Chapter 76
Cloud Learning Management System in Higher Education

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ABSTRACT

The main objective of this chapter is to discuss the growth of cloud-based learning management system (LMS) in higher education. This will look at the benefits of LMS adoption and how it has grown in higher education institutions. The utilization of information and communication technology (ICT) has permeated in almost every aspect of life. This chapter will cover a brief introduction about cloud-based LMS, roles of LMS in education, drivers for adoption and advantages of cloud-based LMS, factors to consider in the adoption of cloud-based LMS, the need for LMS and end with conclusion and future directions of cloud-based LMS.

INTRODUCTION

Development of ICT (information and communication technologies) has manifest itself within everywhere. Notably, use of the Internet and ICTs to provide solutions to complex issues are considered to be a mainstream practice within both education and business contexts. This trend improves and heightens organisations' capabilities to improve their service delivery to the public. Higher education institutions are not an exception, and there is a need to keep the pace with this substantial change. The main objective of this chapter is to discuss the growth of cloud-based Learning Management System (LMS) in higher education.

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BACKGROUND

In the past, few computer applications are used for education assistance such as Computer Based Instruction (CBI), Computer-assisted instruction (CAI) and Integrated Learning System (ILS). CBI is used for conducting the delivery of the study materials, CAI while ILS have three sub systems which are used for curriculum, record, and management system (Underwood, Cavendish, Dowling, Fogelman & Lawson, 1996).

LMS originated from Program Logic for Automatic Teaching Operations (PLATO) which is the earliest networked learning system. PLATO was created in 1960 in University of Illinois by a researcher named Donald Bitzer. Although PLATO was originally created for the students of the University, however, it was also used in the schools nearby. The PLATO program has two aims, first, to utilise the computer for education and second, to build a cost-effective academic system that can merge teaching and learning (Alpert & Bitzer, 1970).

In 1990, FirstClass was introduced by SoftArc. FirstClass ran on Macintosh computers. The features built in it is still being used now such as "private email and public forums". Interactive Learning Network (ILN) was created by BlackBoard and CourseInfo in 1997. ILN is a good new addition for LMS as it is able to manage the database using MySQL. In 2002, Moodle was introduced and it was an open-source LMS that give convenience to lecturers to create and manage their lectures.

Advanced Distributed Learning Initiative established the training technology called The Shareable Content Object Reference Model (SCROM). Some of LMS today is using the Superseding SCORM 1.1 and 1.2 and SCORM 2004 version. VirtualOnDemand was the first education system that allows student not to be physically in the school or institution. The software can be access through a browser. This system is being used by the US Army to train their troops in charge of their Information Technology.

In 2008, Eucalyptus was introduced as open source software, which is the API for creating Amazon-Web-Services that suitable with the cloud computing. Going forward from 2012, most LMS use the cloud-based system to store their databases. As such, cloud-based LMS is available through the web with many available features without having to install the system on the users' computers. The cloud-based technology allows users (lecturers or students) to use the LMS through a browser without worrying installing the software and buying database server to store the information (Chaubey & Bhattacharya, 2015).

From the above, it is clear that educational institutions globally are seeking for innovative and productive ways of knowledge delivery to their audiences, so they can keep pace with a rapid change of the technology as well as gaining competitive advantage to survive the challenges of distributed knowledge production system (Joshi, 2014; Mlitwa, 2007; Mlitwa & Alexander, 2015; Mlitwa & Belle, 2010). It has been highlighted that the reasons behind adopting various types of technologies within education institution spheres have roots in attracting students, cooperating with various stakeholders (Middlehurst, 2003), improving knowledge delivery while reducing the cost (i.e., in a cost-efficient way) and obtaining satisfaction for both staff and students (Anshari, Alas, & Guan, 2015; Gutiérrez-Carreón, Daradoumis, & Jorba, 2015; Jafari Navimipour & Zareie, 2015). Incorporating cloud-based LMS contributes to curriculum blended learning or flipped classrooms (Bailey, Martin, & Schneider, 2013; Berking & Gallagher, 2016; Parsons, 2014). Accordingly, this positive viral alteration has manifest itself within various education institutions in different countries globally.

Nevertheless, there are some barriers which impede the progress of this revolutionary evolution such as greater costs of information and communication technology infrastructure, the high bandwidth cost and insufficient competent technical staff availability (Tedre, Ngumbuke, & Kemppainen, 2010).