# *EMERGING TECHNOLOGIES*

# CHALLENGING HEGEMONIES IN ONLINE LEARNING

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In Western countries today, instructed language learning in higher education normally includes use of the Web: as a resource in face-to-face classes, as an equal partner in instructional delivery in hybrid courses, or as the primary teaching and learning environment in distance learning. Most often today this is enabled through use of a learning management system (LMS, also known as a VLE or virtual learning environment) such as Blackboard Learn or Moodle. The use of these systems makes setting up a course Web site quick and easy, while offering an array of course management and teaching tools. At the same time, however, these systems embed pedagogical and cultural values which raise questions about learning design, instructional choice, and computer literacy. In this column we will look at these issues against the backdrop of recent changes in the LMS industry, emerging standards in content packaging, and new trends in open access online learning.

## BOXED-IN PEDAGOGY

The core design of most LMS in use today has not changed much from their origins in the mid 1990s. The model places heavy emphasis on course management and administration, through an online gradebook, posted syllabus, assignment tracking, and linked/uploaded course materials. Initially, interactivity and collaboration consisted almost exclusively of threaded discussion boards and fixed-format assessments (mostly multiple choice). These were the principal features of an LMS a colleague and I created at VCU, Web Course in a Box (WCB), mostly known now as having been the first competing LMS absorbed by Blackboard in 1999. WCB was typical of early LMS such as CourseInfo (USA), WebCT (Canada), and TopClass (Ireland), all developed in the Anglo-American sphere. WCB focused on providing an individual student learning experience. It included student pictures with forum messages and encouraged students to create individual home pages. Assessment was based on performance on online quizzes, assignments, and forum postings. Other early systems had a different mix of features, but were similar in design and basic functionality. The pedagogical model used here mimics a traditional classroom with a top-down, instructor-delivered learning environment with emphasis on linear learning through instructor-provided or linked materials and assessments based on answering questions testing discrete chunks of knowledge. In large part, the pedagogical dimensions of the original LMS design were a reflection of what early Web technology enabled developers to do, particularly as a result of bandwidth limitations (no streaming video, limited synchronous functionality) and the static Web browsing environment (no client-side scripting or local data storage). But this initial design, as happens often in technology, remains largely intact, despite a dramatically changed Web environment.

In the years since, many interactive, collaborative, and synchronous functions have found their way into mainstream LMS. Despite these additions the default settings and overall design of the most widely used LMS (Blackboard Learn) still tend to lead instructors towards a particular pedagogical approach. The essential model is a closed, self-contained system using cognitive-behavioral learning, with emphasis on information presentation and measureable performance assessment. The instructor is guided through the process of building a course through the default course menu appearing in the sidebar (i.e., Announcements, Course Content, Discussions, etc.). Content and services are added through the "control panel," available only to instructors. In turn, the students follow the guided learning path the instructor has established. Most instructors beginning to use an LMS choose the most familiar and easy-to-use functions such as posting a syllabus, uploading presentations, providing course materials/media, and creating Web links. Many faculty do not move beyond this basic functionality, despite the extensive

 

customizability and rich additional tools and functions available. It's likely that the initial training instructors receive in using an LMS also contributes to this situation. I suspect that the training courses at VCU are typical. They focus primarily on the mechanisms of how the basic functions are used, with the goal of enabling instructors to get their course sites up and running quickly. I recall hearing from a colleague who had taken an introduction to Blackboard course that his main take-away from the session was the ability to create a course banner for display on the announcements page, hardly a great enabler of student learning.

For language faculty using the Web as an adjunct to face-to-face classes, the basic, built-in functionality of an LMS may be sufficient. Oral practice and small group work can be done in class, while the course Web site can be used for grammar tutorials and drills, vocabulary practice, online readings, listening comprehension exercises, and Web-based explorations. In a distance learning course, on the other hand, the course Web site will need to offer much more in terms of oral work and collaboration. Add-ons, plug-ins, and link-outs enable quite a lot of what may be needed. Most LMS have built-in group functionality and have added blogs and wikis. Synchronous communication, text, audio, and/or video is enabled through services such as Wimba Classroom, Adobe Connect, Elluminate (now Blackboard Collaborate), or Skype. Audio/video recording/submission is possible through VoiceThread, Wimba Voice Tools or Audio Dropboxes. Many of these services are commercial and may not be part of a campus LMS due to cost or technology/bandwidth factors. Sometimes the additional services are seamlessly integrated into the LMS, but that is frequently not the case. They may require an additional log-in and may not provide access to the gradebook or group functions of the LMS.

## EXPANDING PEDAGOGY AND TECHNOLOGY MODELS

There have been countless LMS developed and deployed, not only for use in tertiary institutions but also targeting primary/secondary schools, and corporate/military training. While Blackboard Learn is used primarily in higher education, the second most widely used LMS world-wide, Moodle, is used in a great variety of educational and training contexts across the globe. First released in 2002, Moodle differed from other systems in a number of ways. It is written in PhP (rather than Perl or Java) and runs on a variety of platforms, with relatively minor technical requirements. The low technical hurdles have been an important factor in Moodle's wide-spread adoption, but even more important has been its cost: free. Moodle is an open source project that relies on a large number of developers who have contributed and refined code, as well as created plug-ins for added features. From its early days, Moodle has featured a modular approach, both in terms of tools and services (modules, blocks) and in respect to its user interface. According to its initial developer, Martin Dougiamas, Moodle was developed around a social constructivist learning model. When creating a Moodle course site, instructors are not presented with a default course menu, as in Blackboard Learn but rather choose the content, activities, and tools to add, typically to a course calendar. The core of Moodle is the ability to add any number of available activities and resources (forums, glossaries, wikis, assignments, uploaded handouts, etc.) in a unique arrangement. Of course, as with all systems, just because a rich set of services is available doesn't necessarily mean they will be used. More fundamentally, it is still the instructor who constructs the learning environment. Student voices of course contribute to the learning environment in multiple ways, through contributions to wikis, blogs, forums, and group projects, but the structure still comes from the teacher alone.

Moodle has been widely used for language learning. It is easily localizable, having been translated into 82 languages. The no-cost availability and the flexible installation requirements have resulted in Moodle being installed locally in language departments or learning centers, where it can be customized to serve the needs of language learners. Carleton College in Minnesota, for example, has created a "Moodle Language Lab," which features access to audio and video recording from within a Moodle page. Moodle has been used in delivering basic language instruction, by the Open University, for example, or in the "Arabic Without Walls" program. The Critical Language Center from the University of Arizona uses

Moodle enhanced through Flash and JavaScript interactivity to teach a number of their online language courses. Robert O'Dowd (2009) has discussed the use of Moodle in Spain and has interesting observations on the pedagogical possibilities of Moodle. There are a number of suggestions for using Moodle in language learning that Claire Siskin has collected. A recent review in this journal of Moodle 2.0 highlights the additions and changes in the most recent version of the software that may be of interest to language educators, principally the enhanced flexibility and redesigned assessment features. Another open source LMS, Sakai, has seen use in language learning settings as well. Gouveia and Reis (2008) have written about the advantages of using Sakai for collaborative student work in a Portuguese university. The Stanford University Language Center has customized Sakai for delivery of oral diagnostic assessments that formerly were done in class. The University of California system will be using Sakai in upcoming distant delivery language courses. Like Moodle, Sakai has a dedicated set of volunteer developers and is among the first LMS to adopt new standards for content exchange and other areas. The technical requirements for Sakai are considerably higher than for Moodle.

Both commercial and open source LMS offer to instructors and students a reliable and familiar interface, much appreciated by IT support administrators. Blackboard Learn sites, for example, look very similar across disciplines, so students have little trouble with course navigation. This uniformity and predictability, however, has its disadvantages. The spoon-fed content delivery and closed environment of the LMS is far removed from the vibrant, ever-changing online world in which our students are fully engaged. Many of today's students are likely heavy users of social networking sites, multi-player gaming, and media mashups. The static and controlled environment of an LMS is unlikely to either attract or stimulate such students. For those students less experienced in online activities, an LMS contributes little to the kind of technology literacy they will need for their personal and work lives. The importance of preparing our students for the workplace of tomorrow was recognized recently by my own Virginia state legislature, a body hardly known for its progressive views, which this last legislative session passed a law requiring high school students to take at least one totally online course before they graduate. The need for language learning to reflect the technology needs of today is demonstrated in the ACTFL frameworks for 21st century learning, which include information, media, and technology literacies.

In view of students' need for technology literacy, the use of an LMS raises some critical questions. Are we doing a disservice to our students through use of a pre-built, fixed online environment rather than exposing them to the variety of possible approaches and designs? In so doing are we failing to develop in our students the wherewithal to find tools and services that might best fit their own needs or interests? Is this problematic in preparing students for life-long learning and for becoming empowered autonomous language learners? Are we doing enough to help students critically sift through the information overload of today's Internet? Of course, one could argue that using an LMS does not preclude addressing these issues. Yet the medium is the message, as we all know, and the message being sent by most cookie-cutter course sites hardly models or encourages autonomous learning or critical analysis. At the least we need to find means to make our students informed consumers of technology. That kind of knowledge is as important to language learners today as is meta-knowledge of how language and language learning work. They will need both the technology know-how and the awareness of their own language learning styles/aptitudes to function fully in a multicultural, multilingual world.

## EXPANDING CULTURAL DIMENSIONS

The vast majority of the early LMS were developed in the Anglophone world and reflect to a large extent that cultural environment. Despite popular beliefs to the contrary, it is now generally accepted that technology tools are not culturally neutral. Claire Kramsch and Steve Thorne (2002) have convincingly argued that case for computer-mediated communication. If the pedagogical model inherent in the basic LMS design is transmission of knowledge, the cultural orientation is that of individualism, emphasizing the centrality of linear, rationalist reasoning and open, frank communication. Many in Western countries

may assume these are universally accepted cultural norms, but that's a decidedly ethnocentric view. Learners from collectivist societies may well have a different orientation towards expectations that they distinguish themselves through peer-review, critical analysis, and individualized differentiation. Of course, in today's world, with rapid globalization and online mixing of roles and identities, these generalizations themselves can be questioned, as the contributions in Goodfellow and Lamy's (2009) collection on culture in online education show. Young people in particular tend to have multiple online roles and identities. In this fluid intercultural world the one-size-fits-all design of mainstream LMS can be a poor fit.

Moodle reports that it is has users in 215 countries. It is likely to continue to be widely used, given its versatility and active developer community throughout the world. In the last decade there have been a good many other systems developed in a variety of countries, many of them also open source. In language learning methodology, there have been calls (from Sandra Savignon, for example, see Savignon, 2007) to adapt the teaching approach used to local conditions and needs; this is also generally part of ecological approaches to language learning. The advice to think local may hold true for instructional technologies as well. Charles Ess (2009) discusses the ineffectiveness of Western-style, computer-based literacy training in South African townships using an individualized "quiet library" mode with a population accustomed to learning accompanied by music and body movement. While alternative LMS are not likely to offer that degree of flexibility, they do provide additional possible perspectives on organizing Web-based teaching and learning. Chamilo, out of Belgium, for example, boasts a user interface intuitive enough to be used in a primary school in Uruguay (YouTube video) on OLPC computers (One Laptop Per Child). Chamilo is actually a fork of another European, open source LMS, Dokeos (itself derived from Claroline). Christine Develotte (2009) discusses using Dokeos in the context of an online French teachers training course as does Ferit Kilickaya in teaching English in Turkey.

Other free or low cost LMS include OLAT (Switzerland), Its Learning (Norway), and ILIAS (Germany). I'm not aware, unfortunately, of any LMS outside Europe or Anglophone countries. One open source LMS of interest, from a different perspective, is ATutor (Canada) which has designed its LMS from the ground up to be as accessible as possible to learners with disabilities. Indeed, with the concern to accommodate student diversity as widely as possible, accessibility in software design should be a requirement for any kind of software project today. The current interest in the principal of universal design for software development in fact points in this direction. Universal design calls for consideration in all steps of development of the variety of users who might use the product. This is normally directed at users with disabilities but certainly should apply to cultural and linguistic diversity as well. In an increasingly globalized and shrinking world, supporting diversity of all types will be an ever-growing concern. Modern browsers and operating systems have added much better support both for disabilities (easy magnification) and for a variety of writing systems. LMS pages can be retrofitted to offer additional support, such as allowing Web pages to be sent to a voice synthesizer and read back to the student (through ReadSpeaker, for example). The same is true for clickable dictionary look-ups. Ucompass's Octane, recently adopted by the Florida Virtual School, offers an interesting expansion of this. It features a set of tools that can be added to any Web page by putting a link in the HTML to a server-based JavaScript file which inserts a set of buttons for the added functions. Another aspect of universal design today should be the consideration of how content displays on mobile devices, a growing concern in many educational environments.

## LIBERATING TRAPPED CONTENT

One of the principal uses of an LMS has been for instructors to upload learning materials for easy online access by students. All systems enable this functionality, most as well adding the ability to upload and unzip file archives containing multiple files. Many systems include some kind of content authoring ability, which may be very basic (such as a WYSIWYG editor) or quite elaborate (ability to incorporate

interactive elements). Most LMS are based on a course structure, so that uploaded or created content is available for a specific course only and has to be copied over or re-created for access from a different course. Many systems have a way to export (and import) assessments such as quiz questions, but other content tends to be stuck in the LMS. This leads to vendor lock-in, as schools and individual faculty are loathe to go through the process of re-creating Web course sites. Some LMS conversion tools are available. I worked for Blackboard for a short time creating such a tool to move content from Web Course in a Box into Blackboard. Netspot (recently acquired by Blackboard) has a Blackboard to Moodle convertor. From my experience these tools only do a partial conversion and often don't stay current.

One of the attempted solutions to this problem was the development of SCORM. The concept of SCORM is that content is created outside of an LMS and imported in. Creating SCORM-compatible content involves packaging content in a standard zip archive which includes a manifest file detailing the content as well as setting out its structure. It includes as well the ability to integrate scored items into an LMS gradebook. SCORM packages are designed to be uploaded and played in any compliant LMS in the same way. Unfortunately, LMS display of SCORM-compatible content has not been consistent across platforms, while the JavaScript based connection with the LMS has created security and permission issues. SCORM development recently has taken a new direction with the Tin Can project. The recently released first version of the Tin Can API is designed to be a successor to SCORM and allows for more tracking information to be recorded as well a more secure environment. The API is based on the simple idea of triples (i.e., a set of three variables), familiar to anyone acquainted with specifications such as RDF (resource description framework), important in the Semantic Web. The three values specify who accomplished what tasks, along the lines of "I did this," more familiar to many of us as S-V-O (subject-verb-object). The API is capable of scaling up from a small, discrete bit of information, such as a single quiz question, to a much larger record of achievement, such as an entire unit. It is still too early to tell if Tin Can will be embraced by LMS vendors and the educational community.

Meanwhile, a new common content packaging standard has emerged from a different standards body and is being widely supported in LMS, namely the Common Cartridge (CC) from IMS Global. In a sense, CC is also a successor to SCORM, but it expands on the individualized self-paced learning model. It too packages content in a zip archive with a manifest file. However, content is not displayed in a special content player, as is the case with SCORM, rather it is integrated into the native content or assessment models used by the LMS, making for a more seamless integration. For example, assessments included in the CC (specified in the manifest) will be delivered through the same mechanism as are assessments created by the system's authoring tool. A CC manifest might also specify that a particular piece of content be associated with a discussion forum. Upon receipt of the CC and reading of the manifest, the LMS creates in its discussion forum area (or in a content area, if so specified), a forum with the title, parameters and description contained in the manifest file.

The most recent version of the Common Cartridge (1.2), includes the ability to link to tools or services outside of the LMS using a specification called LTI, for Learning Tools Interoperability. This is another recent development that contributes to opening up closed LMS environments. LTI allows tools and services from outside the LMS to be integrated in flexible ways into course sites. This includes options for enabling secure single sign-on (LMS sends identity info) and back and forth communication between the external tool and the LMS (allowing integration of graded items into the LMS gradebook, for example). This makes adding features to an LMS much easier. To add, for example, a "building block" to Blackboard Learn or a module to Moodle requires use of the proprietary method established by the LMS, coded in the programming language prescribed by the vendor. External services linked through LTI, on the other hand, can be universally deployed across the large number of systems now supporting LTI. This also enables sharing and collaboration between LMS's, something that was not possible before. Publishers are beginning to make electronic textbooks available, using LTI and CC. This is a big step forward from the days when publishers only made materials available in proprietary "course packs"

which played only in a specific LMS. This standard has been embraced as well by the open access community, with the Open University making some 400 of its courses available in this format. Moodle 2.2 incorporates LTI through a feature known as "External Tool". IMS hosts a list of LTI tools and LTI-ready systems. Among the LTI tools of potential interest to language educators are assessment and voice/audio tools such as WebPA or Wimba, the Tegrity recording system, Slideshare, Quizlet, Merlot, Wikispaces. As LTI 1.0 was only finalized last fall, we are likely to see more tools emerge.

**OUTLOOK**

Typically, an LMS will be installed locally, on servers operated by the school using the system. Depending on the LMS, this can be relatively quick and easy or complicated and expensive. It requires at any rate knowledgeable support IT professionals. In the last year, however, we have seen LMS beginning to be offered as a cloud service, that is to say hosted on central servers run by the company. Pearson Publishing released OpenClass, a system hosted on Google Apps for Education and freely available to educators and students. Instructure created a stir with its Canvas LMS, which features a quite different user interface, borrowing a number of features from Facebook. Blackboard itself created a freely available cloud version of its Blackboard Learn 9.1 system, called Blackboard Coursesites. This trend seems likely to accelerate, although many schools will not be eager to give up the control and systems integration they have with their locally installed software. The outsourced delivery system for online learning may be of particular interest in settings where IT professionals or funding for hardware are hard to come by. A cloud-based LMS can also be used by an individual instructor who does not have a school-supported system or is dissatisfied with the system in use.

The trend towards open source systems also seems likely to accelerate. Blackboard has seen its share of the market decrease in recent years as Moodle and Sakai have picked up steam. In fact, Blackboard has reacted to this trend recently by deciding to buy two Moodle hosting companies, Moodlerooms and Netspot. It has also brought on board Chuck Severance as "Chief Sakai Strategist". At the same time, Blackboard announced that it would continue to support the quite popular Angel LMS (acquired in 2009) for three more years. Rather than controlling the market with a single product, as had seemed to be Blackboard's corporate strategy, it has now realigned to the awareness that the LMS market is likely to remain diversified.

Schools tend to invest heavily in an LMS and are likely to support only that one platform. If faculty choose not to use that software, they are on their own. Nevertheless, some faculty, dissatisfied with their LMS experience, are opting out of using such a pre-built comprehensive solution to creating a Web presence for their classes. I wrote a while back in this column about language teachers using Personal Learning Environments (PLE) such as iGoogle or Netvibes to create modular pages, which students are also able to customize. Other faculty have built Web resources around blogs created with a service such as WordPress. WordPress is popular in part because of the large number of plug-ins available, which allow services such as spam filtering, enhanced editing, better navigational tools, or easy linking to social networks. A variety of widgets can also be plugged into WordPress blogs. Frequently used in education are plug-ins for discussion forums such as Mingle Forums or bbPress. A collection of the top 25 language learning blogs for 2011 shows a variety of approaches to enabling language learning on a blog. Other language faculty are using WikiSpaces or PBWorks in similar ways.

File sharing, a much-used feature of LMS, can be done by using Dropbox or other similar free services. Google Docs offer a variety of free editing and collaborating options. While this approach allows for a much higher degree of flexibility and personal choice, it also requires considerably more effort on the part of instructors. It has the added potential benefit of exposing students to a the tools and services that are available and important today for technology literacy. It's not likely that knowing one's way around Blackboard will be helpful in life after college, whereas knowing how to use online collaborative and writing tools could be advantageous. The non-LMS route is most often chosen by faculty who are quite

savvy technologically. This approach has the downside of lacking built-in connectivity to student and administrative systems, to allow for automatically populated course rosters, gradebook integration, and other administrative tie-ins. Doing this manually would not be a pleasant undertaking, although one might create a course shell in the campus LMS, from which students could jump out to the real Web content. Another issue that may arise is the possibility of free services going away or becoming commercial. This has unfortunately been the trend in recent years, as services put constraints on free accounts or move to a solely commercial model.

The breaking of the LMS hegemony seems to be echoed recently in terms of instructional delivery. There has been growing interest in OER, open educational resources. In the US, a number of states have set up sharing sites for educational resources, where instructors may post and retrieve learning activities. Language faculty have been active in this area, contributing, for example to Merlot, a peer-reviewed referatory, COERLL, the Center for Open Educational Resources and Language Learning at the University of Texas, or LORO, a British site that collects language learning resources. At the same time, a number of tertiary institutions have decided to make entire course materials freely available online. MIT (Opencourseware) and the Open University (OpenLearn) have been in the forefront of this movement, which has added a number of other countries in recent years through the OpenCourseWare Consortium. Recently, there has been an additional step forward in OER, with several universities not just sharing materials, but opening up online courses for students world-wide. These are sometimes referred to as Massive Open Online Courses (MOOC). In this model, external students do not receive credit or a grade, but they may participate in all course activities, including in some cases getting feedback on assignments. A pair of Stanford University faculty members made a splash in 2011 with a course on Artificial Intelligence which had over 100,000 students, of which about 20,000 completed the course. Recently Stanford and a number of other U.S. universities announced they will create many more open access courses, which will be available through a newly created company, Coursera. While assignments for the Artificial Intelligence course were assessed using analysis and feedback generated by sophisticated AI programs, for the variety of new courses Coursera will be hosting, including poetry, history, and mythology courses, a different approach will be used. Coursera has indicated that it plans to rely heavily on peer-to-peer networking to help with dealing with the large number of students likely to take the courses.

Before language faculty throw themselves into this movement, there are a number of logistic, pedagogical and professional issues that would need to be addressed. Most of the recent courses are in computer science related topics and do not feature the kind of interactivity and peer-to-peer collaboration needed for language learning. Having such large numbers in an online language course would be a daunting task indeed. However, opening up a language course to participation from students outside the institution (in limited numbers) would be of interest from a cultural perspective. This is done today, usually on a formal, group basis though class exchanges or teletandem arrangements. An online language learning model that moves in the opposite direction, away from open access, is being tried out by my fellow Virginian colleagues at James Madison University. They are experimenting with outsourcing to a commercial entity, by offering a much debated option for elementary Spanish that uses Rosetta Stone exclusively. A group of community colleges in Kansas (EduKan) has actually been offering online Spanish courses using Rosetta Stone for several years. Liberty university, also in Virginia, will begin offering in 2012 online courses in ESL, German, and Spanish, all “powered by Rosetta Stone.” With the popularity of Rosetta Stone and of services such as LiveMocha or Babble it will be interesting to see whether other schools look to outsource basic language instruction as well. I look forward to seeing studies which analyze not only the learning value of this approach, but also what it means in terms of students’ culture of learning.

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## RESOURCE LIST

**Use of Learning Management Systems: Cultural and Pedagogical Issues**

- Bridging The Gap Between Teaching Styles And Learning Styles: A Cross-Cultural Perspective TESL-EJ
- ESL School: Collectivist and individualist cultures
- The Role of the Individualism-Collectivism Dimension in Distance Learning Environments: An Empirical Study
- Customizing Moodle for Language Learning
- Moodle Makeover presentation
- Open-Source LMS: Beyond Moodle
- Survey LMS eLearning
- Why are So Many LMS Buyers Dissatisfied? aLearning Blog
- LMS Satisfaction Features and Barriers elearningTech
- State of the LMS 2012 E-Learning 24/7 Blog
- Instructure's Canvas LMS: 7 Cheers Inside Higher Ed
- There are alternatives to Blackboard and Moodle: Instructure Canvas goes open source ZDNet
- Moodle Pros and Cons BlenderWiki
- Insidious pedagogy: How course management systems impact teaching First Monday (good analysis)
- Moodle and Social Constructionism: Looking for the Individual in the Community Academic

Commons

- Pearson and Google Jump Into Learning Management With a New, Free System The Chronicle of Higher Education
- Sakai in Language Courses Slide show
- Language learning using the Sakai collaborative learning environment
- How to Wiki in Moodle or Sakai: Collaboration for Online Language Learning IALLT

**Alternatives to LMS use**

- 7 things you should know about LMS Alternatives.pdf Educause (very informative)
- Using a Blog to Run Your Courses? Why You Might Consider WPMU The Chronicle of Higher Education
- Open Source LMS - 10 Alternatives to Moodle Barry Sampson
- Learning Management Systems: Disruptive Developments, Alternative Options and the Implications for Teaching and Learning
- Ucompass.com Unveils Octane – A Revolutionary System to Enrich Legacy Learning Content with Interactive Tools and Functionality
- Blog Tool and Publishing Platform For WordPress
- WordPress a Better LMS The Chronicle of Higher Education
- 5 Tools for Building a Next-Generation 'Hybrid' Class Website The Chronicle of Higher Education
- Lane blog Good comments on using LMS alternatives

**Open Educational Resources and Massive Open Access Courses**

- Evolution Unbound: Blackboard embraces open source Ray Henderson's blog (Blackboard CEO)
- COERLL Center for Open Educational Resources and Language Learning (University of Texas)
- LORO Language learning repository
- Open Source e-Learning from Open Elms
- Top Schools from Berkeley to Yale Now Offer Free Online Courses
- Virtual and Artificial, but 58,000 Want Course New York Times
- Udacity MOOC accululator
- MITx MIT's new online learning initiative
- Learning from MOOCs Inside Higher Ed
- MOOC reflections Learnlets
- MOOCs: Massive Open Online Courses or Massive and Often Obtuse Courses? elearn Magazine
- A complete list of free online courses offered by Stanford's Coursera, MIT's MITx, and Udacity Class Central
- MOOCs for the win! elearnspace (good analysis)
- MOOCs, Large Courses Open to All, Topple Campus Walls New York Times

- George Siemens on Massive Open Online Courses (MOOCs) - YouTube Nice interview with George Siemens

**Content Exchange and Interoperability**

- Moodle 2.2 supports connecting to IMS LTI tools Some Random Thoughts blog
- Review: LTI Provider for Moodle 2.2 Some Random Thoughts blog
- Getting to Know Project Tin Can (Next Generation SCORM)
- IMS GLC: All Basic LTI Tools
- LTI Tools and Examples : Canvas Help Center
- LTI Integrations
- IMS GLC Learning Tools Interoperability Implementation Guide Version 1.1
- From SCORM to Common Cartridge: A step forward