The Move Toward Open Educational Resources

One of the biggest problems of the e-learning industry is that it lacks an efficient mechanism for the exchange of educational resources. Expensive, high-quality educational resources often are underused because few people know they exist, and rather than searching in the hopes of stumbling across useful resources, many educators choose to create their own, and these, in turn, often are underused as well. This practice can be costly, but a growing movement calling for open educational resources (OER) might alleviate this problem.

The goal of proponents of OER is to make the entire sum of human knowledge available for free to anybody, any place, any time, says Gary Matkin, dean of continuing education at the University of California-Irvine and the principle investigator for the William and Flora Hewlett Foundations open content initiative. This may sound like an unrealistic goal, but, Matkin says, recent developments such as Google’s announcement that it would spend $150 million to digitize Harvard University’s library, though far from all-inclusive, make this lofty goal seem possible.

Matkin distinguishes OER from open content in that the main purpose of OER is that learning is associated with them. “When we talk about open educational resources, we talk about a resource in which the main purpose of this content is that people learn from it, that it has a learning process associated with it,” Matkin says.

One of the early experiments in OER is MIT OpenCourseWare (www.ocw.mit.edu), an initiative that has made content from approximately 1,000 MIT courses available on the Internet at no cost for non-commercial purposes. “This initiative got MIT from nowhere to head of the pack in about three weeks. It was smart in terms of public relations, but I believe there was a significant role of straight-forward good will and good thinking in this initiative,” Matkin says.

The idea came from a faculty committee that concluded that there were companies trying profit from the faculty’s intellectual property, which, according to Matkin, was at odds with MIT’s tradition of sharing. This initiative had several intended and unintended consequences. First, it made it clear (if it wasn’t already) that there is not a huge market for educational content. In the early days of online learning, content was thought of as the key to gaining competitive advantage in the marketplace by offering of such high quality that it would dominate the market or by generating revenue by selling those courses to other institutions. “You began seeing outfits spending millions of dollars on a single course,” Matkin says. Then companies like RealEducation (which became eCollege) began to provide institutions with the technology and wherewithal to develop online courses with very little up-front costs.

Putting one’s course materials on the Web is optional for MIT faculty members. Those who have done it report that they are actually doing a better job of designing their courses because, as Matkin notes, “if you’re putting something out there for the whole world to see, you’re going to be careful about what you’re doing.”

MIT OpenCourseWare also enables faculty members to review each others’ courses and find overlaps in the curricula, which has resulted in several cases of common research interests.
The Move Toward...from page 1

MIT OpenCourseWare is truly a worldwide resource. Between October 2003 and February 2005 monthly traffic has ranged from 220,000 hits per month to 510,000 hits per month. Of those 15.3 percent were teachers, 31.4 percent were students, and 48.2 percent were self-learners.

MIT students use the site as well, for several purposes. One use is to preview courses, which has reduced students’ shopping around -- enrolling in more courses than they intend on taking at the beginning of the semester, dropping those they are less interested in. Students also use the materials to supplement their on-campus courses. (MIT does not offer online courses.) And students use the Web-based materials to review courses they have already taken to help them in their current courses.

MIT has been working with several other institutions to expand its OpenCourseWare initiative, and other consortia are working on OER as well. As the concept expands, one of the obstacles will be intellectual property issues, but Matkin says it need not be. “I feel that this whole notion of intellectual property rights of faculty members has been overblown as a problem. I have been in this business since 1994 creating online courses, and I’ve never had a real issue regarding intellectual property because I started every project with a clear understanding of what the intellectual property rights are going to be: The university is going to own it, and the content expert is going to sign a work-for-hire agreement,” Matkin says.

To expand OER, there needs to be a repository or set of linked repositories so the materials are widely available at low or no cost. There are learning object repositories like MERLOT (Multimedia Educational Resource for Learning and Online Teaching, www.merlot.org), but, Matkin says, these repositories decontextualize learning objects, making them difficult to adapt to other learning situations.

Matkin advocates creating repositories that hold entire courses rather than individual learning objects. This would help users understand how the learning objects were used in their original context, which might make it easier for them to adapt the learning objects to other contexts.

The problem with repositories is ensuring that they don’t get filled with junk. Peer review costs time and money, and asking users to comment on any content they view doesn’t work too well, Matkin says. As part of his work, Matkin is looking for a major supporter to help develop a repository or set of repositories.

In the meantime, Matkin recommends that higher education institutions decide what they are going to do with the content they create. One step would be to put courses into a central database so they can be shared across campus, and if the institution ever decides to make this material available to a broader audience, the database would make it easier to link to other institutions or repositories.

Contact Gary Matkin at gmatkin@uci.edu.
Percentage distribution of 2-year and 4-year Title IV degree-granting institutions, by the extent to which various factors are preventing the institution from starting or expanding distance education course offerings, and by distance education program status in 2000–2001: 2002

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<th>Factor and distance education program status</th>
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<th>Moderate Extent</th>
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<td>7</td>
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<tr>
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# Rounds to zero.


Accessibility and Universal Design

By Mary Lou Santovec

Automaker Henry Ford was once reported to have said, “You can have any color you want as long as it’s black.” Ford understood how having only one color choice would make things more efficient for his company and ultimately give the customer a better product.

So it is with distance learning. Creating and utilizing universally designed Web resources makes them more accessible to people with disabilities and more functional to all users. Incorporating both Section 508 (amendment of the Rehabilitation Act to require Federal agencies to make information technology accessible to people with disabilities) and the World Wide Web Consortium (W3C) standards into universal design allows people to use a wider range of technologies to access material.

Jon Gunderson of the University of Illinois is a proponent of universal design. His interests cause him to wear several hats. He’s the director of IT accessibility services in the campus information technologies and educational services department. He is also the coordinator of assistive communication and information technology in the disability resources and education services department.

Gunderson is concerned with making online learning truly accessible to all learners, able and disabled, PC and Mac, asynchronous and synchronous. “Part of the problem we have with accessibility is that people look at it in isolation,” he said. “We want better

continued on page 4
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accessibility for everyone, not just those with disabilities.”

The Web’s original premise was to allow people to share information over a variety of software and hardware platforms. The development of the Mosaic browser led to the integration of both text and graphics.

The premise of authoring tools and browsers these days is that they work in a graphically based medium. A lot of users know the Web only through the browser they are using. So problems occur when that browser won’t support certain technologies. Documents created in those technologies are unreadable with certain browsers.

The emphasis on graphic design techniques will fail in situations for:

• users in Third World countries who utilize the Lynx text browser to access Web content
• visually impaired individuals who want to change fonts and colors for easier viewing of text
• cell phone users who have voice output and voice recognition software
• blind individuals who utilize speech output to navigate a document’s structure
• users with the next generation graphic monitors with higher density pixels. These monitors make bitmaps smaller and the text encoded into the bitmaps becomes illegible.

Others who are hurt by this accent on graphical design are those with personal digital assistants.

The solution? Separate structure from styling through the use of universal design.

Much of what’s on the Web comes through “publish to Web” features found on Microsoft and similar products. “People will put some stuff up on the Web and hope it works,” said Gunderson. “The native file format is convenient for some, but not for others.”

Hidden codes in the “publish to Web” features can cause documents to work well with some browsers and not at all with others. Adhering to Web standards (either Section 508 or W3C) allows everybody more choices.

“If you’re only using proprietary standards, you’re locking yourself into certain vendors,” said Gunderson. Even though Microsoft claims that the standards are flawed and plans on coming out with their own, new browsers such as Firefly, Opera and Mozilla are committed to supporting Web standards.

One of the misconceptions about universal design is that Web sites would have to be “dumbed down” to simple text and be visually uninteresting. Another concern is if accessibility is looked at in isolation — for example, only helping the disabled — there won’t be much progress made.

“It’s not a knowledge problem,” said Gunderson. “Part of the problem are the authoring tools. Most authoring tools are geared toward legacy technologies. And as Web developers use more automated tools for generating Web content, they lose more control over the resulting markup.”

The basic premise of universal design is the separation of content from styling and the use of structural markup. The structural markup in HTML includes:

• headers
• MAP (collection of links)
• List elements
• Form control labels
• tabular data headers
• abbreviations

Cascading style sheets are utilized for the graphical styling of content, said Gunderson. Using background images, text styling and pseudo elements can be applied to create sophisticated graphical designs that are highly accessible.

Gunderson believes that the pixel density of monitors will eventually improve to the quality of a laser printer. “They will display technically the same quality as paper,” he said. “That’s when I think we will see transformation to a paperless society.” But before that happens, Web documents must be as legible to all users as paper is today.

Check for Accessibility before Starting

Most Web developers are concerned with older technologies rather than new ones. They haven’t begun to focus on what’s going to work with the next generation of technologies and yet still work with the older ones. Yet, most Web developers don’t want to go back to the old Web pages to fix them so that they work with new technology.

Even following Section 508 guidelines is no guarantee that the finished product will be accessible.

Requirements for improving navigation and access to Web sites with multiple languages are not part of the 508 requirements.

Too many Web developers will check for accessibility at the end of the project only to discover they picked the wrong technology before even starting. Others will use automated testing that identifies problems and allows them to be “fixed.” Unfortunately, even fixing them might not make them accessible to the disabled. Checking for accessibility should occur even before the document is created.

Some examples of markup that will pass automated tests but are not functionally accessible are:

• Images used to style text – Low vision users cannot style the foreground and background colors or the font characteristics to meet their needs.
• Pull down menus – When users attempt to stylize text content, the pull
Sustainable funding model expands students’ opportunities

by Judy Dahl

At Kiel’s Integrated Electronic Learning Charter School, Kiel, Wis., student course-completion rate is a critical success measure, according to Sue Steiner, program director. “We focus on customer service and student success—not just on how many students sign up for courses, but how many complete them successfully,” she says. Last year Kiel achieved a 95 percent course-completion rate, the highest in the state.

This focus on quality requires a steady source of funding, and Kiel has developed what Steiner calls a sustainable funding model, based on grants, government support and partnerships. Steiner says grants enabled Kiel to launch its program, and are still an important funding source. The local school board’s budget now includes a line item to fund the program, and partnerships with other schools bring in economies of scale and additional revenue.

Kiel’s program is entirely online, targeting students in grades seven through 12 from its own and other school districts. The program launched in 2002, in partnership with Appleton eSchool, another Wisconsin program.

Kiel and Appleton license online courses from Florida Virtual School (FLVS). “We initially reviewed proposals from about 75 content vendors and interviewed about six,” says Steiner. “We piloted courses from three or four the first year, and found FLVS’ course content to be of the highest quality. The courses are aligned to standards, are very rigorous, and are updated regularly.”

A focus on quality

It’s possible to partner with online-course vendors. However, says Steiner, vendor selection is extremely important. “With certain vendors it’s more of a for-profit venture. The company will have money to give the district; they might even furnish students with laptops and printers, and they’ll do a huge marketing blitz. We chose not to do that because they’re more concerned about making money than about students being successful.”

Kiel’s funding model is designed to take the focus off enrollment numbers.

Grants

“Charter school planning and implementation grants covered our start-up costs,” says Steiner. “We initially received $50,000 in planning grants, then $150,000 per year for the next two years in implementation grants and an additional $50,000 the following summer.”

Over the next two years, Steiner says Kiel hopes to earn $150,000 annually in dissemination grants. Kiel will use the funds to present at conferences statewide, educating other schools about its program and hopefully attracting new partnerships. “Our vision is to have a statewide e-learning network,” she says.

“Grants are the biggest source right now for starting a program,” says Steiner. “I don’t see money coming from anyplace else with local budgets being cut by hundreds of thousands of dollars.”

She notes that the federal government makes charter school and educational technology funds available to the states for distribution via grants, but that the grant award process is very competitive. “We hired a grant writer that helped us get several,” Steiner says. “It’s worth the investment to pay someone with that expertise to increase your chances of getting funding.”

Steiner offers other tips for earning grant funds:

• Follow the grant application to the letter, including length requirements, font, and margins as well as content.

• Know the jargon grant readers are looking for.

• Look at the scoring sheet to see what’s being evaluated. Be sure to address higher-weighted elements in your application.

• Have others review your completed application, such as an English teacher for grammar and style. Have someone who knows nothing about your project read it, to see if they understand it.

• If your application gets evaluated and scored, look at readers’ comments and make sure you improve next time in the low-scoring areas.

• Offer to read grants to gain experience and learn what makes a successful application.

Government support

While grants funded Kiel’s start-up, the program needed additional ongoing funding. “Once our program was successful, I put together a budget and proposal asking the school board for support,” says Steiner. The board created a line item in its budget providing $137,000 toward operating costs.

Line-item funding—not tied to enrollment numbers—provides the stability for Kiel’s program to grow and develop. Kiel has been able to focus on expanding its course offerings, honing its instructional strategies, and training its instructors.

There are some potential downsides to line-item funding. For FLVS, while the flat dollar amount was a benefit in its early years, as the program grew it forced the school to limit enrollment severely. At this point it made sense for FLVS to shift to a per-pupil funding model that better accommodated rapid growth. For Kiel, line item funding still fosters program expansion.

Partnerships

Kiel and Appleton eSchool both continued on page 7
Benefits of Upgrading to an LMS

By Sandra C. Ceraulo, Ph.D.

A new generation of elearning software, called learning management systems (LMS), is quickly replacing the course management systems (CMS) of the 90's in colleges and universities around the globe. With its emphasis on learning management rather than course management, LMS software is able to store educational content so that it can be referenced by many courses. In addition, by incorporating wizards and easily interfacing with other common software, LMS systems can streamline an elearning instructor’s tasks. Finally, LMS software can be better suited to managing multiple sections of a large course than traditional CMS systems.

Christopher Clapp, President and CEO of ANGEL Learning, Inc., a major LMS provider, believes that CMS software is no longer practical. “Colleges and universities are simply running into the limits of their current system – feature limits, scale limits, and price/service limits,” he explains. ANGEL Learning, Inc. is the creator of ANGEL|LMS, an open, flexible LMS specifically designed for academia.

Using advanced web technologies, LMS software may better meet the needs of students who grew up with ecommerce. These students may expect course features such as intuitive web page design, and instant responses upon submission of assignments.

The LMS Trend

When asked how quickly most colleges and universities are switching to LMS software, Clapp cited the LMS industry growth statistics as the best evidence of the trend. “I haven’t seen any statistics on switching [to an LMS], but I know the [LMS] industry is growing as a whole at more than 100% per year. The company recently relocated its headquarters to a larger location within Indianapolis.

A Purdue industrial engineering alumnus, Clapp joined the ANGEL team in 2001 and has worked closely with customers such as Penn State, Michigan State, and colleges and schools across the country. While many LMS companies focus on corporate clients, ANGEL Learning, Inc., remains loyal to its academic roots. Formerly known as CyberLearning Labs, Inc., the company changed its name to ANGEL Learning on January 1, 2005, in an effort to better align itself with its flagship product, ANGEL|LMS.

Advantages of LMS Software

According to Clapp, LMS software such as ANGEL, provides two major benefits over older CMS software: the sharing of course content and more integrated workflow. First, LMS software allows instructional content to be shared among library-like systems and then referenced or used by multiple courses. “The 90’s concept of the ‘course as container’ is far too restrictive today,” Clapp explains. “We now expect separate repositories that can be referenced from one or more courses or course sections,” he continues. One example of this would be a lecture on cholesterol that is stored in an LMS and integrated into both a biochemistry course in an Arts and Sciences College, and into a nursing course in a Nursing College. Clapp notes that LMS systems often allow student work to be stored and referenced differently, too. “Also, the idea of a student owned ‘ePortfolio,’ a place where students can collect, store, and present archives of their learning experience, is gaining momentum, “he adds. For example, computer science majors could store all programs and projects created for their courses within their LMS account and retrieve them as necessary to create a portfolio for a job search.

Clapp believes the second major advantage of LMS software over older CMS software is more efficient workflow integration. “Users expect simpler, time saving experiences that cut across areas of the system (reporting, assessment, email),” he explains. And Clapp believes that users want the LMS to do the work for them. Clapp explains LMS software can do a user’s work because “intelligent agents and wizards in LMS are programmed to bring new material to the attention of the user and to automatically report exceptions.” In addition, new LMS software integrates effectively with other enterprise systems such as course registration software.

Switching Can Be Smooth

With time-starved faculty bodies and support staffs and online courses dependent on smoothly running technical systems, colleges are often reluctant to transition to new elearning management software. Clapp acknowledges that “The prospect of switching can be an intimidating one,” but he added that, “the fear of the process is far, far scarier than the reality.” When switching to an LMS from a CMS, both faculty and staff may fear a worst-case scenario of multiple technical difficulties and extended downtime. “While faculty often express concern
Accessibility...from page 4

down menu becomes unreadable. And when font sizes are changed, text overlaps other text. Pull down menus are difficult for all to use, not just the disabled user.

• # Use of headers - Headers are extremely important for certain disabled users. Most automated tools don’t care if the developer included headers in the document.

Some 70 percent of universal design elements will benefit people with disabilities. Some of the things needed for the disabled are invisible to people using Internet Explorer.

Browser limitations compound the problem. One of the required Section 508 standards states that users must be able to skip over navigation bars. “If Internet Explorer had one function built in that the Opera browser has, it would have been trivial for an author to put a header into a document,” said Gunderson.

Gunderson and his colleagues at the U. of Illinois have addressed the universal design issue by developing “Illinois Accessible Web Publishing for Microsoft Office.” The program publishes a document by default in a way accessible to all. It supports any browser so that even those with disabilities can use it.

It can be used on a Mac with a Linux operating system. “It provides features to structure information for people to create documents and publish them in an accessible format,” said Gunderson. The tool is available for $40 for an individual copy with discounts for multiple copies and site licenses.

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license FLVS courses. “We ‘seat swap’; we don’t purchase the same courses,” says Steiner. Kiel students can enroll in Appleton’s courses while remaining Kiel students and vice versa, providing both schools with economies of scale and increasing students’ opportunities. The schools share a single license with FLVS but are billed separately.

The two schools also partner with Lakeshore Technical College to offer the LAKelearning collaborative network, a course management system based on the UCompass Educator platform. Kiel, Appleton and Lakeshore share an unlimited license to the software, and the vendor administers the network. Other schools can join without cost for one year, then pay an annual fee that’s lower than they could negotiate individually.

Kiel is talking with schools outside its district about potential partnerships. “We’re talking about bringing them on as partners where they could buy some courses from FLVS and we could seat-swap,” says Steiner. Using its dissemination grants, Kiel plans to actively pursue these partnership opportunities.

Through open enrollment, students statewide can enroll in Kiel’s program. This concerns some schools, because their state funding is reduced as students leave to join online programs. “Some districts are losing 50 to 100 students a year,” says Steiner. However, when schools partner with Kiel, their students can take courses at Kiel while remaining enrolled in their home districts.

“That’s a win–win situation,” says Steiner. “The other districts continue to get state aid, we get a little revenue, and the students get courses their districts might not offer.”

Benifits of Upgrading...from page 6

prior to the project and the instructional technology people brace themselves for a backlash at cut-off, in our experience, the backlash simply doesn’t happen” Clapp has found that colleges are often glad they upgraded their elearning software.

Evidence of Success

In addition to hearing many positive comments, Clapp sees many signs that LMS software is being well received,

For example, Erie Community College based in Orchard Park, New York, initially adopted the ANGEL LMS for use in its online classes only, but the college is now expanding their original initiative to include web-based components for traditional courses, too. Some instructors report being thrilled with the ANGEL LMS’s ability to send personalized email messages to students when they submit electronic assignments, a level of personalization that hasn’t been practical in traditional CMS systems.

Trying an LMS

Users interested in sampling an LMS can request a demonstration account at www.angellearning.com by clicking on Request an Account. After filling out a brief questionnaire, users will immediately be emailed a user name and password they can use to access a sample course on integrating the Internet into K-12 education.

Christopher Clapp may be contacted at c_clapp@angellearning.com.
What if your e-Learning programs were as addictive as video games, or generated as much interest as the latest movie hit? Renaissance eLearning can help you towards that. This new book provides materials to infuse online learning with the same kind of magnetism as a game, song, or movie.

From the people who created the most widely used guide to preparing for eLearning, Chapnick and Meloy’s goal in this book is to bring emotional investment back to learning and training programs. The authors culled over 400 eLearning programs, hundreds of popular entertainment pieces, and interviews with over 100 people in widely disparate areas to answer a simple question: What can make eLearning as compelling as popular culture?

Renaissance eLearning shows:

• how to make emotion and passion as important to eLearning as cognition and intellect
• how to apply the same principles and techniques (including narrative and visual design) used by artists to attract attention, and foster learning
• how to find and work with affordable creative talent needed to make plans a reality.

Advanced Web-Based Training Strategies: Unlocking Instructionally Sound Online Learning
Margaret Driscoll & Saul Carliner
List price: $60.00
Hardcover; 500 pages
ISBN: 0-7879-6979-6

Advanced Web-Based Training Strategies fills the gap in the literature available on this topic by offering a volume that includes applicable strategies that can take the experienced instructional designer to the next level of training. Written by Margaret Driscoll and Saul Carliner, experts on e-learning and information design, Advanced Web-Based Training Strategies provides instructional designers, e-learning developers, technical communicators, students, and others, with strategies for addressing common challenges that arise when designing e-learning. Balancing educational theory with the practical realities of implementation, Driscoll and Carliner outline the benefits and limitations of each strategy, discuss the issues surrounding the implementation of these strategies, and illustrate each strategy with short scenarios drawn from online learning programs fields, including technology, financial services, health care, and government.

The book is a comprehensive resource; as well as the nuts-and-bolts of implementation, it describes the benefits and limitations of different strategies.

Lessons in Learning, e-Learning, and Training: Perspectives and Guidance for the Enlightened Trainer
Roger Schank
US $35.00
Paperback; 320 pages (Pfeiffer, 2005)
ISBN: 0-7879-7666-0

Roger C. Schank is a respected thinker, writer, and speaker in the training, learning, and e-learning community. He has written a book of essays that explore the issues related to challenges confronting instructional designers and trainers. The essays offer a much-needed perspective on what trainers do, why they do it, and how they do it. Lessons in Learning, e-Learning, and Training can serve as a barometer of the issues that perplex trainers, and helps to illuminate three main points: what can and cannot be taught; how people think and learn; and what technology can really effectively provide. Lessons in Learning, e-Learning, and Training in addition, each essay is has practical guidance and includes a summary of ideas, tips and techniques, checklists, and other job aids.

Budget cuts, technological advances, and shifts in instructional methods have created confusing times for trainers. Roger Schank offers perspective in these essays on all types of training.