

Design and Analysis of E-Learning Content in Accordance with SCORM

Shaveta Bhambi, Balwant ram

*Department of Computer science
LPU University ,Punjab ,India*

Abstract – With the fast development of the Information technology there is a extremely change in the technology and standard of e-learning. We are living in a globalized era where the world is massively connected. In this era e-learning gain popularity. . If the quality of the content is good and according to some standard the we can easily study. The aim of this paper is to design the e-learning content that is portable and must sport the SCORM.

Key words –SCORM, LMS, LCMS, e-learning, SCO

1. INTRODUCTION

E-learning is learning that removed the barrier of age, place and time. We can study anything, anywhere, anytime. E-learning is a new education concept by using the Internet technology, it delivers the digital content, provides a learner-orient environment for the teachers and students. The e-learning promotes the construction of life-long learning opinions and learning society. E-learning comprises all forms of electronically supported learning and teaching. Two terms are used in the e-learning and these are LMS and LCMS.

SCORM is the standard that has emerged with the most momentum, and many vendors are adopting it. Its specifications are offered by the U.S. Government's Advanced Distributed Learning Initiative. SCORM defines the interrelationship of course components, data models, and protocols so that learning content or objects are sharable across systems that conform with the same model. To support interoperability, SCORM standardizes the means of communication from the sharable content objects (SCOs) to the LMS, through an Application Programming Interface and prescribed data model elements.

2. EFFECT OF THE EVOLVING E-LEARNING STANDARDS

- Learning objects to be easily reused, and handled interchangeably by various LMSs
- The accessibility of learning objects developed by any authoring tool
- Learning objects to be stored and easily accessed within databases
- The rapid construction of courses through easy sequencing of content
- New, more granular learner assessment models

3. LEARNING MANAGEMENT SYSTEM

An LMS is typically a web-based system that allows learners to authenticate themselves, register for courses, complete

courses and take assessments". To expand on this definition, LMSs are enterprise level, server-based software systems used to manage and deliver (through a web browser) learning of many types, particularly asynchronous e-learning. They generally also include the capability of tracking and managing many kinds of learner data, especially that of learner performance. Many training organizations rely on their LMS as a single point of access for all their e-learning content and student records. They are a key enabling technology for anytime, anywhere access to learning content and administration. No one can deny that an LMS provides the best e-learning solutions out there. It offers an incredible range of opportunities. The most interesting features of a learning management system are mutual delivery of data and documents, special catalogues for students who use an LMS for their learned courses and common tools for great business environment. One of the main features of LMS is its functionality. Learning management system is the best tool to form an e-learning environment. It works without any problems for teachers, students, corporate executives as well as people working for large organizations. There are no security issues with LMS and it is has become of an integral part of the corporate and learning environment. You can use the learning management system to introduce different types of courses and even send existing courses to your teachers or classmates and colleagues. Learning management system is a way by which you organize and manage the training of the people.

4. LEARNING CONTENT MANAGEMENT SYSTEM

A content management system is a system used to manage the content of a Web site or in other words we can say that a content management system is quite simply - a system that manages content. LCMSs are closely related to LMSs, providing much of the same functionality with the addition of content authoring. The focus of an LCMS is the instructional content- its creation, reuse, management, and delivery. This contrasts with the logistics of managing learners, managing learning activities, and competency mapping provided by an LMS. In other words, an LCMS focuses on the creation of learning objects (LO) while an LMS manages the learning process as a whole, incorporating the LCMS within it. These procedures can be manual or computer-based. With the help of the CMS we can manage the content and content may be a document, pictures ,movies or some graphics. The system itself is definable as a tool or combination or tools that

facilitate the efficient and effective production of the desired 'output' using the managed content.

The following general functions are normally provided by an LMS

Structure – centralization and organization of all learning-related functions into one system, enabling efficient access to these functions via layered interface navigation functions.

- Security – protection from unauthorized access to courses, student records, and administrative functions.
- Registration – finding and selecting or assigning courses, curricula, etc. by learners and their supervisors. This may include instructor-led training classes.
- Delivery – on-demand delivery of learning content and experiences to learners.
- Interaction – learner interaction with the content and communication between learners, instructors, course administrators, as well as between communicative content and the LMS (i.e. SCORM content).
- Assessment – administering assessments and the collection, tracking, and storing of assessment data, with further actions taken (possibly in other systems) based on the results of assessment. Many LMSs include the ability to create assessments as well.
- Tracking – tracking of learner data including progress on a predefined set of training goals and requirements, and tracking of courses for usage, especially in relation to required deployment of mandated training (for example, compliance training).
- Reporting – extraction of information by administrators and stakeholders about learners and courses, including the information that is tracked as described above.
- Record keeping – storage and maintenance of data about learners. This includes both demographical info profiling learners and their training progress and accomplishments. This is especially critical when an LMS is deployed as the official “System of Record” for an organization.
- Facilitating Reuse – searching and recombining courses and possibly parts of courses for delivery in different curricula and learning tracks (this is a much more prominent feature of LCMSs, but can be included in an LMS).
- Personalization – configuration of LMS functions, interfaces, and features by learners and administrators to match personal preferences, organizational needs, etc.
- Integration – exchange of data with external systems to facilitate enterprise-wide tracking of learner performance and transfer of user data and to exploit external content and learning resources (i.e. content management systems).
- Administration – centralized management all of the functions in this list.

Learning Management System is used as a generic term to refer to a suite of functionalities designed to deliver, track, report on and manage learning content, learner’s progress and learner’s interactions. The term LMS may refer to very

simple course management systems or to a highly complex enterprise-wide distributed environment.

5. DIFFERENCE BETWEEN LMS AND LCMS

In some research notes, a difference is made between a learning management system and a learning content management system. The differences between those systems are rooted in the origins of what they were originally designed for:

- An LMS has its roots in training management and scheduling applications, whereas a LCMS has its roots in learning content authoring tools.
- An LMS revolves around the user (learner, instructor, and administrator) and the resources. An LCMS revolves around the construction and management of content and learning experience.
- The purpose of an LMS is to help users manage, unify and optimise the training resources. The purpose of an LCMS is to assist in the creation, organization, and personalization of learning content in different delivery modes.
- LMS software also becomes the clearing house of learning resources from classroom to online courses. LCMS tools go now far beyond content lay out and content composition only. These systems also allow collaborative access, tagging, re-use and multi-mode expression of learning content and experience.

6. LO STRUCTURE AND FUNCTION

The architecture separates content, display and navigation; but then seeks to bind the instructional materials into a coherent learning experience based on instructional strategy.

- Binding Learning Objects into topics, lessons and courses is a virtual process so that reuse is achieved programmatically.
- This approach promises immense cost savings as compared to embedded structures that require extensive manual rework in order for instructional materials to be reused.
- Virtual binding requires calling the appropriate Learning Object in an appropriate sequence by dynamic linking. Learning Objects are entered and exited, and chained together (aggregated) through dynamic linking. The presentation shell common to the topic, lesson or course is modified as required, also by dynamic linking.
- The crucial requirement is have this process embody a sound learning strategy — "to automatically and dynamically compose personalized lessons." This is the technical challenge for instructional design and delivery that is only partially achieved at this time.
- Learning Objects are a new way of thinking about learning content design, development and delivery. Instead of providing all of the material for an entire course or lecture, a Learning Object only seeks to provide material for a single lesson or lesson-topic within a larger course. Examples of LOs include

simulations, interactive data sets, quizzes, surveys, annotated texts, adaptive learning modules.

- A LO does not have a predetermined size. Granularity of a Learning Object can extend from sub-topics to topics to lessons, and their associated media elements. Collections of LO topics aggregate to form lessons, modules, courses, and curriculum libraries.

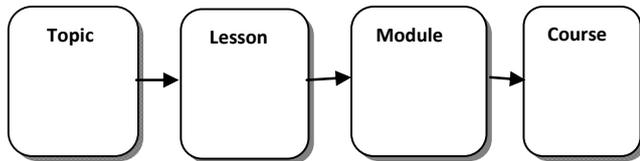


Figure1: Learning object

7. PLANNING FOR CONTENT ORGANIZATION

The following hierarchy represents a common way of planning content organization. Topic level is a composition of digital media element: text, graphics, animation, audio, video, and interactive user interface components.

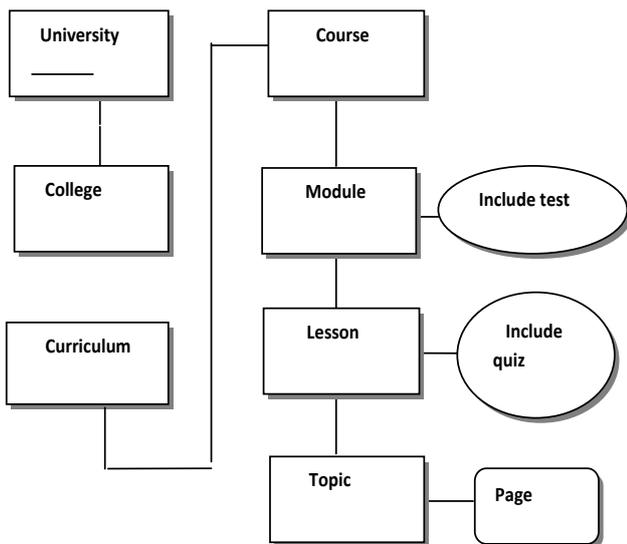


Figure2: Content organization

Because granularity can include any size, the term Learning Object can be used in misleading ways. The Institute of Electrical and Electronics Engineers (IEEE), for instance, has developed the following definition which is so broad as to include almost anything that exists: "any entity, digital or non-digital, that may be used for learning, education or training."

The learning object that we create retrieved, managed and launched by a Learning Management System (LMS) for presentation to a learner. Let us understand this with the help of the diagram.

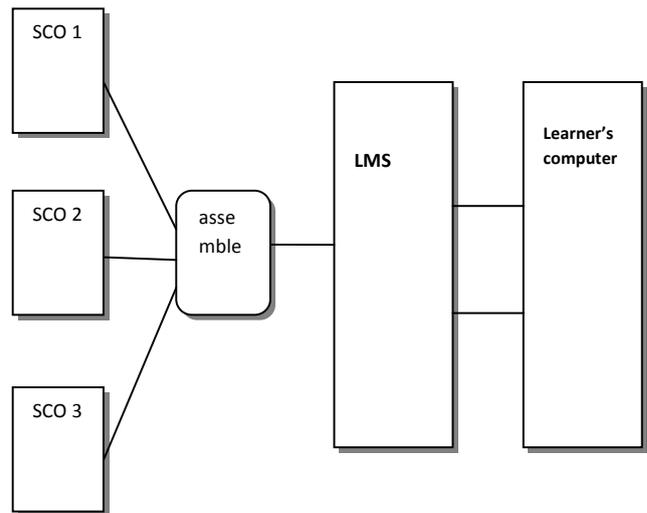


Figure4: Learning shareable contents delivered to the user

Modules

There are two parts of the system one is admin part and another is user part. In the admin side there is a teacher and user side is student or learner.

Admin part – There is a teacher that manage the courses, upload the new courses, keep track on the user.

User side - User side there is a learner that first register itself then select the course and then start study.

8. CONCLUSION

E-learning will continue to grow. It is evident that the wide access to learning through e-Learning is gaining significance and becomes essential for the survival in this new, continually changing world. We create the content according to the standard (SCORM) the content we create is of a good quality. Their are many benefits of using it Learning objects to be easily reused, and handled interchangeably by various LMSs. The accessibility of learning objects developed by any authoring tool. Learning objects to be stored and easily accessed within databases. The rapid construction of courses through easy sequencing of content. More over we can use this in the universities for the distance education. This can also be used in the industrial area.

REFERENCES

[1] Hong Ruyan, Ye Zhan, Zhou Chuner (2009) "A Knowledge Management System-baseModel of E-learning for Higher Education in China" context, 1School of Qianjiang, Hangzhou Normal University, Hangzhou, 2China School of Management, Zhejiang University, Hangzhou, 3China School of Accounting, Zhejiang University of Finance and Economics, Hangzhou, China4 School of Continuing Education, Hangzhou Normal University, Hangzhou, China

[2] Hussain Thowfeek Mohamed (2011) "Pedagogical Approach to Design an E-Learning Courseware", Faculty of Information Science and Technology, UniveristiKebangsaan Malaysia 43600 Bangi, Selangor, Malaysia

[3] Iraklis Varlamis Athens University of Economics and Business, Athens, Greece and Ioannis Apostolakis Technical University of Crete, Greece (2006) "The Present and Future of Standards for E-Learning Technologies"

- [4] Janiak Tomasz, Bartosz Sakowicz, Kamiński Marek, (2008) "Management system for SCORM based e-learning courses", Faculty of Information Science and Technology.
- [5] Krpan Divna, Slavomir Stanvok (2009) "Standard and specification for e-learning", Faculty of Science, Tesline 12, Aplit, 21000 Croatia.
- [6] Kultida Saowapakpongchai (2010) "The Development Of E-learning Model For Higher Education In Thailand", College of Internet Distance Education, Assumption University, Thailand Srisakdi Channonman IT Center, 9th floor. 88 Moo 8, K.M. 26 Bang Na-Trad Rd., Samutprakarn 10540, Thailand
- [7] Muhsin Haider Kadhem (2008) "The Using of E-Learning Techniques to Improve the Medical Education", Faculty of Computer Science and Information Technology Delmon University for Science and Technology Manama- Bahrain
- [8] Sangeeta Kakoty, Monohar Lal, Shikhar Kr. Sarma (2011) in their paper "E-learning as a Research Area: An Analytical Approach" NECRD, IGNOU, Guwahati, India. School of Computer & Inf. Sc. IGNOU, New Delhi, India. And Dept. of Computer & IT Gauhati University, Guwahati, India
- [9] Shane Gallagher and Berking Peter (2007) "Choosing a Learning Management System" Advanced Distributed Learning (ADL) Co-Laboratories.
- [10] Sandanayake T. C., Madurapperuma A.P. (2010) "Conceptual Model for E-learning Systems Using Kansei Engineering Techniques", Faculty of Information Technology University of Moratuwa Katubadda, Moratuwa, Sri Lanka.
- [11] Shishehchi Saman, Banihashem Seyed Yashar (2010) "Review of Personalized Recommendation Techniques or Learners in E-learning Systems", Faculty of Science and Information Technology University Kebangsaan Malaysia Selangor, Malaysia.
- [12] Vladimir tokomo (2010) "Visual design of e-learning environment", Department of software engineering Riga Technical University, Riga, Latvia.