

Electronic Course Management Systems in Education

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Abstract

This paper touches on the concept of electronic course management systems in terms of their components, characteristics, types, and services employed in education. It reviewed major LMS in learning and teaching, showing how such systems were developed as academic and commercial projects and then found their way into education based on the concept of knowledge construction.

Keywords:

Electronic learning, CMS, e-course, LMS.

Introduction

The modern era is witnessing tremendous progress in many aspects of human life. This immense progress is driven by technological development that facilitates life better than before emerging such technologies. Education is one of the fields in which technology has provided outstanding services and helped in the rapid transfer, simplification, and reproduction of information in different forms that were impossible in the past.

The technological development and its penetration into many teaching and learning systems require having electronic systems to manage those systems. Electronic systems help manage these systems by controlling the enormous amount of information and making them usable and manageable, with the presence of monitoring and assistance systems for the human element and techniques that help in the management of the curriculum.

Hence, the technologies of LMS emerged to help organize electronic learning within educational institutions and open new horizons to benefit from the enormous technological capabilities in facilitating teaching and learning.

Electronic Course Management Systems

To begin with, it must be clarified that a big deal of literature indicates the concept of Course Management System CMS has many synonyms that mean the same concept [1]. The most important of these concepts are the following:

- Virtual Learning Environment (VLE)
- Course-Management Software Packages (CMSP)
- Learning-Management Systems (LMS)
- Managed Learning Environment (MLE)

It is fair to state that the concept of Course Management System (CMS) differs from the concept of Electronic Content Management System (e-CMS). Both are similar in the abbreviation of letters, as the second is focused on electronic content management systems. The term learning-management systems (LMS) is used in this paper instead of Course Management System (CMS) due to its wide popularity in Arabic relevant studies.

Generally, the Course Management System (CMS) aims to integrate packages of teaching technologies as powerful technical tools that help teachers benefit from technology in education [1]. [2] defines the learning management systems are “software designed to manage, monitor and evaluate all learning activities. It is a solution for planning and managing all learning activities in the organization. In other words, the term can be defined as a system that includes services related to electronic educational content. It allows students, teachers and supervisors to be granted access to it; among these services are access permissions according to the level granted to the user, control and modification of content, tools for communication, managing and dealing with student groups, conversation, follow-up Student performance, etc. (p. 22). [3] defined it as “a program designed to

assist in the management, follow-up and delivery of educational activities and continuous learning.”.

Noticeably, the definitions are directed towards defining the concept within the framework of an assistant software system for teachers in managing their educational work in addition to providing services in grading, managing attendance and absence, and student participation in the curriculum components as well as educational communication through chats, forums and other electronic services.

The researcher defines e-learning management systems (LMS) as “electronic systems that help manage courses over the Internet, through a set of tools and services, which enable to support and enhance learning processes.”.

Emergence of LMS

E-learning management systems emerged first in the mid-1990s when the e-learning management system was embedded in higher education owing to the lack of tools supporting online teaching [1]. Therefore, some systems emerged, including the following:

- WebCT at the University of British Columbia.
- Blackboard system at Cornell University.
- The ATutor system at the University of Toronto.

While some of these systems were transferred to the commercial sectors, others remained as local institutional systems.

Types of Electronic (LMS)

E-learning management systems can be classified according to several considerations. They can be categorized as follows [4]:

1. **Based on code sources and modifiability** that may be divided as follows:

Closed-source software:

These are commercial systems owned and developed by for-profit companies. Their use is not permitted except by obtaining a license. They are available to the institution for a sum of money plus the cost of use, which is usually calculated according to the number of courses offered, their size, and the number of participating learners. Notable among them: is the Blackboard system.

Open-source software:

These are the systems made available free of charge. No party has the right to benefit from them commercially, as they are subject to development and modification by specialists in this field and according to the institution's needs. Most notably is Moodle.

2. **LMS can be divided according to the technology on which it is based** as follows

- Cloud-based e-learning management systems:

These rely entirely on cloud services, such as the Noor Education System.

- E-learning management systems based on local computers and the internal network.

They are considered somewhat old and on the way to extinction, such as the degree entry systems he used to work in the Ministry of Education.

- Cloud-based systems with local management systems:

Most systems are on this type.

E-learning management system services

There are several types of tools and services provided by e-learning management systems. The services provided by software vary. Some systems may be distinguished from each other in these services. This is a list of the most prominent services provided by learning management systems as mentioned follows [1, 3, 4]:

Enrollment:

These electronic systems enable students to register for their courses, follow the course and its requirements.

Customization:

By adjusting specific settings, the learner can customize what he wants in the system interface, such as screen design, colors, language change, and the feature to alert when there is new content.

Communication:

These systems significantly support the communication process between the teacher and the learner. Communication is effective through sending a message to all or some of the students and sending scheduled emails to remind students of important dates such as exams. These systems also support learners' communication with each other through a chat room or discussion forums. Accordingly,

communication can be divided into synchronous and asynchronous.

Reports:

These systems contain a set of reports related to learners, grades, courses and test scores that can be exported as Excel or PDF files or displayed as easy-to-understand charts.

Help with content creation:

The integrated learning management system provides an easy-to-use interface, with examples or ways to explain how to upload files and images or give tests to learners with multiple options for delivering content to the learner.

Scheduling and Content Management:

Providing services related to the distribution of scientific topics over the academic weeks and setting dates for delivering assignments, tests or activities.

Virtual Classroom:

These systems can contain online virtual classes and allow the teacher to send out invitations to students to join the virtual class.

Social Networking:

Some learning systems are integrated with social networks, such as the ability to share content from within these systems via social networking sites such as Facebook or Twitter.

Testing:

The ability to test students through learning management systems is one of the most important services and complements the educational process. These systems help teachers provide multiple forms of tests, and these systems may provide ready-made forms for tests.

Mobile learning:

Many learning management systems providers have started adding features that support the use of these systems through smartphones so that these systems work in a way that is commensurate with the nature of the device used. That is why we find that some pages when browsing the Internet offer the user to go to the Mobile-Friendly version to be more suitable for mobile devices.

Blended learning:

These systems can be used to manage courses by making some of them available online and face-to-face learning, which is called blended, blended or hybrid learning.

Gamification:

Some learning systems give the ability to use the elements of play (scores, medals, levels, challenges, competition) in building incentives and rewards for an educational situation, which makes students more integrated with the educational process and raises the level of motivation. For example, some systems give medals to students when they complete a task.

Chatting And Forums:

This service helps to establish effective communication between the teacher and the learners and between the learners with each other, to discuss one of the subjects of the course, and to ask questions, and raise important aspects of the subject.

Announcements:

In the event of an emergency or sudden event or any developments that may arise, the feature of announcing through these systems can ensure that the learner is informed and aware of what is required of him.

Notes:

Recording important notes and information that come to the learner's mind and are related to the subject and course.

Calendar Agenda:

The learner can register his agenda and get notifications on time through it.

Advantages of e-learning management systems

Many advantages distinguish e-learning management systems, including [5, 6]:

- Ease of installing the system and dealing with its components.
- Providing an interactive environment for the teacher and the student.
- An ability to adapt and adapt to modern knowledge and technology requirements.
- Including activity units that support the educational process, such as forums, resources, and tests.
- Enabling the system to deal with a wide range of e-learning and multimedia tools.
- Easy file downloading and their interdependence with software that works with Internet networks.
- Providing ready-made templates prepared in advance for use and various scientific and cognitive form.

Salient Types of LMS

Some of the e-learning management systems software are mentioned herewith [1]:

BlackBoard:

It started as a project between students and faculty at Cornell University. However, it became one of the most popular commercial e-learning management systems. Companies in the private sector have acquired it. It has been significantly developed and targeted at education and business in academia and business sectors. Blackboard is installed on-premises and connected to the cloud on Blackboard's servers.

WebCT System:

It was initiated as a funded grant project to study the impact of online teaching on learning at the University of British Columbia. The system's owner, Professor Murray Goldberg, sold it as a commercial product in 1997, then received an upgrade package and became a world-famous e-learning management system.

Moodle:

It is an open-source content management system. Martin Duqmans designed it in 2003 as part of his Ph.D. research at the Curtin University of Technology in Australia. The project goal was to answer the question: "How can software based on the Internet succeed in supporting a perception based on social constructivist knowledge in supporting teaching and learning?" Since that time, the system has remained open-source. The system is characterized by being supported by many teams of developers.

Desire2Learn:

It is a commercial course management system. It was built in 1999. Initially, it consisted of several e-commerce systems, a digital repository of educational objects and a learning platform. Then it was developed to be an integrated software compatible with international standards and is now used in many universities worldwide.

Conclusion

This work provides an overview of electronic learning management systems. It reviewed their characteristics, features, and the services they provide for learners and educators as it most of those systems

were based on constructivism. The report concluded with a brief presentation of some e-learning management systems that have been widely used in the worldwide educational contexts.

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