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# INFORMATION TECHNOLOGY

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## Are We Headed Toward the Bookless Campus?

**I**T'S HARD TO IMAGINE campuses without printed books. But the era of the e-book in higher education is clearly dawning. Companies are largely driving the agenda: Digital-library enterprises and companies pitching a new breed of electronic textbooks are already making their presence felt on campuses. Software developers and device manufacturers are beginning to target e-book products to college users. Even traditional publishers are treading warily into the field—although, as one says, “There is much less student demand than we might have imagined.”

Meanwhile, critics of the technology and the people who are talking it up offer differing understandings of the e-book itself: Is it something that must be read from a reading device with built-in software? Is it something that can be read from a laptop computer or a personal digital assistant?

In the three articles that follow, *The Chronicle* examines the possibilities of e-textbooks, the impact that e-books are having on academic libraries, and an experiment in teaching with e-texts using specialized reading devices.

## Publishers Promote E-Textbooks, but Many Students and Professors Are Skeptical

BY GOLDIE BLUMENSTYK

**M**OVING TENTATIVELY—but definitely on the move—textbook publishers are experimenting with e-books, making students and professors their sometimes reluctant guinea pigs.

By fall, traditional publishers will be offering hundreds of their textbooks in digital formats, up from a few dozen this past year. The big-five publishers—Harcourt, Houghton Mifflin, McGraw-Hill, Pearson, and Thomson—together plan to sell more than 850 titles. And some institutions—notably the University of Phoenix, which hopes to become “bookless”—see e-books as a way to customize and improve instruction.

The publishers are eager to see e-textbooks catch on, but

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at the same time worry that students and professors won't buy the new offerings.

As a result, few publishers have put much money into jazzing up the material. Few of the e-textbooks now on the market have the kinds of snazzy, built-in multimedia elements—like animated maps in history books that show how national boundaries have changed over time—that would make e-textbooks a more compelling teaching tool.

Even for computer-savvy students, the inconvenience of using e-textbooks—almost all of which are designed to be used on a personal computer—is a bigger issue than some professors expected.



Donna McCarty of Clayton College and State University: “There is something kind of sensual about a book.”

Clayton College and State University, a “laptop campus” outside of Atlanta that is proud of its students’ facility with technology, presents one example. Donna McCarty, an associate professor of psychology, offered an e-textbook option in her classes in the hope that students would find the digital text interesting to manipulate, highlight, and annotate—and that they would approach the material less passively than they do with print textbooks. A business professor offered the same option, hoping to save his students some money, because the e-textbook cost less than a printed book.

Both professors were surprised, to say the least, at the reaction. Students complained about having to scroll to find sections, about how long it took to scroll, and about the problems of reading from a laptop.

“I bought the book,” not the e-text, says Debbie White-man, a student in psychology. The mother of two children, ages 9 and 11, “I study at ball fields, I study at the skating rink,” she says. “When my kids are whirling around, I study psychology.”

Several students said that although they found the e-textbook’s search function easier to use than the index of a printed volume, they were using the e-textbook much less than their traditional textbooks.

Kasha L. Sumpter, a student in Ms. McCarty’s class, was one of the new format’s few fans. Like many students at Clayton, she rolls a small carry-on behind her to transport her laptop, five textbooks, and class notebooks. She’d love it, she says, if all her other books were e-texts.

But even some of the students who relish the notion of using a new medium—like Aneal Khimani, a self-described “big-time computer nerd” taking psychology—were disappointed that the e-texts’ features, including one to annotate electronically, weren’t as intuitive as they could be. Both the psychology and the business books were converted by a company called WizeUp, which says

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## A University That Reveres Tradition Experiments With E-Books

BY JEFFREY R. YOUNG

CHARLOTTESVILLE, VA.

**T**EXTBOOK PAGES never rustle during a University of Virginia seminar about the Salem witch trials, because printed books have been replaced by electronic ones. Students in the experimental course were lent hand-held computers loaded with several assigned textbooks, as well as electronic versions of every warrant, indictment, and deposition from the trials.

The course was designed to take advantage of two of the most celebrated features of digital textbooks—their capacity to hold reams of data and their ability to let readers easily search for any word or phrase. In the classroom, students became on-the-spot historians, using the gadgets to home in on court documents so they could argue for and against various interpretations of what happened in Salem, Mass., more than 300 years ago.

Many futurists have predicted the death of the book, but the printed word has proven extremely difficult to replicate electronically in a form that is as elegant and easy to read as text on paper. A pilot project here this spring, comprising two courses, attempted to see whether the latest e-book technologies could allow entire courses to go bookless.

During class sessions, students tapping on tiny screens with plastic styluses looked more as if they were taking scientific readings than discussing history and religion. The setting was decidedly old-fashioned, though; the class met in one of the few classrooms remaining from Jefferson's "academical village."

"Whenever we got to talking about something in a document, we would just go to the document," says Amy Nichols, a senior who took the course. The students say they used court records and other texts more than they would have with bulky printed versions of the same documents.

What's more, the students were bolder than usual in criticizing scholarly summaries of events presented in their textbooks, says Benjamin C. Ray, the religious-studies professor teaching the course. In fact, they were often too quick to dispute scholarly accounts once they came upon source material that seemed to contradict the textbook, he says. "I think they're going overboard. They're trashing too much . . . without knowing the historical methods."

### LOSING DATA

For their part, the students quickly discovered disadvantages of the high-tech texts. Unlike paper books, e-books sometimes crash. Several students lost marginal notes and bookmarks when their hand-held computers suddenly erased their data.

Some students said reading from the tiny screens made the texts seem more fragmented. "When I'm at home sitting on my chair curled up with the afghan on my lap, I don't want to be flipping through this," says Kristen Buckstad, a student in the course, holding up her Hewlett-Packard Jornada, which sells for about \$450. The hand-held device is roughly the size of a Palm Pilot, with a 2½-by-3¼-inch color screen and enough memory to store about 90 books. "The screen is too small," she says. "It's hard to get the overall feeling of the flow of the narrative."

Students can also read their assignments on laptops or desktop computers. The electronic texts are available on the World Wide Web through Virginia's Electronic Text Center, which since 1992 has worked with the university's libraries to create digital copies of scholarly and literary books.

Titles in that archive include classic texts that are no longer covered by copyright, as well as texts for which the university has bought the distribution rights. Its virtual shelves feature a mix of the often-studied and the obscure, in languages that include Chinese, English, French, German, Japanese, Latin, and Apache (<http://etext.lib.virginia.edu>).

The e-text center selected two courses for its pilot project: the one on the Salem witch trials, which is a senior-level undergraduate course, and a graduate-level English course about depictions of space in 18th- and 19th-century literature.

The e-books for both courses were formatted with new



Students in a seminar at Virginia on history and religion turn to tiny screens to find relevant texts.

Microsoft text-display software called Reader. Microsoft provided most of the loaner hand-held computers—and did its best to turn the two courses into product focus groups. A representative from Microsoft sat in on one session of each course and later interviewed many of the students. Those who agreed to be interviewed got copies of Microsoft Office 2000 for their trouble, though many felt that the company was being stingy in not letting them keep the Jornadas as well.

The promise of the Reader software is to provide an interface that faithfully simulates the pages of a book, in typefaces that are clearer and easier to read than typical

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computer fonts. The e-text center has converted 1,600 e-books in its online library to the Microsoft format since last summer. It also has created versions of the same books using text-display software developed by Palm for use on its hand-held computers. Standard hypertext versions of the texts remain available as well.

David Seaman, director of the center, says the new formats are far better to curl up with for extended reading than traditional Web formats. "Nobody reads books on the Web. You think of the Web as a searching-and-browsing technology. It's not a reading technology."

People all over the world have downloaded more than two and a half million copies of e-books in the new formats from the Virginia center's Web site since the texts were

made available in August, says Mr. Seaman. One reason for the popularity of the new formats, he suggests, is that users can quickly download an entire book and then read it later, offline, which is not easy with standard hypertext versions.

"We were surprised at how quickly second- and third-world users were hitting on our e-books," he says, noting that some foreign libraries might be supplementing their collections. "They have no book budget, but they have a modem."

### RELYING ON BOOKS

The less successful of Virginia's two classroom tests of the e-book format was the graduate English course. The 18 students were lent hand-held computers with electronic copies of all of the assigned books, but unlike the Salem class, they rarely used the devices in the classroom, says Cynthia Wall, the course instructor. Most of the students bought printed versions of the books on the course reading list, even though their electronic copies were free.

During a recent class session, the hand-held devices in use by most of the students were books themselves, dog-eared and annotated. When Ms. Wall, a professor of English, referred to a given passage, the sound of rustling pages filled the room.

"I love the physicality of books," says Kristen Jensen, a doctoral student who is specializing in 18th-century literature—and who bought printed books for the course. Like many of her colleagues, she wants to keep the books, along with her notes, after the course, and she knew she would not be allowed to keep the hand-held computer.

She found it disconcerting to see other students playing with their hand-held computers during class. "It feels rude," she says. "You notice when someone is poking around in their e-books." She couldn't help asking herself, "Are they playing solitaire?"

Ms. Jensen did find the e-books useful outside of class, however. She used her Jornada mainly for research, calling up electronic versions of rare documents that she otherwise would have to read on microfilm or in the library's rare-book room. "Microfilm is wretched," she says, explaining that she has spent plenty of time during her academic career fumbling with plastic spools and microfilm readers. "And it is not very portable."

Students in both courses engage in many types of reading during a typical week on the campus. Sometimes they are just looking through an assigned book for a good quote to support an argument. In that case, e-books do the job nicely, many say.

But at other times, students want to immerse themselves in a text—and for that, they say, paper is superior.

One of the graduate students, Alex Gil, says it is only a matter of time before e-books become a standard feature of any course. He was the most enthusiastic e-book user in the class, often reading from it during sessions.

### "THEY CAN COEXIST"

To Ms. Wall, however, the experiment proved to her that a bookless campus will never be. "This cannot take the place of books," she says, pointing at her hand-held computer. "I think they can coexist."

Her biggest complaint is that lines of poetry in the electronic versions are often broken because the screen is not wide enough. "Poetry uses space, and to see what a poem means you have to see how it looks," she says. "If you have heroic couplets where one line is broken in half consistently, then you don't have the structure that [the poet] so carefully designed."

When students in the witch-trials course were asked whether they believed that all of their books might one day be replaced with e-books, several quickly protested. "That's awful," said one.

Even Mr. Ray, the course's professor and a proponent of the technology, says it will most likely supplement, rather than replace, printed books at the university. "We're high on technology, but there's this cherishing of the book," he says, as he sits at the head of the seminar table. "Look where we are. This is old stuff that works." ■

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it has plans to improve the annotation capacity, as well as other features, by next semester.

Some of the inconveniences could be alleviated if the textbooks could be read on special e-book reading tablets or personal digital assistants. But the small devices aren't yet capable of handling textbooks' emphasis on graphics and color.

Susan Driscoll, chief operating officer at Bedford, Freeman & Worth, publisher of the psychology book used in Ms. McCarty's classes, says the hardware that would make e-textbooks more desirable is probably about five years away. When students can find durable, portable, affordable devices, she says, "then it will take off in the college market in a big way."

A December 2000 report on e-books by Forrester Research predicts that by 2003, digital-textbook sales will grow to \$1.3-billion and will account for about 14 percent of all textbook sales (including non-college texts).

**KEEPING AN EYE ON PHOENIX**

One institution embracing the e-book idea is the University of Phoenix. Its "bookless college" experiment is being closely watched by the publishing industry. The for-profit Phoenix is the largest private university in the country, with 89,000 students, who buy as many as a half-million textbooks each year. But now Phoenix is in the process of phasing out traditional textbooks altogether.

In partnership with McGraw-Hill, John Wiley & Sons, and Thomson, the university will provide its students with course content in several electronic formats. Substantial readings, best suited to traditional formats, will be provided using Microsoft Reader, new reading-friendly software that can be used on PC's and in some portable devices. Material that lends itself to interactivity, like multimedia presentations, will be deployed on the Web.

Adam Honea, who oversees the transition for Phoenix, says officials chose Reader over other options because they like its readability features; they also think that Reader will work best with the laptop-like PC Notebook that Microsoft and Toshiba are developing.

Publishers are willing to repackage their content because Phoenix is a big customer, with a common book list for similar courses in its large system. The arrangement will let the publishers continue to make a profit on sales to Phoenix students, while seeing how e-textbooks might fit into the changing educational landscape.

The first test of the e-textbook system begins this month. By next spring, Mr. Honea says, Phoenix expects 60 to 80 percent of its classes to be bookless.

Another experiment likely to attract attention comes from a company called GoReader, which has built a tablet-like computer designed to be used for e-textbooks. The device is not yet available for sale, but the company has run pilot projects with prototypes at the University of Chicago and Wake Forest University.

The GoReader tablet will come with a hefty price tag—\$400 to \$600. But the company is hoping that e-textbooks for the device will be 20 to 30 percent cheaper than printed

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editions, says Andrew Watts, a marketing analyst for GoReader.

The company also hopes to sign bulk deals with graduate schools—especially law and business schools—under which the schools would buy every student in an incoming class a device and would make e-books the standard text.

In yet another pilot project, Adobe Systems plans to offer its eBook Reader software—along with Web servers to distribute content—to at least six institutions this fall. The company wants to observe how professors and students use textbook material in Adobe format as well as any electronic material that they publish themselves. The participants are Miami-Dade Community College, Scottsdale Community College, the Sloan School of Management at the Massachusetts Institute of Technology, the University of Utah Health Sciences, a number of distance-education classes at the University of Maryland and various departments on campuses in the University of Wisconsin System.

**A NEW TEACHING TOOL**

The ubiquity of computers and the talk of electronic formats are also reviving interest in products that are less like digitized books and more akin to interactive CD-ROM's or Web sites, using multimedia tools to present the content developed by academic authors.

Some, like the products now being sold by a company called Thinkwell, incorporate video clips of the author

presenting the material, while elements of each chapter unfold on the screen.

Professors who teach with these e-texts—and help to create them—say they offer a welcome alternative, both as teaching tools and as publishing outlets.

Joe Walwik, an instructor at Blue River Community College, in Missouri, says he's thrilled with the *Western Civilization II* "text" he's using from a company called Digital Learning Interactive. Available in CD-ROM and on the Web, it includes overviews, primary readings and documents, and interactive maps that allow students to see, for example, the path of Napoleon's Russian campaign.

Having the primary materials, Mr. Walwik says, frees him up to spend time in class leading debates on the ideas of Locke and Rousseau rather than explaining to his students who they were and what they said. "This allows me to raise my expectations of my students," he says.

The product, which costs students about \$50 a semester—a fraction of what they would otherwise pay for a textbook and a pile of additional books—helps students on limited budgets, particularly those at community colleges, he says. "They're paying \$159 a course. They don't want to pay \$200 for books."

For Martin Starr, a professor of business at Rollins College, the coming of these new-style textbooks also means a new, more supportive business model for authors, like him, whose books don't sell in huge numbers. The e-text format gives authors greater ability to revise their books more frequently.

Working with a company called OpenMind Publishing Group, Mr. Starr has developed a textbook on operations management that sells for \$29 in CD-ROM format. The company also encourages other professors to develop content in particular areas, which it then offers either as a complete text or in modules that they can use to create customized e-textbooks for their courses. OpenMind says its products will cost 70 percent less than traditional textbooks.

Right now, some e-textbooks are being sold at artificially low prices to help generate sales, a variation of the kind of pricing incentives sometimes used by traditional publishers when they agree, for example, to package a study guide with a textbook at no additional cost. For example, WizeUp, the company that sold digitally converted textbooks to Clayton, in Georgia, offered extra discounts if professors required their entire class to use the electronic version of the textbook.

**QUESTIONS ABOUT TACTICS**

Ms. McCarty, the psychology professor, found such tactics unethical, and she urged the company to drop that model. After some of the students who had used the e-textbook last fall reported that it was still a bit buggy, she said she couldn't in good conscience make such a requirement. "I thought it was sleazy, and I told them so," she says. But the company, which says its e-textbooks are required in more than 60 college classes around the country, wouldn't relent on its pricing structure. So students paid \$59 for the e-textbook or \$75.65 for the printed book. Had she required it, the e-textbook would have cost \$29. Lou Rodriguez, vice president of marketing, says the pricing is designed to reward the students of professors who are helping the company in "taking the risk of innovation" by requiring the e-textbooks.

Eventually, e-textbooks will probably end up costing about the price of a used book, publishers say—one-half to three-quarters of a traditional textbook's cover price.

Pricing issues aside, Ms. McCarty says she sees a future for e-textbooks, especially as the technology for using them improves. But she has reservations. "There is something kind of sensual about a book," she says wistfully. She recalls her own college days, bringing home her books from the college bookstore. "You sort of have this sense of starting an adventure."

It's a sensation she still treasures. One night a few weeks ago, Ms. McCarty was preparing for the next day's psychology class. She had brought her laptop home with her, with the e-textbook all loaded up and ready for scrolling and electronic highlighting. When it came time to review the assigned chapter, though, she grabbed the 700-page hardcover instead.

"I didn't want to boot it up," she says of the e-textbook. "I wanted to sit in bed with it. I wanted a book in my hands."



Joe Walwik of Blue River Community College says electronic materials can help cost-conscious students: "They're paying \$159 a course. They don't want to pay \$200 for books."

ELI RICHMAN FOR THE CHRONICLE