.

Even those who are convinced that textbooks will continue to play a role in education for many years to come expect that digital content – from digitized versions of the textbooks themselves to multimedia content that used to be viewed as merely "supplementary" – will become increasingly prevalent and important. Whether such content replaces the print textbook or simply lives side by side with it remains to be seen.



www.K12Blueprint.com
www.Intel.com/intel/education
Follow us on Twitter at: IntelK12edu