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Rise of Learning Management System (LMS): An Overview

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Abstract: In today's world of the Internet, the concept of pedagogy has transformed a lot of due E-Learning. Internet learning or E-Learning is the new pattern utilized by the Academies nowadays, and that has changed the classroom educating and learning strategy into virtual learning. Learning Management System (LMS) is one of the categories of e-Learning application or software, which commonly gives a differed set of functionalities to help learners adapting, for example, course information, advanced library, study plan, email, forum, blogs, logbook, discussions, and document stockpiling etc. In this paper we will discuss the comprehensive study of the LMS and e-learning based on LMSs. Also this paper gives the detail review of LMS from its beginning period to the present phase of advancement.

Keywords: Current trends and applications, E-Learning, History of LMS, Learning Management System (LMS).

I. Introduction

Edification is one of the real concern regions which is perceived as an imperative factor, essentially adding to the progress of an individual social change and financial development which prompts the comprehensive improvement of the country. In 21st century education is changing very rapidly i.e. shifting from traditional educational environments to online educational environments i.e. e-Learning. In today's world of technology and internet, learners are internet savvy. Introduction of information technologies in education is currently the essential methods of meeting the requirements and expectations of the learner, educational institutions, universities, community and society as a whole [1]. E-Learning is the new pattern utilized by the Universities nowadays, and that has changed the classroom educating and learning strategy into virtual learning. E-Learning administrations can be comprehensively arranged into learning materials, evaluation, correspondence and coordinated effort. It is a medium to exchange information and abilities supplemented by PC, electronic learning, virtual classroom or within a network-based learning environment [2]. In case you're making e-learning courses, sooner or later you'll have to utilize an application called an LMS, short to Learning Management System. An LMS is essentially a device that enables you to appropriate e-learning courses to your learners and track their movement. While you don't need to utilize LMS programming to convey your web-based instructional classes, it makes things a great deal simpler. Fortunately, there is a wide range of LMSs, from free, open-source learning administration frameworks to detailed, costly ones. LMS enables instructors to make a virtual class, including assignments and evaluations and speak with learners. The LMS enables learners to get to the course and course assets on the web, finish assignments, and speak with the instructor. Learning administration frameworks can be utilized to encourage online courses, or to cultivate a mixed learning knowledge. LMS enable associations to decrease advancement time, sort out, oversee, and store preparing substance, and screen and assess student execution.

II. E-Learning

E-Learning assumes a vital part of the present instruction framework. E-Learning alludes to a program, degree or course conveyed totally on the web. The major components of e-learning are Computer, Mobile and Internet forums etc. E-learning makes great utilization of database and CMS (Content Management System) advancements. These two work as an inseparable unit to store your course content, test results and understudy records. The information is put away in the database and the CMS gives a UI to you to include, refresh and erase information. E-learning includes the use of multimedia and is interactive. Multimedia incorporates more than one type of media, for example, text graphics, animation, audio, and video conferencing [3]. An instructive or education material

expended on the web – Khan Academy or Lynda.com to advanced education, as edX, or YouTube tutorial is e-learning.

III. Learning Management System (LMS)

Learning Management System (LMS) is an online tool that can help to create an e-learning course. A Learning Management System is a web-based or cloud-based software program which assists in teaching learning process and helps in the effective delivery of instruction, training and development program [4]. LMS provide anytime anywhere learning for large audiences, spanning rural and global learners and working professionals [5]. Some of the features of LMS are Report generation, Advanced user management, systems integration, e-commerce, Automated certificate generation, Multilingual interface, Collaboration tools, Mobile App, Learning paths, and Assessment [6]. Basically, there are three signings in LMS, learners sign-in, instructors sign-in and admin log-in. The learner's sign-in is for the learners to get the information about the courses and they can submit their work. The instructor signs-in is for the instructors to create a course and able to allot work, receive finished work and results from learners. The admin- sign in is for the administrator to add, delete content and users, and permit users access to specific zones of LMS so they can change settings.

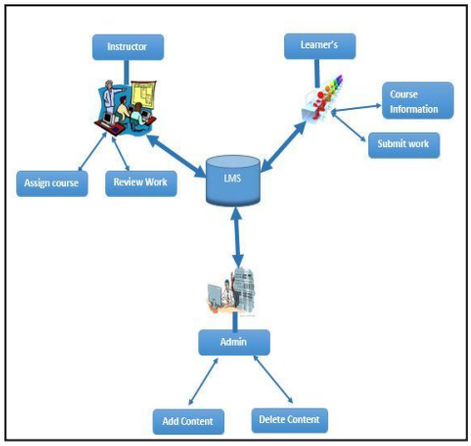

Fig. 1

The above figure demonstrates the Admin - Instructor and Learner Access.

IV. History of Learning Management System

Learning Management System considered as one of the vital parts of e-Learning, the evolution of LMS began when the computers were introduced. Learning Management System was introduced in the year 1924. The below table (Table I) is a brief timeline of the development of the computer-based LMS, from its roots to modern innovation in the current period.

Table I

Year	Version	Description
1924	First teaching machine	Sydney Pressey invented the first teaching machine.
1960	PLATO	The first online learning system.
1983	PROJECT ATHENA	Athena was a joint venture of MIT, Digital Corporation, and IBM, to explore innovative uses of computers for teaching.
1990	SOFTARC	SoftArc launches LMS First Class for the Macintosh platform.
1997	ILN	Interactive Learning Network (ILN) was the primary e-learning arrangement of its sort of use a social MySQL database.
1999	ePath	In 1999 ePath introduced its LMS system.
2002	MOODLE	MOODLE (Modular Object-Oriented Dynamic Learning Environment) was an Open-source which gives a platform to instructors and administrators to design and create a secure learning environment.
2005	First virtual training	The first virtual training system was introduced by NACON Consulting in 2005, software programmers are trained by using only a web browser.
2009	EUCALYPTUS	LMS was installed on remote cloud and there is no need of installing on an internal network.
2010	BLACKBOARD	Blackboard is a virtual learning environment and course management system; it is written in Java.
2012	CLOUD	In 2012 LMS system are free from installing on an internal network and installed on the cloud.
2013	SCORM	In 2013 SCORM (Sharable Content Object Reference Model) was introduced by ADL.
2014	MOOCS	Massive Open Online Courses.
2016	THE ACADEMY LMS	The Academy LMS was introduced by Growth Engineering and it is the most gamified and engaging social LMS.
2017	GOOGLE CLASSROOM	Google opened classroom is to share file between learners and instructor.

V. Current Trends and Applications in LMS

In current period LMS has gained more attractiveness in the education field, LMS market is expected to be worth over $7 billion in 2018 [7]. LMS are classified into two categories they are cloud-based LMS and Open-Source LMS. Cloud-based LMS is a web-based platform where instructors can convey, track and give an account of online courses to the learners to finish and later the result will be put on the cloud. Cloud-based LMS is installed on the servers, some benefits of cloud-based LMS are Cost Savings, Time savings, Flexible, and Zero maintenance. Top cloud-based LMS are as follows, Docebo LMS, Adobe Captivate Prime, The Academy LMS, Dokeos, G-Cube LMS, LearnUpon, Talent LMS etc. Open-Source LMS allows to change the code and modify according to your requirement. Benefits of open-source LMS are Modify, no license fee, and secure. Some Open-Based LMSs are as follows, Moodle, ILIAS, Eliademy, Forma.LMS etc. By 2019 half of the education institutes will be e-Learning based.

Utilization of LMS in education area has been expanded time to time, universities either buy or develop their own LMS. Since 2012, worldwide spending on LMSs has expanded by a 52 percent, (21 percent in 2014 alone), totaling more than $2.5 billion annually [8]. In present scenario almost 90 percent of the pedagogy are utilizing LMS. The most utilized LMS in 2017 are ANGEL, Blackboard, Canvas, Desire2Learn, Moodle, Sakai and so on [9].

A. ANGEL

ANGEL Learning Inc. is an e-Learning software company which provides ANGEL Learning Management Suite and ANGEL ePortfolio.

B. Blackboard

Blackboard is a virtual learning environment and course management system developed by Blackboard Inc. It is written in Java. Blackboard is one of the leading LMS utilized by the education sector.

C. Canvas

Canvas was developed by Instructure company; is a cloud-based LMS solution for universities and K-12 schools.

D. Desire2Learn

Desire2Learn in short D2L is cloud-based software company, and is the developer of the Brightspace LMS. D2Ls technology is presently being utilized by clients in higher education, K-12 medical services, government, and the enterprise sector.

E. Moodle

Moodle is an acronym for "Modular Object-Oriented Dynamic Learning Environment", it is one of the leading e-learning tools utilized by schools, higher education system and other training purpose. In 2002 Moodle releases its first version. Some of the features of provided by Moodle are themes, Mobile themes and Plugins. There are 405200 recent plugins downloads till June 2017.

F. Sakai

Sakai is a free open source LMS software accessible for universities, schools etc., its first free version was released in 2005. More than 350 institutions around the globe now utilize Sakai, and the software has been converted into more than 20 languages.

LMS changes have been most-articulated among bigger schools (having more than 2000 learners) in the US. Graph below demonstrates the development and fall of the LMSs software's.

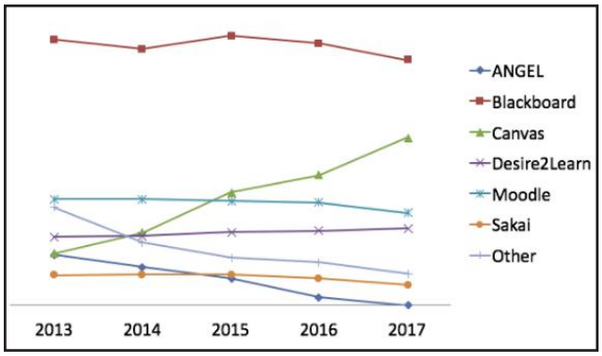

Fig. 2

The above figure shows the development and fall of some LMSs software's as shown in (http://edutechnica.com).

While the US commercial center is to a great extent commanded by business LMSs, every area of the world has an alternate LMS impression. The figure beneath indicates rates of every LMSs utilized as an aggregate of all LMSs utilized by nations. In general, the LMSs utilized as a part of these non-US areas have been stable recently [9].

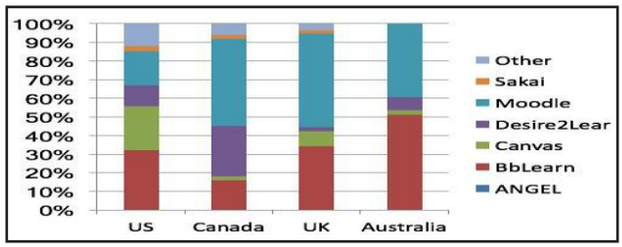

Fig. 3

Figure above Measurement exhibiting the higher education organizations utilization by North America, UK and Australia areas as rates from add up to, as introduced (http://edutechnica.com).

VI. Conclusion and Future Work

In this paper we presented the comprehensive study of the various e-learning based LMSs. Current trends, applications and the utilization of the various e-learning applications in the educational system. This study would help the surveys and researchers related to LMS. In future we will work on the detailed comparison of the LMS and Cloud-based Learning Management System (CLMS).

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