

E-Learning: Emergence of the Profession, Key Trends, and Implications

Bryan Edgar, Eileen Kirk, and Carol Parenteau
November 7, 2010

After more than 170 years of distance education, 100 years of instructional media and technology, and 55 years of instructional design, e-learning is now emerging as the potential beneficiary of the best of each field. E-learning's succession in the converging lines of Instructional Design and Technology and Distance Education is assisted by advances in computing and networking technology that, if implemented adeptly, promise to realize the potential sought, so far unsuccessfully, by its predecessors.

In this report we trace the history of the fields preceding e-learning and examine key trends and challenges in business, higher education, and public libraries. We will conclude with the implications of these trends and challenges for programs and professional roles in e-learning as the field continues to develop.

Parent Field: Instructional Design and Technology

The history of the field of instructional design and technology during the 20th century can be divided in two separate but overlapping practices: the use of media for instruction and the practice of instructional design in creating effective courses and instructional systems (Reiser, 2001a, 2001b).

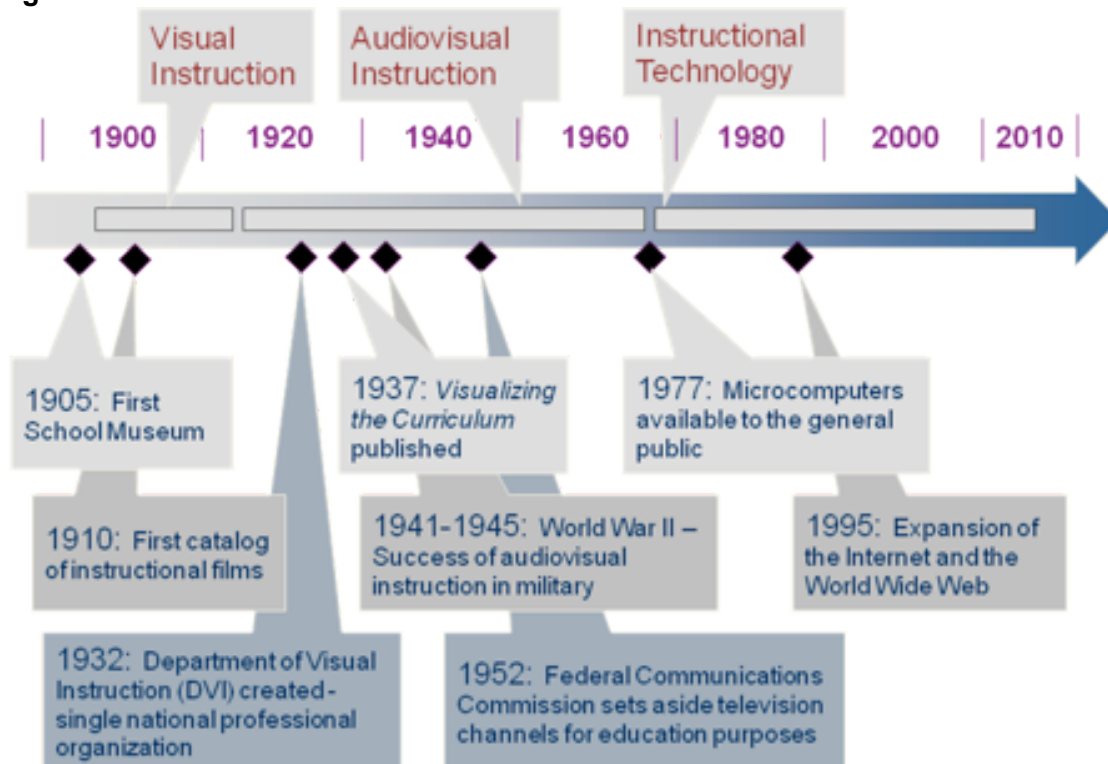
Instructional Media

Instructional media may be defined as "the physical means, other than the teacher, the chalkboard, and the textbook [TCT], via which instruction is presented to learners" (Reiser, 2001a, p. 55). The use of media other than TCT goes back to the early part of the 20th century in the United States with the use of audio and visual materials such as photographs, films, lantern slide projectors, stereopticons, radio, and television – and ends with the adoption of computers and the Internet in the classrooms at the end of the century (Reiser, 2001a). Figure 1 below provides a visual overview of these key developments over the 20th century.

While high expectations accompanied the use of each of these new media for educational purposes, studies often concluded that there was no significant improvement in instruction or lasting impact on instructional methods when the media were introduced (Reiser, 2001a). The most notable exception to this trend occurred during WWII, when audiovisual devices were used to "train effectively and efficiently large numbers of individuals with diverse backgrounds" in the military and industrial sectors (Reiser, 2001a, p. 57). While this proved that audiovisual

instruction could be effective in teaching skills that are largely visual, audible and tactile in nature, such as aircraft recognition, foreign languages, and flight training, respectively (Reiser, 2001a, p. 57), it was not clear whether this success would transfer to more complex or abstract subjects.

Fig. 1



Despite renewed efforts after the war to reproduce this success in schools, the use of traditional media (teacher, chalkboard, and textbook) as the primary means of instruction prevailed, although the use of audiovisual materials to supplement instruction continued (Reiser, 2001a, p. 57). It is conceivable that the nature of the content presented in schools was different than the behavioral skills being taught successfully in the military and industrial sectors during the war.

In the 1970s, the field of audiovisual instruction began shifting the emphasis from the media to its applications in the fields of education and communication, and highlighting the application of scientific knowledge to instructional media (Reiser, 2001a, p. 59). But it was only with the development of the microcomputer and the Internet in the last decade of the century that the use of media for instructional purposes began to expand significantly (Reiser, 2001a, pp. 59-61). The increased interactive capabilities presented by these two developments are likely significant factors. (Reiser, 2001a, p. 61).

Instructional Design

Instructional design encompasses “the analysis of instructional problems, and the design, development, implementation and evaluation of instructional procedures and materials intended to solve those problems” (Reiser, 2001b, p. 58).

Successful collaboration between the military, psychologists, and educators during World War II established the roots of instructional design, laying the groundwork for a prolific period of development following the war, yielding many instructional design practices still in use today. These include the use of behavioral objectives, criterion reference tests, categorization of domains of learning and the use of hierarchical analysis, formative evaluations, design models, and the systems approach to designing instruction.

The effects of these developments were particularly strong in business, industry, and the military, but had minimal impact in public schools and higher education until the second half of the 1990s with the expansion of the use of the Internet. Constructivist approaches to instruction gained popularity, placing the learner at the center of the instruction and attempting to design real-world tasks and non-instructional materials such as electronic performance support systems and knowledge management systems, which provided workers with just in time information to perform essential tasks and improve performance (Reiser, 2001b, pp. 58-64).

Distance Education: Another Set of Roots

Distance education “is characterized by the separation of the teacher and learner, and of the learner from the learning group, with the interpersonal face-to-face communication of conventional education being replaced by an [impersonal] mode of communication mediated by technology” (Keegan, 1996, p. 8). While the separation is always in terms of space, time may contribute to the separation, as well. In fact, *time* defines the two main types of delivery of distance education:

- *Synchronous* communication occurs when people in different places interact at the same time, without a delay. Synchronous communications for distance learning include audio-conferencing and video-conferencing, chat and instant messaging, radio, and telephone.
- *Asynchronous* communication occurs when people in different places interact at different times, *with* a time delay. Examples include email, message boards, prerecorded audio and video presentations and podcasts, print materials, television, and voicemail.

The term *distance education*, which achieved standing in the 1970s (Evans and Nation, 2003), may be used interchangeably with the term *distance learning* (United States Distance Learning Association, n.d.), which extends the better part of two centuries into the past.

Distance learning can be traced to 1840 with the availability of print-based correspondence courses in England to teach shorthand (Baker's Guide to Christian Distance Education, n.d.), made possible by improvements in mail service and transportation (Keegan, 1996). Correspondence education “introduced 'teaching' through text” (Garrison and Cleveland-Innes,

2010, p. 14). With correspondence education, learners had an alternative to traditional classroom instruction, and greater choice on when and where to study (Garrison and Cleveland-Innes, 2010).

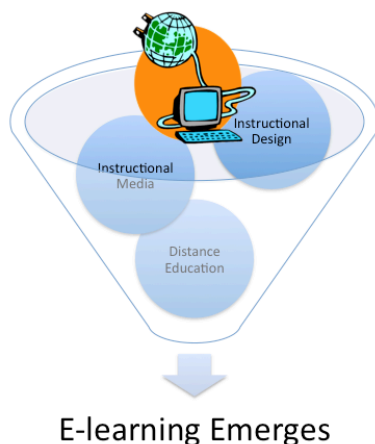
Over time distance learning evolved to take advantage of new technologies, these included radio, telephone, television, and the Internet. Today, distance learning is provided by most universities (Keegan, 1996), and is increasing in corporate and K12 environments (Christensen, Horn, & Johnson, 2008).

The first generation of distance education was characterized by "the predominant use of a single technology, and lack of direct student interaction" (Bates, 2005, p. 6). Print-based correspondence education is first generation.

The second generation is "a deliberately integrated multiple-media 'print + broadcasting' approach, with learning materials specifically designed for study at a distance, but with communication with students mediated by a third person" (Bates, 2005, p. 7). Because the second generation relies on mass-production methods to deliver standardized products, it is also known as industrial distance education (Bates, 2005). "The industrial model was very good at transmitting information, and instructions to the learner, but implicitly militated against sustained two-way communication as an important element in an educational experience" (Garrison and Cleveland-Innes, 2010, p. 15).

The current generation uses two-way communications to support interactions between teacher and students, and among students (Bates, 2005). This generation is sometimes referred to as post-industrial distance education.

E-Learning Emerges



E-learning has many definitions, ranging from "Learning that is done via a computer" (FastFind Education, 2010) or "Learning activities based on any electronic format" (Teachnology, 2010) to "E-Learning is the learning process created by interaction with digitally delivered content, services and support" (Imperial College London, 2010) and "Electronic learning where new multimedia technologies and the Internet are involved in the learning process in one or several forms" (National IT and Telecom Agency, 2010). While each of these definitions includes the word "learning", even the best of them runs the risk of allowing the learning aspect to be overrun by the technology by which

it is delivered.

If e-learning is to have a more meaningful impact on education than its predecessor fields of instructional technology and instructional design, the focus must be kept on learning; specifically the learner and the teacher. Put simply on agelesslearner.com, "With good design and delivery, e-learning does all these things. But, at its heart, it is, simply, learning. Too bad most interpretations focus on the technology (the "e") and not on the learning" (Ageless Learner, 2006 para. 6).

Consider the modest, yet crucial, difference in focus between the definitions given above and the following definitions. "Gaining popularity in the early 2000s, the term e-learning refers to any electronically assisted instruction, but is most often associated with instruction offered via computer and the Internet" (stateuniversity.com, 2010). "Learning that is facilitated by the use of digital tools and content. Typically, it involves some form of interactivity, which may include online interaction between the learner and their teacher or peers" (Ministry of Economic Development, 2010). Each of these definitions makes reference to the learning or instruction being assisted or facilitated by the technology. Furthermore, the latter definition points toward a defining aspect of E-learning 2.0.

A web search of the term E-learning 2.0 yields a reference to computer-supported collaborative learning (CSCL). CSCL "is a method of supporting collaborative learning using computers and the Internet...The purpose of CSCL is to scaffold or support students in learning together effectively. CSCL supports the communication of ideas and information among learners, collaborative accessing of information and documents, and instructor and peer feedback on learning activities" (Wikipedia, 2010 para. 1 & 3).

Looking to the Future

E-learning has the potential to succeed beyond its more technology- and theory-focused predecessors given its solid commitment to supporting learning, the learner, and interaction, whether with the instructor, other learners, or information itself. If implemented carefully and wisely, we believe elearning 2.0 can deliver the benefits of classroom instruction and social interaction, while the possibility of asynchronous delivery methods allows for a dose of self-paced and self-directed learning experiences.

In this vein, the E-Learning 2.0 wiki goes on to assert that "CSCL also supports and facilitates group processes and group dynamics in ways that are not achievable by face-to-face communication" (Wikipedia, 2010 para. 3). It is in this concept that elearning stands to lift instructional design and technology out of the trend of merely approaching replication of the classroom environment and into the realm of rich learning experiences beyond the bounds of what has been, before now, possible.

Trends in Business

Since the emergence of the field of elearning about 10 years ago, it is noteworthy that the goals for elearning in the business world haven't changed significantly despite wide fluctuations in initiative and the amount of investment. What has changed is the emphasis on particular

aspects of elearning, the assignment of elearning ownership, and the expectation as to how elearning objectives will be met.

Four emerging trends in elearning were identified in the year 2000 (Learning in the New Economy, 2000):

1. Making use of the everyday presence and adaptability of information technologies
2. Improving a workforce's performance by better managing an organization's intellectual assets
3. Using competency models to organize learning objects
4. Making learning management systems interoperable

In 2006, there was “an explosion in the use of blogs, wikis, and podcasting” (HR Management, 2006). One of the requests heard frequently from businesses was for “[h]elping employees learn from each other through communities of practice, blogs, wikis, and other forms of self-published content” (HR Management, 2006).

The emphasis during this time period seemed to be placed equally on technology and methods for its use. On the technology side, the focus progressed from merely trying to establish a standard for learning objects, or collections of educational material geared toward a single learning objective, to trying to expand capabilities of Learning Management Systems to integrate with other systems or to make learning content available in multiple formats with little additional effort (HR Management, 2006). In the area of methods, desires included increasing interactivity, developing content more rapidly, and the notion of “[c]reating learning environments in which employees can find just what they need” (HR Management, 2006).

While the technology underpinning the continued emergence of elearning is essential, the direction of the field today is almost an afterthought in public discourse. Approaches, methods, and learner needs dominate the discussion. Increasingly, companies integrate elearning into their infrastructure, providing content in smaller chunks and precisely when the learner needs the information. Churning skill sets require constant on-the-job training, with “job descriptions and daily tasks evolving faster than schools can produce qualified job candidates” (WorldWideLearn, 2010).

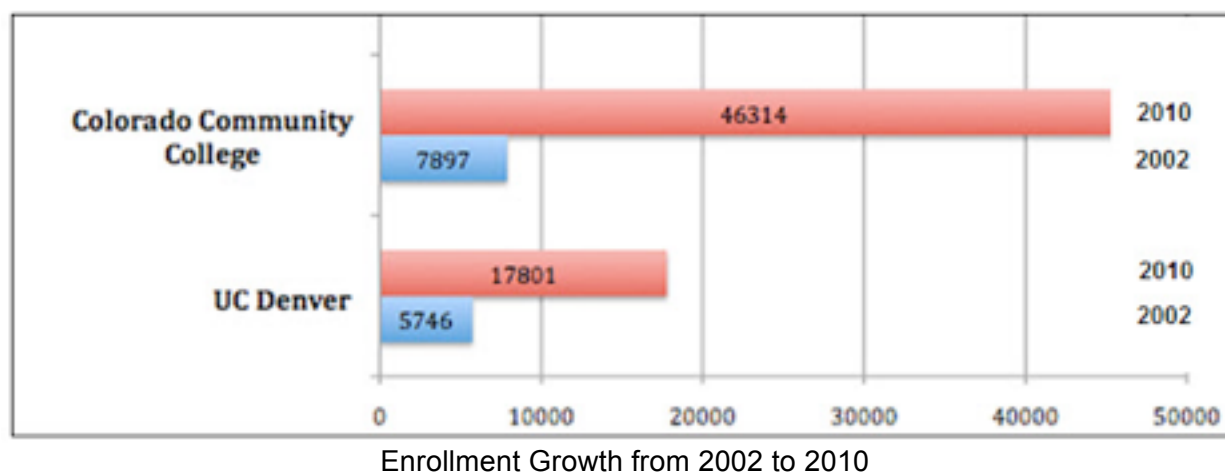
In these environments, the traditional model of education is not suited to serve the needs of learners. Even so, Jane Hart points out that online and blended learning are often delivered in a very traditional way (Center for Learning and Performance Technologies, 2009).. “Meanwhile, outside the formal learning environment (online courses, classroom, workshops, etc), individuals are learning in other ways — often without realising it — whether it be by reading, listening or watching ... or simply by talking to one another” (slides 6-7).

The future of elearning in business will need to be fluid, transparent, and ongoing. Learning objects will both slim down to near invisible notions experienced in the performance of tasks and be propagated in a conversational manner through social communities by learners themselves.

Trends in Higher Education

Online instruction in higher education has seen rapid growth. At a national level, records indicate that the 17% enrollment for online courses far exceeded the 1.2% growth rate for overall higher education last year (Epper, & Cheney-Steen, 2010). Over 25% of all higher-education students in the United States in 2008 were taking at least one online course. At the University of Colorado's Denver campus, the number of students taking online and hybrid courses increased 209% in the last 8 years. At Colorado Community College Online, the largest provider of online learning in Colorado, the number of students taking online and hybrid courses increased 486% over the same period (Epper, & Cheney-Steen, 2010).

The increase has been attributed to: convenience; indirect cost savings (gas, and child care); growing sophistication and acceptance of online credits and degrees; the need for career retraining; and the general state of the economy in the United States (Epper, & Cheney-Steen, 2010).



The 2010 Horizon Report (Johnson, L., Levine, A., Smith, R., & Stone, S., 2010) reviewed emerging technologies that are expected to have a big impact on higher education in the next five years. Three of those technologies are presented here.

Mobile computing using network-capable devices that are equipped with mobile broadband cards can take advantage of cellular hotspots. Included are smartphones, netbooks, and laptops. As an example, Harvard Medical School developed an iPhone app on the H1N1 virus. The app included outbreak maps, a symptom checker, and tips for avoiding infection or dealing with illness.

The combination of portability and connectivity of mobile devices offers convenience along with the capabilities of a desktop computer. Students can gain access to a full range of course materials and have the ability to aggregate and disseminate information. When students use their mobile devices wherever they go they integrate learning with other mundane activities and

environments, accessing instruction in shorter segments of time and smaller screens. This trend will challenge designers and instructors and perhaps change how we think about education.

The Open Content Movement sees learning as a process rather than as the accumulation of information. It advocates for the concept of content being free and ubiquitous. An example is OpenCourseware (OCW) at the Massachusetts Institute of Technology (<http://ocw.mit.edu/index.htm>), which makes available virtually all course content at the school.

The idea of lower costs for course materials makes this trend very appealing. The need to search, evaluate, and repurpose information aligns with popular constructivist learning methods. But while Open Course Content is easily found, it is not ready to be delivered and consumed. This presents more challenges to instructors and institutions and gives them less control. The trend is gaining popularity but may not completely replace other content. Access to learning materials is only part of the equation of learning, teaching or getting an education.

Electronic books are portable reading devices that can store many books. They promise to reduce costs. Content can be purchased at any time over the Internet and downloaded in minutes. Institutions are creating programs to provide electronic books to their students. An example is the collaboration between Penn State University libraries and Sony (http://libraries.psu.edu/psul/lls/sony_reader.html) to investigate ways in which the Sony reader can be used in academic libraries and university environments.

Electronic reading devices offer portability, great storage capabilities, and lower costs for books. The iPad, for example, offers connectivity along with some computing capabilities. In this light we think that a new generation, a hybrid laptop/electronic book could be more successful for educational purposes, as it could combine all the advantages in one piece of hardware.

In sum, demand for online education and technological developments exert pressure on institutions to update their management systems, to provide more and better support services, and to train more instructors. New technology will play a large role in setting the direction of online learning in higher education.

Trends in Public Libraries

Libraries can be categorized as academic, school, special, and public. Academic libraries serve colleges and universities. School libraries (sometimes called media centers) serve students in grades from kindergarten through high school. Special libraries operate in specialized environments that include corporations, hospitals, law firms, the military, museums, and government.

Of all categories of libraries, public libraries are the most diverse. This is because they serve entire communities. Public libraries serve patrons regardless of age, ethnicity, language, race, gender, educational attainment, and socio-economic standing. They serve patrons who want entertainment, information, and/or education.

E-learning at public libraries can be dated to the 1970s when digital catalogs and digital databases became available. The earliest digital catalogs, which used a text-based data-centric model, were made possible by specialized software developed by companies such as Dynix, Innovative Interfaces Inc., and Sirsi. Digital databases were offered by subscription from vendors such as Ebsco, Gale, and ProQuest. During the same period, audiobooks became available on audiocassettes. Videos became available in VHS and Beta formats.

Today, the digital catalog has evolved to a GUI patron-centric model. Digital catalogs can now run federated searches, which are simultaneous transparent searches of the digital catalogs of multiple unrelated library organizations. It is now routine for digital databases to be accompanied by online tutorials and other aids on how to use these tools. Audiobooks have expanded to other formats, including CDs and MP3 downloads. Videos are available on DVD. Patrons are offered blogs on a variety of topics, including careers/job searching and parenting.

When public libraries routinely offer standardized training, it is usually in the form of computer classes. Public libraries have fulfilled their mission to advance digital/technical literacy by offering computer classes. Virtually all computer classes in public libraries depend on face-to-face training. The skill sets of existing staff, who in the main have a general unease with technology, support face-to-face training. The staff time spent creating hardcopy handouts for classes is minimal. No money needs to be spent on special training and software/hardware.

A few public libraries provide links on their websites to free e-learning from MIT and other schools. A few public libraries have subscribed to e-learning computer courses from vendors such as CustomGuide. The motivation for this, arguably, has not been to provide patrons with a better learning experience. Rather, this direction appears to have been a way to deal with limited staffing and budgets by eliminating the face-to-face computer classes that were previously offered.

Rather than pursuing LMS-type solutions, public libraries would be better off integrating e-learning at a point of need in an existing area of strength, such as computer literacy (Deschamps, 2006). The average patron

... is more than happy to be finished with their schooling. ... In general terms, online courses do not sound like fun ... they sound like obligations or New Year's resolutions to go alongside "lose weight" or "spend less" (Deschamps, 2006).

Consequently, computer classes are a logical entry point for e-learning at public libraries. This is because patrons who attend computer classes are highly motivated. They usually have needs related to employment, school, or volunteer activities.

Public libraries value and promote life-long learning. Unfortunately, most public libraries will not be in a position to develop e-learning computer classes for several years to come. The reasons include: staff not having the requisite skill sets; staffing levels not permitting time to be devoted to e-learning efforts; and there being no money available for training and additional software/hardware.

In the short term, the lack of wherewithal need not be a complete show-stopper for e-learning in the average public library. It might mean staff building their knowledge and confidence by starting with small projects, and being creative in using the tools that are already at hand to add elements of e-learning to face-to-face computer classes.

Library schools are now fully engaged in incorporating e-learning as a core building block in their programs. As new graduates are hired by public libraries, they will come equipped with a knowledge of the ways and means of e-learning. Technology librarians currently on staff will endeavor to add e-learning to computer classes to provide patrons with a better learning experience.

The American Library Association (ALA), the oldest, largest, and most influential library association in the world, has communicated that it deems e-learning important for public libraries. In its annual survey on public-access funding and technology in public libraries in the United States, a new question asks whether or not patrons are offered technology training classes that provide access to online training material. This question introduces a competitive element, with public libraries not wanting to lag behind their peers on the implementation of e-learning.

Implications

Based on our examination of e-learning origins and key trends, the following are the major implications for e-learning programs and professional roles.

For Programs

Professional Development: The growing sophistication and credibility of e-learning programs will continue to increase the demand for e-learning. A significant portion of the increased demand will be for preparatory programs for the next generation of e-learning professionals and for supplemental, or even transformative, programs for current learning professionals.

Standardization: Some level of agreement on definitions of learning and on meaningful assessment of outcomes will be necessary to gauge quality, inform improvement, and establish return on investment in a reliable and uniform manner.

Non-instructional Solutions: The need to fetch information and gain skills on the fly creates the demand for transparent or “invisible” learning, where information can be consumed in smaller chunks: just what is needed, just when it is needed.

Social Interaction: At the forefront of conversations and debates on e-learning programs is the need for social interaction and communities of practice. Emphasis must be kept on the learners and learning, as opposed to on technology and tools.

Changing Technology: Technological developments to a great extent dictate the direction of e-learning programs. In such a volatile environment the need for agile content, rapid development, smaller chunks of instruction and mobile capabilities will continue to be important.

For Professional Roles

Professional Development: Increased demand for e-learning along with rapid changes in technology create a constant need for staff, training, funding, support, and infrastructure.

Ownership: Skills related to establishing community and yielding ownership of learning to the learner will be of high value. As the efficacy of self-paced training continues to be proven, eLearning professionals will need to be mindful of adding value through the establishment of a viable learning environment moreso than through the mere delivery of content.

Jobs: The number of positions available in existing eLearning jobs will increase, as will the variation in types of jobs in existence. Of utmost importance will be management of intellectual assets, specifically organizing a near infinite volume of fragmented information, and enabling learners to compile, consume, and assign meaning to information in any number of ways.

Communities of Practice: With skill sets churning too quickly to be addressed effectively by traditional degree programs, professionals will rely more heavily on skill transfer through forums, blogs, professional organizations, and self-published content, such as wikis. Credentialing may come to resemble much more of a portfolio evaluation, with demonstration of ability through work products providing a more meaningful assessment of a professional's relevant skills than any particular degree.

Outsourcing: Organizations without the means to develop and manage their own learning environments will seek support and services from an increasingly ubiquitous array of aggregator services, whether they be paid services or open content environments.

Concluding Thoughts

E-learning offers the advantages of flexibility and availability on a just-in-time basis. In addition, with E-learning's unique strengths of supporting social and asynchronous learning environments, learners can learn from other learners, as well as from teachers, when it is convenient for them. Complementing traditional models of learning, e-learning offers yet another pathway to being a learner.

For the e-learning professional, it is crucial to understand the context in which the field is developing. This understanding is necessary not only to recognize the knowledge and skill sets needed to remain viable, but to continually gauge the needs of tomorrow's learner.

References

- Ageless Learner. (2006). E-learning Introduction. *Definitions of e-learning*. Retrieved September 8, 2010 from <http://agelesslearner.com/intros/elearning.html#def>
- Baker's Guide to Christian Distance Education. (n.d.). *Distance Education Timeline*. Retrieved September 7, 2010, from [http://www.bakersguide.com/Distance Education Timeline/](http://www.bakersguide.com/Distance_Education_Timeline/)
- Balas, J. L. (2007). eLearning about library 2.0. *Computers in Libraries*, 27(1), 39-42.
- Bailey-Hainer, B. (2005). Library support for e-learning in Colorado. *Colorado Libraries*, 31(3), 6-9.
- Bates, A. W. (2005). *Technology, E-learning and Distance Education* (2nd ed.). New York: Routledge.
- Centre for Learning & Performance Technologies. (2009). *Social Learning, Part I: The Future of E-Learning is Social Learning*. Retrieved October 7, 2010 from <http://www.c4lpt.co.uk>
- Christensen, C. M., Horn, M. B., & Johnson, C. W. (2008). *Disrupting class: How disruptive innovation will change the way the world learns*. New York: McGraw-Hill.
- Cleveland-Innes, J. M., & Garrison, D. R. (Eds.). (2010). *An introduction to distance education: Understanding teaching and learning in a new era*. New York:: Routledge.
- Deschamps, R. (2006). "That's 'e' for 'everyone'": the Future of e-learning in public libraries . *Canadian Journal of Library and Information Practice and Research*, 1(1), Retrieved October 5, 2010 from <http://www.criticalimprov.com/index.php/perj/article/viewArticle/127/151>
- E-Learning Glossary. Retrieved September 7, 2010, from <http://www.worldwidelearn.com/elearning-essentials/elearning-glossary.htm>
- E-learning just got easier, thanks to Guymon Public Library. Retrieved October 5, 2010 from <http://kgynradio.net/news/lifestyles/e-learning-just-got-easier-thanks-to-guymon-public-library/>
- Epper, R., & Cheney-Steen, L. (2010). Cccs and ccconline: increasing access to postsecondary access for Colorado Citizens. *Poceedings of the Ccco faculty conference Denver*: [http://at.cconline.org/faculty/wiki/Teaching Resources - Presentations - 2010 CCCOnline Faculty Conference#Keynote: CCCOnline - Our Present and Our Future](http://at.cconline.org/faculty/wiki/Teaching_Resources_-_Presentations_-_2010_CCCOnline_Faculty_Conference#Keynote:_CCCOnline_-_Our_Present_and_Our_Future)
- Evans, T., & Nation, D. (2003). Globalization and the reinvention of distance education. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 777-792). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

- FastFind Education. (2004). *Glossary*. Retrieved September 8, 2010 from <http://www.fastfind.com/Education/EduGlossary.aspx#E>
- Garrison, D. R., & Cleveland-Innes, M. F. (2010). Foundations of distance education. In M. F. Cleveland-Innes & D. R. Garrison (Eds.), *An introduction to distance education: Understanding teaching and learning in a new era* (pp. 13-25). New York: Routledge.
- HR Management. (2006). *Top trends in e-learning and corporate training*. Retrieved October 4, 2010 from <http://www.hrmreport.com/article/Top-trends-in-e-learning-and-corporate-training/>
- Imperial College London. (2010). Information and Communication Technologies ICT. *An E-Learning Glossary*. Retrieved September 8, 2010 from <http://www3.imperial.ac.uk/ict/services/teachingandresearchservices/elearning/aboutelearning/elearningglossary>
- Johnson, L., Levine, A., Smith, R., & Stone, S. (2010). *The 2010 Horizon Report*. Austin, Texas: The New Media Consortium. <http://wp.nmc.org/horizon2010/>
- Keegan, D. (1996). *Foundations of distance education* (3rd ed.). New York: Routledge.
- Learning in the New Economy. (2000, Fall). *Emerging Technology Trends in eLearning*. Retrieved October 4, 2010 from <http://www.linezine.com/2.1/features/ewette.htm>
- Ministry of Economic Development, Manatu Ohanga. *Digital Strategy 2.0*. Retrieved September 8, 2010 from <http://www.digitalstrategy.govt.nz/Resources/Glossary-of-Key-Terms/>
- National IT and Telecom Agency. (2008). *Annual Report 2006 -2007, Annexes. Glossary*. Retrieved September 8, 2010 from http://www.itst.dk/filer/Publikationer/aarsberetninger/aarsberetning_2008/ar_0607_annex/ar_0607_annex/kap09.htm
- Reiser, Robert, A. (2001). A History of instructional design and technology: Part I A History of Instructional Media, *ETR&D*, 49(1), 53-64.
- Reiser, Robert, A. (2001). A History of instructional design and technology: Part II: A History of Instructional Design, *ETR&D*, 49(2), 57-67.
- stateuniversity.com. (2010). *Distance Learning in Higher Education - Related Terms and Concepts, Goals of Distance Learning, Technologies Used in Distance Learning*. Retrieved September 8, 2010 from <http://education.stateuniversity.com/pages/1917/Distance-Learning-in-Higher-Education.html>
- Teachnology. *Teacher Glossary of Terms in Teaching*. Retrieved September 8, 2010 from <http://www.teach-nology.com/glossary/terms/e/>
- Tolsma, R. (2010). Webinar presented to Course INTE 5650, Oct 6, 2010.

United States Distance Learning Association. (n.d.). *Glossary*. Retrieved September 7, 2010, from http://www.usdla.org/Glossary_Distance.pdf

WebJunction: Helping libraries use Articulate to build great e-learning. Retrieved October 5, 2010 from <http://www.articulate.com/blog/webjunction-helping-libraries-use-articulate-to-build-great-e-learning/>

Wikipedia. (2010). *Computer-supported collaborative learning*. Retrieved September 8, 2010 from http://en.wikipedia.org/wiki/E-Learning_2.0

WorldWideLearn. (2010). *E-Learning Trends*. Retrieved October 4, 2010 from <http://www.worldwidelearn.com/elearning-industry/trends.htm>