6-22-2009

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A, Rupesh Kumar, "E-Learning 2.0: Learning Redefined" (2009). *Library Philosophy and Practice (e-journal)*. Paper 284.
http://digitalcommons.unl.edu/libphilprac/284

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Introduction

The introduction of computers and the Internet has brought significant changes to education. Though computer-aided education and computer-assisted training have been around a long time, they were confined to a single classroom or a laboratory. Web-based training brought revolutionary change. Initially implemented in the business sector, web-based training programs moved to universities soon after. This web-based training model gradually evolved into e-learning. Today, e-learning is a very popular phenomenon and forms the core of a number of initiatives and programs offered by colleges and universities.

E-Learning

E-learning is a technological infrastructure with applications and software that manage courses and users. The software that facilitates e-learning may be called a Learning Management System (LMS) and supports course creation, content delivery, user registration, monitoring, and certification.

The E-Learning (R)Evolution

Gonella and Panto (2008), in their paper on didactic architectures, have traced the following four stages in the evolution of e-learning:

1. Web-based Training
2. E-learning 1.0
3. Online Education
4. E-learning 2.0

Gonella and Panto's discussion of those four stages is outlined below.

Web-based Training

Web-based training emerged in the 1990s in business. It was based on the "online distribution of autonomously used learning materials." The emphasis was on "training" rather than on education or learning. The contents were mainly multimedia pages, which users would consult for information. With these web-based training systems, it was not possible to track the use of learning materials.

E-learning 1.0

The web-based training model evolved into the e-learning architecture, which can be referred to as "E-learning 1.0". E-learning uses and LMS to create, design, and manage courses, as well as supporting content delivery, user registration, monitoring, and certification. The focus of the system is on content and learning objects, with less consideration for the learning process. There is not much scope for communication and collaboration. Even though tools for collaboration are available, their application in learning is negligible.

Online Education

Earlier learning infrastructures had little or no provision for interaction. In the late 1990s, educators began emphasizing the active role of students in the learning process. Collaboration and communication tools assumed greater importance and teachers and students began using simple technologies such as mailing lists and newsgroups for interaction. Later, more sophisticated tools like conferencing systems were introduced. Learning consisted not only of materials delivered by the teacher but also of interactions and discussions among students, making learning a social process.

E-learning 2.0

The learning process is transformed when courses are interactive. User (student) contribution is not limited to newsgroups and mailing lists. "Social software" has revolutionized online learning. Web 2.0 has given birth to e-learning 2.0. The influence of new practices on the Web has resulted in a new array of services, which can be collectively termed "E-learning 2.0".

E-Learning 2.0 Defined

Gonella and Panto (2008) present the following definition:

e-learning 2.0 refers to a second phase of e-learning based on Web 2.0 and emerging trends in e-learning. …The term suggests that the traditional model of e-learning as a type of content, produced by publishers, organized and structured into courses, and consumed by students, is reversed; so that content is used rather than read and is more likely to be produced by students than courseware authors.

Web 2.0: The Agent of Change

The Web has undergone a metamorphosis, bringing radical changes in the information industry. "Collaboration" is the hallmark of Web 2.0. Here are some notable changes that have occurred on the Web over the past few years, as observed by Downes (2005). These may also be perceived as the characteristics of Web 2.0.

"Read-Only Web" to "Read-Write Web"

A few years ago, the practice was that "hundreds would publish and millions would read." The Web was more "readable" than "writable." There was no or little scope for "ordinary" user to write on the web. Web 2.0 has made it a "Read-Write Web," with as many writers as readers. Web 2.0 has provided a democratic publishing space.

Web of Documents to Web of Data

The Web was previously a repository of static documents. Now, it is more dynamic with new data being added constantly. With the new set of tools, people syndicate and remix existing content in new and useful ways. It is not the documents but the data which rules Web 2.0.

"Web as a Medium" to "Web as a Platform"

The Web was used as a medium by publishers to transmit information and by users to consume it. Now, it is a platform to create, share, organize, and distribute content, and anyone can use this platform.

Reactive User to Proactive User

Web users had a very limited role in the Web 1.0 environment. They were expected to consume readymade sources of information and react. In the Web 2.0 environment, the availability tools for communication and collaboration has made the user proactive. These tools empower users to initiate communication and collaborate among peers to share their views and reviews. Users stay connected to each other and inform each other of happenings on the Web. Thus, the user is no longer a spectator, but a dynamic actor on the Web 2.0 platform.

Technological Revolution to Social Movement

Web 2.0 enables users to connect, communicate and collaborate with each other, forming online communities and socializing. Web 2.0 encourages participation through open applications and services. Everyone has the right to create content, use it, and reuse it. Web 2.0 is not a technological revolution, but a social one.

E-learning 1.0 vs. E-learning 2.0

One may say that e-learning 1.0 is based on Web 1.0, and e-learning 2.0 is based on Web 2.0.

E-learning is found in the following forms (Hart, 2008):

- Online courses with a blend of online teaching and face-to-face interaction (to a limited extent)
- The LMS that manages students' learning
- Live learning systems that support the delivery of scheduled online sessions.

The factor most lacking in e-learning 1.0 is the social and collaborative approach to learning. With the fusion of e-learning 1.0 and Web 2.0, a new set of services has emerged, which makes the learning process more creative and learning experience more enduring. Hart (2008) says that,

E-learning 1.0 was all about delivering content, primarily in the form of online courses and produced by experts, i.e. teachers or subject matter experts. E-learning 2.0 is about creating and sharing information and knowledge with others using social media tools like blogs, wikis, social bookmarking and social networks within an educational or training context to support collaborative approach to learning.

Tracing the changes in the world of e-learning, Downes (2005) remarks that

The model of e-learning as being a type of content, produced by publishers, organized and structured into courses, and consumed by students, is turned on its head. Insofar as there is content, it is used rather than read— and is, in any case, more likely to be produced by students than courseware authors. And insofar as there is structure, it is more likely to resemble a language or a conversation rather than a book or a manual.

Significant Features of E-Learning 2.0

The following are a few significant features of e-learning 2.0:

People-Centered Learning

E-learning 1.0 paid attention to the delivery of content. Delivering content authored by subject matter experts will not stimulate learning. E-learning 2.0 brings people together in the learning process. It focuses on "people-centered learning" rather than on "content-centered learning."

Bottom Up Learning Approach

In a conventional e-learning system, an instructor prepares material according to a particular curriculum and uploads it to the LMS where it is consumed by learners. There is a top-down approach in such a system. The autonomy of creating and publishing contents lies with the tutor. E-learning 2.0 adopts a bottom-up approach. It gives learners the opportunity to participate in courseware creation.

Content Creation

The traditional e-learning system limits the role of student to that of content consumer, with no role in content creation. A successful learning process is one in which there is scope for interaction between teachers and learners at every stage. E-learning 2.0 provides tools for collaboration among students. Students discuss the course and its contents, interact with teachers and help them design learning resources. Learners have their say in deciding and getting what is most useful to them.

Dynamic Content Publishing

Content publishing is instant and dynamic in an e-learning 2.0 environment. With tools like blogging, one can publish content on the fly. Students can read each other's blog posts, comment and interact, thus forming a social network among them. Further, with tools like wikis, students may create and edit content collectively, which promotes collective authorship and harnesses collective intelligence.

Folksonomy

The LMS organizes learning objects in a standard way, in terms of modules and lessons, tests and discussions. This system of organizing content is rigid. Students have no liberty to organize contents in their own way. With the use of "tagging" tools, e-learning 2.0 facilitates organization of information in a personalized way. This enables quick access to the learning resources. More emphasis is given to folksonomy than taxonomy.

The Challenges in E-learning 2.0

The success of an e-learning 2.0 platform depends on many factors. One important factor is the preparedness of students to use the platform for their benefit. A highly ambitious e-learning 2.0 project may not deliver the expected results and may end up being a failure if its chief beneficiaries, i.e., the students, lack familiarity with Web 2.0 and its tools. In other words, an e-learning 2.0 environment expects a student to be a "student 2.0" and demands more responsibility and accountability. Therefore, it cannot be expected to deliver success at all levels of education.

The level of expertise among peers is a matter of concern in an e-learning 2.0 environment. As Calvani, et al. (2008) have observed, "E-learning 2.0 is mostly based on peer-to-peer learning; as any other environment-based on collaboration, the principle remains valid as regards people that interact: the more expert they are, the better the chances that interactions are mutually profitable."

Another challenge is resources and learning cultures. In organizations where resources are limited and learning cultures vary, the implementation of e-learning 2.0 is a hard task.

Student Centered Learning: The Ultimatum

The traditional approach to e-learning is too often driven by the needs of the institution rather than the individual (O'Hear, 2006). E-learning platforms should focus on building student-centered learning environments. Lea, et al. (2003) summarize the principles of student-centered learning:

1. the reliance on active rather than passive learning,
2. an emphasis on deep learning and understanding,
3. increased responsibility and accountability on the part of the student,
4. an increased sense of autonomy to the learner,
5. an interdependence between teacher and learner,
6. mutual respect within the learner teacher relationship,
7. a reflexive approach to the teaching and learning process on the part of both teacher and learner.

Conclusion

E-learning 2.0 views online learning tools as a platform and not a medium. It aims to create a learning environment, and not just a learning system. By enabling participation and collaboration of students in content creation, organization, and use, e-learning 2.0 creates a "personal learning portfolio." In e-learning 2.0, "everyone is a learner, but also everyone has a potential to be a teacher" (Cobb, 2008). The LMS continues to be the dominant technology for delivery of online courses. E-learning 2.0 combines the quality of e-learning 1.0 and the power of Web 2.0. The teaching and learning communities should exploit e-learning 2.0 tools and services to make learning process enjoyable and creative.

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