Tools for Lifelong Learning

Save to myBoK

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Skills don't last long in today's workplace—a major reason is technology. Luckily, technology makes it easier to keep skills current.

The knowledge required to maintain a job and to keep job skills at peak intensity keeps changing, and the rate of change keeps accelerating. In fact, change is occurring so fast now that some analysts estimate that half of all job skills will become outdated within three to five years.[1]

That change won't change, because behind much of the acceleration is ever-evolving information technology. By 2006 nearly half of all workers may be employed by industries that are major producers or intensive users of information technology products and services.[2]

Technological changes in healthcare delivery and the transition to electronic health information management will require HIM professionals to acquire a host of new skills. New technology will bring more than new software applications; it will bring new processes, new ways of thinking, and new structure within organizations. HIM professionals will have to engage in lifelong learning to prepare for new roles. Continuous development of knowledge and skills will become a guiding principle for HIM professionals, essential for their employability, personal growth, and personal fulfillment.

As emerging technologies create the need for increased lifelong learning, they heavily influence learning in the process. More and more, technology plays a major part in delivering lifelong education. This article highlights current and emerging trends in learning technologies.

Tools and Trends

A learning technology is any hardware or software that facilitates individual or organizational learning. Distance education, training, and lifelong learning technologies range from telecommunication devices like telephones, faxes, and wireless phones to PCs, PDAs, and learner management systems. Today's virtual classrooms "offer gateways to an array of full-motion, fully animated, interactive, responsive information resources."[3]

The trend in learning technology is toward greater automation and coordination. The functions of education delivery and management are converging into single tools. Increasingly, the technology provides administrators and managers with a unified view of all user information. At the same time, the tools provide increasing access to new learners and tremendous opportunity to develop and upgrade skills for current workers.

Software Infrastructure

Software infrastructure—the collection of applications and systems that helps an organization run its business—is expected to undergo significant change. Technological advances will make these systems more flexible and extensible and will enhance critical business processes.

Changes in software infrastructure may increase the overall cost of distance education and training and, by implication, lifelong learning. However, server innovations will lower costs with more effective use of grid computing, which pulls together the processing power and data storage of many computers, spread over many locations. The innovations should provide instructional designers and course managers with richer and more robust tools to deliver training and to help learners.

Learner and Content Management Systems

A learner management system (LMS) is software that typically performs the tasks of managing learning, keeping track of student progress, and recording course completion. A learner content management system (LCMS) typically includes some functions of an LMS as well as assessment tools and tools to develop, manage, and store content in reusable formats. A standard LCMS will also manage the migration of content to multiple output formats, such as Web, wireless, and print.

The trend toward consolidated LMS and LCMS programs will allow for better accommodation of organizations' learning needs. The next shift in learning management technology will be training analytics.[4] Such tools allow companies to measure effectiveness, impact, and compliance of training. As demands for accountability and return on investment increase, expectations for strong LMS and LCMS programs will also intensify.

Mobile Learning

Mobile learning, sometimes called m-learning, is still in its early stages, similar to where e-learning was just a few years ago. It is a derivative of technology-based learning and tools that some believe is the next phase of e-learning.[5]

Although many people use the terms mobile and wireless interchangeably, there are differences. When information is downloaded from a PC to a mobile device, only mobile features are used. When information is downloaded from the Internet to a laptop connected wirelessly, both mobile and wireless technologies are used. There are a number of mobile devices available today such as PDAs, tablet and pocket PCs, and smart phones. These devices usually work best in learning when content is delivered in small bits.

As growing numbers of learners use mobile and wireless devices in their education, enrollment will diversify and demand for remote learning will increase. To accommodate this growth, content delivery options will change.

Learning Objects

Extensive efforts have been made to introduce standards in computer-mediated learning. One example is through standardization of metadata that facilitate the searching and retrieving of learning objects. At the same time, equal efforts have been made in developing a conceptual definition of learning objects.

We can think of a learning object as a small segment of instruction, a chunk of information in different multimedia formats. These formats might be text, video, simulation, or mixes of media. Thus, a learning object is an independent, self-contained unit of learning that can be used in multiple instructional contexts. For example, an interactive drag-and-drop exercise that teaches body parts could be used in an online anatomy and physiology course as well as in a coding course; text about principles of document design could be used in a printed handout at a traditional document design workshop or employed onscreen in an online class on Web design.

Learning objects must satisfy three basic requirements: (1) accessibility, which means they should include metadata so they can be stored and called up in a database; (2) reusability, which means they should function in multiple instructional contexts; and (3) interoperability, which indicates that learning objects should be independent of any delivery or knowledge management system or platform.

To adopt a learning-objects strategy, an organization must produce enough content to require a process to manage the combination of learning objects into new courses.[6] A benefit of using learning objects is the ability to reduce "time to market" for new course offerings. Given the growth in the sophistication of high-quality training materials and the required investments in time and development, most trainers welcome this expanding trend.

Simulations and Game-based Learning

Learning theorists now recognize three learning domains: psychomotor, cognitive, and affective. The affective domain is the most complex and difficult to teach using learning technology. Because it involves beliefs, attitudes, and behaviors, training professionals were reluctant to make the affective domain a focus of their training, preferring to focus on skills and knowledge.

However, recent developments in simulations and games enables training professionals to teach subjects in the affective domain, such as sales techniques, patient interactions, or employee management. Part of the challenge of creating an effective simulation is achieving the right balance of fun and learning. Given software advances, a host of young developers, and a younger generation of learners, simulation developments has increased.

Very close to simulations is game-based learning, where players acquire knowledge and skills while playing computer and video games that are combined with business and education content. This is a particularly important way to reach younger members in the work force and those who come behind them. Examples of simulations and games can be found from medical schools to the military.

Although the popularity of simulations and game-based learning has increased over the last few years, their use has not been as widely adopted as some predicted. This is due to a relatively high cost of production. Nevertheless, this is an exciting area that trainers must educate themselves about and watch carefully.

Collaboration Systems

Collaboration tools include teleconferencing options (audio and video), virtual collaboration, and groupware and other cooperation tools. Many companies today implement these technologies as part of their overall infrastructure and not just as their training-specific systems.

The virtual collaboration market is dominated by a few big players, with many smaller companies and resellers offering an extensive mixture of solutions.[7] The common features for most of these tools include voice-over IP, video and audio streaming, discussion threads, chats, messaging, and application sharing. Lifelong learning is already taking advantage of these tools and their use is growing in blended learning situations, described below.

Blended Learning

As its name suggests, blended learning combines a variety of delivery methods to tailor learning and development for different individual needs and learning styles. There is no consensus on what constitutes blended learning; some define it as a mix of online learning and traditional classroom learning; others look upon it as a combination of online instruction, synchronous "webinars," simulations and labs, on-the-job exercises, mentoring, and online coaching. The blend depends on audience skills, motivation, and size, company business processes, and resources such as the availability of subject matter experts, content developers, and instructors.

Blended learning strategies rely on an LCMS for the reuse and repackaging of content as well as production of multiple outputs such as print, online courses, CD-ROM, and workshop manuals. Blended learning is sometimes called a hybrid system, the merging of face-to-face and course management technology-based teaching and learning.

Emerging Technologies

New technologies entering the lifelong learning environment may also play interesting roles. For example, new technology now on the market can gauge a person's emotional status by analyzing his or her voice or text-based conversation. Such technology is becoming useful in training sales forces.

The Semantic Web is another emerging technology. Currently in the developmental stages, the Semantic Web would enable a computer to better understand the meaning of information it finds on the Web. The technology would employ rules to make inferences and answer questions, better analyzing and organizing information for users.

If designed properly, the Semantic Web's use in education and research could be far reaching. Users will be able to extract far more data from a networked computer or wireless device far more efficiently. For example, the Semantic Web could enhance information management by avoiding ambiguous search terms, clustering search results, automatically annotating content, and creating metadata.

Future learning technologies are promising, and current technology is powerful and engaging. However, creating positive learning experiences requires the appropriate alignment of technology with learning outcomes and teaching strategies. A poor

match between technology and learning might confuse the learner or trainer and impede learning. In the end, the future of learning technology is in the hands of students and teachers.

Notes

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