

CHAPTER THIRTY-TWO

INTRODUCING THE CONCEPT OF LEARNING MANAGEMENT SYSTEM

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Objectives

At the end of this chapter, you should be able to:

1. Define the term Learning Management System (LMS)
2. Discuss the different types of LMSs
3. State the characteristics of LMS
4. Highlight the components of LMS
5. State the advantages and disadvantages of LMS.
6. Discuss the processes involved in LMS content development
7. State the deployment options of LMS

Introduction

The integration of information and communication technology into teaching and learning has been the focus of 21st century innovative education. Specifically, the application of computer technology in classroom environment continues to play a vital role in enhancing teaching and enriching learning. The use of Learning Management System (LMS) for electronic learning (e-learning) is considered an important innovation capable of improving access to education. This Chapter therefore focuses on the concept of LMS, its' characteristics, components, deployment, benefits and processes involved in LMS content development and deployment.

Definition of Learning Management Systems (LMSs)

LMSs are web-based tools for conducting quality online teaching and training (Falode, *et al*, 2018). They are software applications for administering, documenting, tracking, reporting, and delivering of electronic educational courses or training programme (Ellis, 2009). LMSs are software applications meant for the administration, documentation, tracking, reporting and delivery of educational contents. They help teachers deliver instructional content to students, and also help to administer tests and assignments, track student progress, and manage the classroom situation. LMSs help teachers to deliver instructional content to students, and also help to administer tests and assignments, track student progress, and manage the classroom situation. LMSs help to deliver and manage instructional contents to the learners, help to adequately handle students' registration, course registration and other personal details of the students for administrative purpose, and help to track students' academic progress (Falode, *et al*, 2018).

Types of LMS

LMS can majorly be classified into three. They are:

- (a) Proprietary LMSs,
- (b) Open-source LMSs, and
- (c) Cloud-based LMSs

Proprietary LMSs are platforms licensed by developers so as to produce profits through vendors (for example, Blackboard, D2L, and – e-college), open-source LMSs are platforms made publicly available to the source code and available free of charge to all users (for example, Canvas, Moodle, and Sakai) while cloud-based LMSs are convenient and low-cost way of using an array of cloud-based tools in higher education institutions (for example, Amazon Web Services Talent, and WizIQ)

Characteristics of LMS

LMS provides interactive features such as threaded discussions, video conferencing, and discussion forums, and so on. Specifically, Most LMS platforms share the following characteristics:

- 1) It involves the use of mobile technological devices (such as smart phones, hand tablets) and also supports offline study.
- 2) It accommodates multiple students' participation through audio and video connection by organizing and holding e-conference sessions.
- 3) It has a provision for an online white board; a technology which instructors and students can make and share their writing and drawings as if it is real.
- 4) It has ability to generate reports, and manage users, courses, roles and instructors.
- 5) LMS has the ability to make a course calendar.
- 6) Pre and post testing of student's assessments can be handled by LMS.
- 7) Scores and transcripts of employee or students can be displayed and certified.
- 8) It has the ability to deliver and manage instructional content.
- 9) It can handle registration, online courses administration, tracks and assess student work
- 10) Some LMS providers include "performance management systems" which encompass conditions for employee appraisals

Components of LMS

The main components of LMS are:

1. **Roster:** A roll sheet that is digitally provided to enable the tracking of students' attendance to invite students to participate in the class.
2. **Registration control:** Monitoring and customizing all the processes of registration in the e-learning curriculum and in the learning process in general.
3. **Document management and course management:** Courses are uploaded and managed to reflect curriculum content (e.g.it contains list of courses, registration, syllabus and information on number of credit units).
4. **Multiple device access:** Devices such as desktops, phones or tablets can be used for delivering course content. This may take the form of asynchronous and synchronous communication. This allows students engagement (i.e. interacting between students and students for quick messages, email, and forums for discussions).
5. **Distributed and student based:** A lot of teachers and experts from and around the world can participate in the courseware features. This remote participation could be instructors, pupils or students.

6. **Course calendars:** To create and publicize schedules of courses and test deadlines.
7. **Lesson Tools and Assessment Tools:** Contents for authoring, test, quizzes and comprehensive exams. This takes the form called assessment and testing for creating various ways for retention of knowledge.
8. **Grading and scoring:** This component allows advance tracing and charting the performances of students from time to time.

Advantages of LMS

The major benefits of LMS are as follows:

- a) **Organizes learning in one location:** All e-learning devices can be stored in one location instead of having the contents in different hard drives and devices, with this, there is no risk of losing data that are important and eLearning courses are easily created.
- b) **Unlimited access to eLearning materials:** Platforms for e-learning can be accessed through smart phones and tablets. This enables easy on-line training sessions and development of skills. The audience has free access with no limitation when course materials are uploaded and published.
- c) **Easily tracks learners' progress and performance:** Tracking and monitoring students or learners progress to ensure that learning outcomes are met.
- d) **Reducing learning and development cost:** No cost involving travels by instructors because learners carry out training online. Hotel accommodations and printing manuals cost is reduced.
- e) **Reduces learning development time:** LMS can minimize online training time that is involved because it gives the learners only the information they need in a most direct and organized manner.
- f) **Keep organization with up-to-date with compliance regulations:** New standards that are to be complied with in no time are added. The learners are easily aware of new rules to be complied with. This saves the organization of untold punishment and penalties.
- g) **Quick and convenient expansion of e-Learning courses:** When updating information based on more online module for new trends or scientific discoveries, one can easily login to LMS to make necessary changes without going over the whole eLearning course.
- a) **Integrate social learning experiences:** Social learning strategies such as, Facebook trends, WhatsApp, twitter and other online forums can easily be integrated for the benefit of the learners. This is possible because it is already online and links already exist.
- b) **Centralized Learning:** Many users can have access to LMS at any time. There is consistency of delivery and evaluation, and users see materials exactly the way they are without alterations. All training content, developmental content, and performance content are always available to people in any place with web access.
- c) **Tracks and reports for performance enhancement:** Management should be able to assess records of success and can also use the records data to improve access of success and areas that have to be improved. Learning needs can be managed easily according to one's unique needs of learning. LMS gives the learner the power to improve on his learning difficulty. Organizational users view learners learning path, and track the progress against the direction of learning, by reviewing records of success and to register for addition courses.

Disadvantages of LMS

The following are the disadvantages of LMS:

1. **Lack of control:** Slow learners lag behind when using eLearning. No fixed schedule for the slow learners, therefore making it complicated with different dates to finish the course given to so many people for different stages of learning their courses.
2. **Learning approach:** Not all learning styles are accommodated. Therefore, not all students are happy with the learning experience. Some prefer only images, others, reading words and others, just doing particular task instead of learning.
3. **Isolation:** Many questions are answered when face to face contact is enabled, but in e-learning, there are no physical trainers to support answering numerous questions. Sometimes, many learners prefer to do their learning out of working hours, but some instructors prefer doing it within working hours. This creates an isolation which makes the learners not to feel motivated because of lack of support and having assurance that the physical presence of the trainer matters.
4. **Technology issues:** Learners must have computer systems or devices to support learning, thereby making it a risk. Some software don't support other hardware (e.g. flash to I pad). Sometimes, poor Internet connections, and other random technical issues such as power supply, device breakdown constitute setbacks.
5. **Computer competency:** Others don't feel comfortable using computers and this is due to lack of adequate skills in operating the computer. Some don't even have the competency that follows the LMS software, therefore making it discouraging.
6. **Security issues:** LMS has no enhanced security solutions (sign in, authentication and firewalls to ensure data security).

Processes involved in LMS Content Development

There are processes involved in the development of LMS contents. These processes are:

- i. **Creating an e-learning course:** In order to deliver your e-learning content, you first need to add it to your LMS. Create your course material from the onset by writing your lessons' content inside the LMS or by bringing the material that already exist (i.e. word document, PowerPoint presentation, or articles etc). Also, by easily including online assets (i.e. YouTube videos, articles for presentation and tweets).
- ii. **Organizing courses:** After creating your e-learning material, you have to organize it. This is done by offering single course or having multiple courses, departments, and students groups in operation that cut across several branches. This organizing depends on the structure of the institution. An LMS is supposed to allow one to have the freedom to structure his or her e-learning offering in any perspective one desires.
- iii. **Delivering courses:** Delivery of courses is the next step involved, after creating, and organizing. It also depends on the structure of the institutions (e.g. if it is for an audience that is restricted or for a wide number of population either as free or paid course). LMS takes care of these cases; it allows you to serve and manage both small

and large number of students for a restricted or open enrollment and to include with payment for users of paid courses. It should be able to cater for mobile devices with a good user interface for easy interaction and for accessing it online.

- iv. Managing users:** There are three kinds of users, administrators, instructors and students. Administrators set and configure LMS. Instructors prepare the lessons, access learner's progress and the students do the learning. This involves registering the students in the LMS, assigning them to courses, interacting with them as instructors determine the content for them to see, organization of the tests and conference sessions, grading, and handling their payments. In managing of users, there is a necessity to automatically repeat actions, and give room for undertaking changes and updates of multiple items at once and easily.
- v. Monitoring and assessing students' progress:** The next step is the ability to track and monitor the students' progress in real time. No matter the number of students involved (10-10,000), LMS enables automatic and fast accessibility to enrollment statistics of students, records of attendance, grades of students etc. LMS notifies and alerts students easily (e.g. instructors and students when assignment are posted and submitted and time to know when e-conference sessions will start). LMS should be able to report adequately the LMS query and display their data in the form of graphs and charts. This allows discovering of important information (trends raised and issues arising).

Deployment of LMS

LMS deployment is the installation, monitoring of server or software for optimum operation. This may include procedures, licensing, data back, uploads and infrastructural options. The following are the deployment options as identified by Kerchenbaun (2009):

- i) Locally deployed (self-hosted) LMS:** This is an option that is sold as a product for licensing which an individual installs and maintains on his personal server. One has to be familiar with installation procedures and taking responsibility of data backups, software updates and machine scaling. It is flexible to integrate into your local infrastructure.
- ii) Private cloud (hosted LMS):** This option provides securing a private LMS environment that doesn't share resources with other institutions. It makes you perform better and more secured. You are responsible for installation, monitoring and updates and one has direct access to LMS for easy customization.
- iii) Cloud based LMS:** Here, one subscribes to a model. A cloud is perhaps the preferred solutions for most LMS needs, except if you want total flexibility and ability to make changes to the environment of e-learning. Everything is done on your behalf while you take care of the payment.

Conclusion

Effective delivery of e-learning relies on the platform adopted. This chapter has introduced the concept of LMS to readers as well as the features, advantages and disadvantages. With the use of LMS, learning can be controlled and monitored, performance can be enhanced by tracking, reporting and providing feedback; and the content can easily be upgraded when the need arises.

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