

# The OpenCourseWare Story: New England Roots, Global Reach

STEPHEN CARSON

In April, representatives of more than 200 universities from around the world gathered in Dalian, China, to move forward their efforts to create a global body of freely accessible course materials spanning both cultures and disciplines. These institutions have committed to freely and openly sharing on the Web the core teaching materials — including syllabi, lecture notes, assignments and exams — from the courses they offer to their enrolled students. Through the OpenCourseWare

consortium, universities from Japan, Spain, Korea, France, Turkey, Vietnam, the Netherlands, the United Kingdom, the United States — plus dozens from China — have already published the materials from over 6,200 courses. In a world of increasingly restrictive intellectual property laws and intensifying competition to provide for-profit Web services, this movement stands in stark contrast to prevailing trends. The story of this OpenCourseWare movement illustrates how novel

thinking and a commitment to addressing global challenges can produce remarkable results.

## MIT OpenCourseWare

The OpenCourseWare movement has its roots in New England. The concept emerged in 2000 at Massachusetts Institute of Technology where then-President Charles Vest charged a faculty committee with answering two questions: “How is the Internet going to change education?” and “What should MIT do about it?”

## A Culture of Shared Knowledge

Developing a Strategy for Low-Cost Textbook Alternatives

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The open educational resources (OER) movement encourages the creation and sharing of free, open-licensed, high-quality learning content for community college courses to replace publishers’ costly copyrighted textbooks. Open textbooks are freely available, under an unrestricted license such as Creative Commons Attribution 3.0 to download from Website repositories to share, modify, redistribute, or print.

The Community College Consortium for Open Educational Resources (CCCOER) is a joint effort established in 2007 by the Foothill-De Anza Community College District, the League for Innovation in the Community College and dozens of other community colleges and university partners to develop and use OER in community college courses. In March 2008 the William and Flora Hewlett Foundation awarded \$530,000 to Foothill-De Anza Community College District in Los Altos Hills, California and the CCCOER to plan and pilot the Community College Open Textbook Project for one year. Partners involved with the project include: Connexions at Rice University, Monterey Institute for Technology and Education, Institute for the Study of Knowledge Management in Education, University of California Office of the President, Flat World Knowledge, and California State University’s Digital Marketplace.

The primary goal is to identify, create and/or repurpose existing OER as open textbooks and make

them available for use by community college students and faculty.

CCCOER conducted a survey of 1,203 faculty from 12 community college districts and 28 colleges across the country about their attitudes and practices with regard to open educational resources. The findings indicate a large gap between those interested in using and willing to use OER in their classes (91 percent) and those already using OER (34 percent). In order to address this gap, the CCCOER is offering training and support. For example, a self-paced introduction to open educational resources tutorial is available at the Connexions Website.

A wealth of unpublished learning materials languish in the relative obscurity of isolated college campuses and faculty offices. The CCCOER hopes to provide a means for faculty to share their knowledge via an open textbook portal Website to be launched in the fall. The CCCOER Website ([cccoer.wordpress.com](http://cccoer.wordpress.com)) provides resources about open textbooks, training, membership, and campus advocacy. Community colleges are invited to join the 60 plus colleges that are already CCCOER members in support of the use of open textbooks.

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These questions were put to the committee at the height of the dot-com bubble, when a number of MIT's peer institutions were already launching high-profile distance learning ventures. It was widely expected that the committee would recommend a similar approach for MIT.

The committee found they were unable to develop a business model that would allow MIT to compete successfully in the online environment, however. MIT is a relatively small school, with approximately ten thousand students and a thousand faculty. MIT is also very residentially focused, with a strong emphasis on interactive and hands-on learning across the institute. Because it would be very expensive, and probably detrimental to the curriculum, to convert these residential materials to online materials for wide distribution, the committee found itself without a clear answer to the questions posed by President Vest.

In addition, the faculty were seeking an approach that would address the growing pressures faced by educational systems around the world as more students competed for limited educational resources. At this point the committee decided that they might be able to take what MIT does best — residential education — and combine it with the Internet's strength — wide and low-cost distribution of content — to generate a significant global benefit. Rather than creating expensive new materials to support online learning, why not use the Internet to distribute the course materials that MIT was already creating for classroom use?

The faculty proposed the concept, which they dubbed OpenCourseWare (OCW), in the fall of 2000. President Vest recognized the power of the idea immediately. He began seeking funding and initiated a series of discussions within the MIT community about the concept. By April 2001, the Andrew W. Mellon Foundation and the William and Flora Hewlett Foundation had committed to funding the initial phases of the program, and consensus had emerged from the MIT community that the Institute should publish

materials from all courses offered. The project was announced on the front page of *The New York Times* on April 4, 2001.

MIT moved quickly to build a team to execute the project, and launched a proof-of-concept site with materials from 50 courses in September 2002, which generated an overwhelmingly positive response. Since then, MIT has published materials from approximately 400-500 courses annually. Today, the MIT OpenCourseWare site ([ocw.mit.edu](http://ocw.mit.edu)) contains virtually all of MIT's curriculum, including the syllabi and reading lists from 1,800 courses, notes from more than 15,000 lectures, 9,000 problem sets, and 900 exams. The site also contains 25 courses with complete video-recorded lectures, and numerous complete texts, simulations and animations, samples of code and other learning tools.

Response has far exceeded expectations. As of April 2008, more than 22 million individuals from around the world have come to the OCW site. Translations of OCW content by other organizations have been visited by an additional 18 million individuals. The site has proven to be a useful resource for educators at other institutions, who are about fifteen percent of the OCW audience, and to students at other schools, who comprise an additional thirty percent of OCW visitors. The big surprise to the MIT community was that fully half of the visitors to the site are not affiliated with a university at all, but are instead a mix of working professionals keeping their skills sharp, individuals enjoying the opportunity to broaden their horizons, adults transitioning back in to formal education, and other independent learners.

With the complete MIT curriculum on the site, the OCW team has turned its attention to updating course materials and developing new services on top of this unique resource. The first of such services was launched in November 2007. *Highlights for High School* ([ocw.mit.edu/highschool](http://ocw.mit.edu/highschool)) lists around seventy introductory courses with content an advanced high school student might find approachable; further, the portal

maps more than 2,600 individual video and print learning resources from the advanced placement curricula for physics, calculus and biology; and finally, the portal links to OCW materials selected to inspire the study of STEM (science, technology, engineering and mathematics) subjects, including engaging demonstrations and competitions.

### The OpenCourseWare Consortium

As remarkable as the MIT OpenCourseWare story is, it is fast becoming a small part of a much larger story. Shortly after the site was launched with 500 courses in September 2003, MIT was contacted by numerous institutions in the US and abroad who were inspired by the MIT example. The MIT faculty recognized that the OpenCourseWare concept would not truly change higher education unless it was a practice shared widely by institutions around the globe, and so the OCW team was charged with assisting other schools in launching OCW projects.

In the United States, schools with a strong sense of global mission — including Tufts University, John Hopkins University (Bloomberg School of Public Health), University of Notre Dame, and Utah State University — began work on their own OpenCourseWare sites. Internationally, strong interest emerged in Japan, China, Spain and France, with coalitions of schools coming together to share their own content or to translate the MIT content. By early 2005, the MIT OpenCourseWare team invited representatives of these schools to the MIT campus to discuss the formation of the OpenCourseWare Consortium.

The mission of the consortium was established as advancing education and empowering people through OpenCourseWare. Starting with an initial group of 17 members, the consortium has expanded rapidly in the past three years to include more than 200 universities worldwide. About half of those currently have course materials available on OpenCourseWare sites that the institutions host. In April 2006, the OpenCourseWare consortium

launched a portal ([ocwconsortium.org](http://ocwconsortium.org)) linking these sites together and providing users with a cross-site search. The body of materials available through the consortium now includes content from schools as diverse as the Open University UK, Keio University (Japan), University of Southern Queensland (Australia), University of California-Berkeley, Universidad de Monterrey (Mexico), Korea University, Delft University of Technology (Netherlands), and Beijing Jiaotong University (China).

Alongside the OpenCourseWare movement, a wider movement dedicated to sharing open educational resources (OER) has emerged, making available a range of educational resources and open source tools

such as the Sakai and Moodle learning management platforms, open access journals and textbooks, learning objects and more. The Hewlett Foundation has played a central role in fostering the wider OER movement, and more information about the OER movement is available on the Hewlett Web site ([www.hewlett.org/Programs/Education/OER/](http://www.hewlett.org/Programs/Education/OER/)).

### OpenCourseWare in New England

The global OpenCourseWare movement has its roots in New England, and the region promises to be a leader well into the future. New England not only boasts the flagship OCW project at MIT, but the Tufts OpenCourseWare site ([ocw.tufts.edu](http://ocw.tufts.edu)), a recently launched

OCW site at the University of Massachusetts-Boston ([ocw.umb.edu/](http://ocw.umb.edu/)), Yale University's Open Yale Courses ([open.yale.edu/courses/](http://open.yale.edu/courses/)), and a project underway at Wheelock College. Even with these significant contributions, the potential in New England is far from tapped. As global interest in OpenCourseWare continues to grow, New England promises to be a key source of open educational material for many years to come.

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## Digital Textbooks: A Student Perspective

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Textbook prices have steadily outpaced inflation for several decades, and are sure to increase faster with rising fuel and paper costs. Textbooks typically cost \$900 per year, about a quarter of tuition at public universities. Digital textbooks could give students much needed relief from this growing burden, but the current e-textbooks model is not the way to go.

If digital textbooks are going to solve the textbook affordability crisis, the transitioning market must be shaped by student expectations. Currently, we think of digital textbooks as e-textbooks, or digitized versions of paper copies. Every major publisher offers hundreds of e-textbooks, yet sales are a negligible part of the \$7 billion industry. Publishers mistake this for disinterest in digital textbooks, when the real problem is that their e-textbooks simply do not meet student expectations.

### Books must be affordable

Students expect digital textbooks to be much less expensive, since publishers don't incur the costs of shipping and printing. However, the typical e-textbook sells for 50-70 percent of the printed copy price and expires at the end of the term. And, unlike textbooks, e-textbooks cannot be sold used to re-coup costs.

### Books must be accessible

Not every student feels comfortable reading from a computer display and some do not have a computer or

high-speed Internet access. Students expect to access digital texts in a way that fits their technology and learning preferences — online, downloaded, locally printed, or a combination of all three. Some digital textbook models hold the potential to expand access to learning materials. E-textbooks, on the other hand, can only be accessed online with a password and downloading is heavily restricted. Students who prefer to read from paper find that printing is either disabled or strictly regulated, and that a hard copy still costs full price.

### Students want respect as consumers

Students have no say in the textbook market. Unlike normal consumer markets, students must purchase textbooks selected by instructors, regardless of price. However, new models are emerging that give students more power as consumers. For example, Flat World Knowledge offers high-quality open textbooks online for free. Students can also purchase reasonably-priced print copies, enhanced downloads and study aids. Students expect to be treated as consumers, not as a captive market.

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