

E-learning and Learning Management

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"The next big killer application on the Internet is going to be education. Education over the internet is going to be so big it is going to make e-mail usage look like a rounding error."

John Chambers, CEO, Cisco Systems, 1999

Introduction

E-learning has not been quite the revolution that Chambers predicted, but it has definitely become a part of our lives. Consider some of the following facts:

- In many companies more than 50 percent of training is done on-line.
- The University of Phoenix has over 100,000 students taking courses on-line.
- Distance education has become an essential part of formal education from elementary to post-secondary.
- Web conferencing has become an important way for organizations to collaborate, hold cost-effective meetings, and market products and services.

E-learning has been with us for forty years and was originally called *computer based instruction* (CBI) or *computer based training* (CBT). In the 1980s, learning material was distributed on CD-ROMs. However, the advent of the World Wide Web in the 1990s opened up new possibilities and now the Web is the primary delivery medium.

E-learning (on-line learning or web-based training) can take many forms from a simple web page or an e-mail discussion group to video, audio and elaborate machine or social interaction simulations. It can be *synchronous* (at the same time), as in chat rooms and web conferencing, or *asynchronous* (not at the same time), as in e-mail and stand-alone, self-directed learning.

Learning management is an evolution of the processes and systems that schools and companies developed to register students in courses and keep track of student records. Today there are many more learning options. Students or employees can

- Take courses as part of a formal curriculum
- Take courses on-line
- Take courses to fulfill certification requirements
- Access a single learning object as a way of brushing up on something before a meeting
- Exchange e-mails with a mentor on a regular basis
- Collaborate with other learners in on-line meetings and via e-mail

- Take courses both in your company or institution or off-site at another company or institution
- Do an Internet search for information
- Even withdraw a book from a library

A *learning management system* (LMS) enables and keeps records for all of these activities. It can

- present a catalog of both on-line and classroom learning opportunities to the students;
- launch e-learning courses;
- allow participants to sign up for these opportunities when convenient;
- allow administrators to schedule the courses and assign instructors, facilities, and equipment to a course;
- provide the means to keep track of course attendance and results; and
- maintain a database of courses taken and results for each individual in the organization

More sophisticated systems may also

- link to *human resources information management* (HRIS) and *enterprise resource planning* (ERP) systems to conduct skill gap analysis, performance tracking, competency mapping, etc.
- provide e-commerce capabilities
- provide dashboards to make *return on investment* (ROI) calculations.

Learning Content Management Systems (LCMS)

The primary role of *learning content management systems* (LCMS) is to manage digital assets used for developing learning products. They provide

- a database called a *learning content object repository* that will save work done by authors of courses as learning objects which can be accessed by the same or other authors to develop new learning;
- workflow information for convenient updating of content;
- course authoring capability;
- collaboration tools to enable course authors and learners to work together;
- some basic LMS capability; and

- ways to create and administer tests and quizzes.

The terms LMS and LCMS are not mutually exclusive. Most LCMSs provide basic LMS functionality, and many LMSs include some aspects of content management as well. Some vendors provide everything in a single package.

There are also *course management systems* (CMS) such as **Blackboard** and **WebCT** (now one company) and **Moodle** (open source), which combine elements of both LMS and LCMS, but are aimed primarily at formal education—particularly post-secondary—and have special features for that market. Some vendors of these systems call them LCMSs.

Custom Course Authoring

Most organizations need to develop their own proprietary courses. While most LCMSs provide the means for creating new courses, there are many stand-alone systems that do this as well. They are usually called *course authoring tools*.

Course authoring can be done simply by displaying web pages or providing e-mail discussion groups, but many organizations want stand-alone, self-directed courses that are highly interactive and engaging. Programmers can do this by programming in *hypertext markup language* (HTML) or Flash, for example, but not everyone is a programmer. To bridge the gap, course authoring tools help people without programming knowledge create courses easily. These tools usually include templates, interactive quizzing features, can incorporate files and documents from various sources, including **Microsoft Word**, **PowerPoint**, video, audio, and graphics. Sometimes they can enable software simulations (screen simulations) and social interaction simulations. The best known examples of course authoring tools are various tools from **Macromedia** including **Authorware**, **ToolBook** from **SumTotal Systems**, **ReadyGo**, and **Outstart Trainer** (formerly **Trainersoft**). Some of the tools are conversion tools from Word and PowerPoint to the Web. Others are specifically designed for simulations. Macromedia's **Flash** is a popular course creation tool but, because it was not designed specifically for this purpose, requires some programming skills.

There are numerous vendors on the market that sell generic e-learning courseware on topics ranging from information technology skills to business skills, to health and safety issues. The best known of these are **Thomson NETg** and **SkillSoft**.

Virtual Classrooms

Virtual classrooms, which are essentially synonymous with web conferencing, provide the means to conduct a live class over the Internet in real time, like a lecture. They typically provide a whiteboard space which can display any document from any participant's computer and can allow data sharing and direct input from participants. Some tools use standard telephone conferencing for the audio, some use *voice over internet protocol* (VOIP). VOIP is cheaper, but with the current state of the art, the audio quality and reliability may not be as good. Some include video as well but these tend to be small talking head images. Usually provided as well are instant text messaging among the participants and break-out rooms for sub-groupings. Well known examples include **WebEx**, **Illuminate Live**, **Interwise**, and **Microsoft Live Meeting** (formerly **Placeware**).

Suites

Some vendors provide all of these capabilities (LMS, LCMS, course authoring, and virtual classroom) in a single *suite* of products. Most will also recommend partners that they work with that can provide functions that they don't offer directly.

There are many vendors in each of these categories and choosing among them is not an easy. The cost of an LMS, for example, can vary in a ratio of 10:1. The first step in the process of selecting a vendor is to assess the needs of your organization and then find the solution that best fits your needs and budget. **Technology Evaluation Centers** can help you narrow down your choice of vendors.

<http://learning-management.technologyevaluation.com>

For more information, visit

http://www.princetoncenter.com/demos/ktds/shootout/1_pg.doc

<http://www.internetttime.com/Learning/lcms/>

<http://www.learningcircuits.org/2002/apr2002/robbins.html>

<http://www.learningcircuits.org/2002/dec2002/greenberg.htm>

<http://www.learningcircuits.org/2001/aug2001/ttools.html>

<http://www.e-learningcentre.co.uk/eclipse/Resources/choosing-cms.htm>

<http://www.masie.com/701tips/> for a free download of Masie, E. (Ed.). (2004) *701 e-learning tips*. Saratoga Springs, N.Y.: The MASIE Center.

References

Geometrix Data Systems, Inc. (n.d.) *Key steps for implementing a learning management system*

Retrieved August 15, 2006 from

<http://www.trainingpartner.com/TP2005/tp2000web.dll/Document/DOCUMENTNO=D OCU2004110214143801840058>

Hall, J. (2003). *Assessing learning management systems*. Retrieved August 15, 2006 from

http://www.clomedia.com/content/templates/clo_article.asp?articleid=91&zoneid=29

Horton, W. & Horton, K. (2003). *E-learning Tools and Technologies: A consumer's guide for trainers, teachers, educators, and instructional designers*. Indianapolis, Indiana: Wiley Publishing Inc. <http://www.horton.com>

Siemens, G. (2004). *Learning management systems: The wrong place to start learning*. Retrieved January 10, 2006 from

<http://www.elearnspace.org/Articles/lms.htm>