

ASYNCHRONOUS E-LEARNING

Adrian LADO

Faculty of Computer Science for Business Management,
Romanian – American University, Bucharest, Romania

ABSTRACT

E-Learning is learning that takes place in an electronically simulated environment. E-Learning, web-based training, internet-based training and computer-based training are the next-generation instruction methods being developed today. With e-Learning, users can immerse themselves in a three-dimensional environment to further enhance their learning experience. Moreover, e-Learning can be done anywhere and anytime as long as the user has the proper hardware.

Keywords: E-learning, learner, asynchronous, SCORM, Internet, communication.

1. INTRODUCTION

E-Learning can be done using an internet connection, a network, an intranet, or a storage disk. It uses a variety of media like audio, text, virtual environments, video, and animation. E-Learning, in some ways, is even better than classroom learning methods as it is a one-on-one learning method, it is self-paced and it has an experiential-learning format.

As with any other forms of learning, e-Learning depends on its delivery method and content to ensure its success. For this reason, e-Learning modules have to be interesting, interactive and informative in order to be effective. Because it is computer/software based however, e-Learning has the capability of immersing its students completely within an environment most conducive to learning. This sets it apart from classroom-style learning.

2. THE CATEGORIES OF E-LEARNING

Database e-Learning: Online databases are a form of e-Learning that is used today. With online databases, users can browse through different topics to look for an answer or an explanation to various questions. Online

databases can also provide step-by-step instructions on how to do things like installation of an additional component to a computer or activation of a certain product.

Online Support: Online support is a more interactive form of e-Learning as it gives the user an opportunity to interact with real people when he or she is looking for an explanation or answer to a problem. These online support systems can be in the form of chat rooms, forums, email, bulletin boards, instant messaging applications, and others that can better help the user resolve his or her question by providing more specific or tailored answers.

Asynchronous training: Asynchronous training is a combination of the two forms of e-Learning mentioned above. With asynchronous training, students learn through internet-based, network-based or storage disk-based modules. Moreover, students can also interact with other students or instructors through e-mail, online discussion groups and online bulletin boards. As with the preceding types of e-Learning, asynchronous training is also self-paced and interactive.

Synchronous training: Synchronous training is a real-time method of e-Learning with live interaction between the instructors and the students. It is called such because students have to log in at a specified time and the classes will be held for a specified period of time. Lessons can take the form of single sessions to several sessions over a few years. Synchronous training is the e-Learning method that is nearest to classroom-style learning as students can raise their electronic hands, view a common blackboard and interact with each other. Synchronized training sessions are usually held in AV conferencing media, websites or internet telephony media.

3. SYNCHRONOUS E-LEARNING

Synchronous learning comes to the rescue of students facing geographical barriers, by aiding face to face interactions with the instructor, physical constraints no bar. It has been observed that most learners find it difficult to learn without real time conversation with either the instructor or peers. This interaction, combined with an at-will access to web based courseware, augments comprehension. But, an in-depth look at the process reveals that synchronous learning has only been able to remove the physical barriers without actually adding much value to the traditional classroom based training. It supports all the learning methods that conventional learning hails, only with an added advantage of a wider student base. Though this is a pro, it is definitely not avant-garde.

4. ASYNCHRONOUS E-LEARNING

Asynchronous learning is learning that happens independent of time and space. Learners are able to interact with course materials and with each other at a time of their choosing. A discussion thread is an example of an asynchronous learning. One learner can post a thought, and hours (or days) later, another learner can comment on the posting.

Asynchronous learning gives e-learning much of its appeal. Traditionally, students needed to be physically present to engage in learning with other students. Now, learners can engage each other when it is most convenient and a knowledge trail is left of discussions. In synchronous learning the discussion vanishes (unless it is recorded and indexed) but asynchronously, students that are trailing behind in course work still receive the benefit of being able to read discussion posts.

Asynchronous learning frees e-learning from the requirements of time and space. This is perhaps the most revolutionary aspect of e-learning. Learners across different time zones and different continents can now participate in the same courses. Content can be explored and discussed in great depth - allowing learners the time to reflect and formulate thoughtful responses. Asynchronous tools like email and discussion forums have transformed how people communicate and share knowledge.

Asynchronous training may include computer-based training, using CD-ROMs or, more frequently, web-based training, in which a trainee logs into an online training system with a user name and password to begin an interactive course. The course can be easily updated, is accessible from anywhere and can be used with all kinds of computer systems.

This type of training is most suitable to structured content — questions that have right and wrong answers. The content varies little according to circumstances. An example of structured content would be a series of steps to be followed in formatting a document in a particular computer program.

The asynchronous environment is most appropriate for those who learn best by thinking about content on their own, and who can structure their time to accommodate instruction.

Asynchronous Formats

- Documents and web pages
- Web-based training (WBT), computer-based training (CBT), CD-ROM
- Assessments, tests, surveys
- Simulations and labs
- Recorded live events

Advantages of using asynchronous training include:

- Learners can address the content according to their own schedule
- Learners control the order in which content is addressed

While synchronous learning has enhanced the conventional education system in its own powerful way, asynchronous learning is stupendously futuristic. While most will deny this argument, asynchronous learning is the best learning solution in case of a dearth of infrastructure or time. And though asynchronous learning is considered to be the minion of its synchronous counterpart, it is amazing that it still appeals to a wider - though overlapping - audience as compared to synchronous communication.

Disadvantages include:

- No direct opportunity for questions
- Content relatively static (because it takes time to produce)
- May not accommodate all learning styles

5. SHARABLE CONTENT OBJECT REFERENCE MODEL (SCORM)

SCORM is a collection of standards and specifications for web-based e-learning. It defines communications between client side content and a host system called the run-time environment (commonly a function of a learning management system). SCORM also defines how content may be packaged into a transferable ZIP file.

The business case for SCORM

The business case for SCORM can be summarized in one picture. Before SCORM, integrating content with a delivery platform for e-Learning or training used to take days, weeks, or sometimes months unless the content was built specifically for that platform. Often the costs of modifying the content or building special adapters, along with the time to deployment, were simply prohibitive.

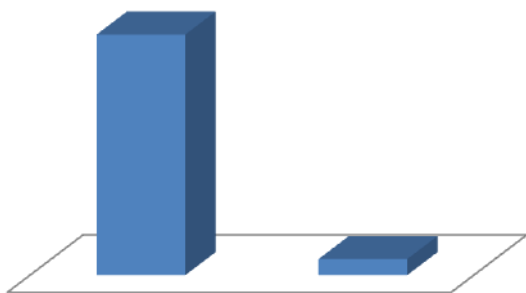


Figure 1. Cost of content integration

Some advantages of SCORM are:

- Publish once, play everywhere.
- Content can last longer because it is easier to justify ongoing compatibility with standard content.
- More places to play the content, and longer life for the content contribute to better returns on investment. This means that publishers can afford to produce better content.
- The same standard supports content that is very simple and inexpensive to produce, as well as content with very high production value.
- SCORM specifies a minimum set of metadata that makes it practical to build catalogs of content, regardless of where the content comes from.

- Content can be purchased or obtained from the most appropriate source under the most appropriate licensing arrangements, without being tied to a single content provider or authoring tool.
- You can mix and match content from different sources, without worrying about technical incompatibilities. Depending on your audience and policies, you may be able to overlook the differences in graphic design. This is not likely to be a problem for younger people raised on MTV and information gathering through surfing wildly different and sometimes baffling web sites.
- If things go sour and you have to change vendors, you can take your content with you.
- Obsolete content can be archived in a standard, well documented format.

All of the above decreases your cost and time to deploy an e-learning solution.

SCORM versions

SCORM 1.1

The first production version. Used a Course Structure Format XML file based on the AICC specifications to describe content structure, but lacked a robust packaging manifest and support for metadata. Quickly abandoned in favor of **SCORM 1.2**.

SCORM 1.2

SCORM 1.2 is a set of specifications that describes:

- How to create Web-based learning content that can be delivered and tracked by different SCORM-compliant learning management systems
- What a SCORM-compliant learning management system must do in order to properly deliver and track SCORM-compliant learning content.

SCORM 2004

The current version. Based on new IEEE standards for API and content object-to-runtime environment communication, with many ambiguities of previous versions resolved. Includes ability to specify adaptive sequencing of activities that use the content objects. Includes ability to share and use information

about success status for multiple learning objectives or competencies across content objects and across courses for the same learner within the same learning management system. A more robust test suite helps ensure good interoperability.

SCORM 2004 Editions

- 1st Edition (January 2004) — versioning changed so each book could be independently maintained
- 2nd Edition (July 2004) — improvements regarding Content Aggregation Model and Run-Time Environment
- 3rd Edition (October 2006) — clarification of various conformance requirements and of the interaction between content objects and the runtime environment for sequencing; some new conformance requirements to improve interoperability.

SCORM Timeline

- January 1999 — Executive Order 13111 signed tasking the DoD to develop common specifications and standards for e-learning across both federal and private sectors
- January 2000 — SCORM Version 1.0
- January 2001 — SCORM Version 1.1
- October 2001 — SCORM Version 1.2
- January 2004 — SCORM 2004 (1st Edition)
- July 2004 — SCORM 2004 (2nd Edition)
- June 2006 — Department of Defense Instruction (DoDI) 1322.26 Requiring DoD Use of SCORM
- October 2006 — SCORM 2004 (3rd Edition)
- October 2009 — SCORM 2.0 (Web 2.0)

6. CONCLUSIONS

Undeniably, the progress of technology and information science has played the most important role in the development of education and the transition from traditional teaching methods to learning via the internet. However, in order to maximally exploit the possibilities that technology and the field of information technology provide us, certain rules must be set and standards developed, with the main goal of providing qualitative services in the field of

education.

The various educational environments that have been created over time have surely offered a lot to the educational process and have facilitated the work of teachers quite a bit. However, they never had a common set of design rules and as a result have presented a lack of uniformity and weaknesses for future improvement. The time is now right for specific standards and rules to be implemented with regards to distance learning, through the adoption and application of the model SCORM 2004.

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