Implementation of LMS among Private Higher Learning Institutions in Malaysia

Hoh Ming Chee[1], Choo Wou Onn[2], Siew Pei Hwa[3]

[1, 2, 3] *Faculty of Information and Communication Technology,*
Universiti Tunku Abdul Rahman (UTAR),
46200 Petaling Jaya, Selangor, MALAYSIA
mingchee@hohmingchee.com, choowo@utar.edu.my, siewph@utar.edu.my

ABSTRACT

Since the embarked of E-Learning system, education institutions and commercialised organisations adopted this system as tool of training and conveying information and knowledge, in particular, education institutions used E-Learning system facilitate instructors and students in order to foster the teaching and learning process and we called this system as Learning Management System (LMS) and Learning Content Management System (LCMS). Traditional face to face teaching is insufficient for the purpose in development of perpetual learners due to the lack of flexibility compared to E-Learning system where this learning model is an accepted choice for developing an effective educational method due to its flexibility, accessibility and convenience to almost everyone (Rashty, 2010).

Keywords
E-Learning system, Learning Management System (LMS), Moodle, Blackboard

1.0 INTRODUCTION

According to Coates, James, & Baldwin (2005), LMSs have rapidly developed and will have reflective effects on university teaching and learning since now. Nevertheless, a 12 years meta-analysis of research reported by U.S. Department of education have figured out that students from tertiary education who exposed to online learning in general achieved better result than those in face-to-face learning (Means, Toyama, Murphy, Bakia, & Jones, 2009). "*The growth of 'e-learning' is being described as explosive, unprecedented and disruptive* (Garrison, Anderson, & Garrison, 2003)", most universities applied E-Learning as medium of distance education and the rapid and expanding use of distance education in elementary to higher education has been documented by the National Center for Education Statistics (NCES, 2003). According to Hoh, Choo, & Yeoh (2009), learning is not only occur through reading, writing, speaking and listening but it can be occurred through other forms as well; E-Learning is a method which convey knowledge different from a traditional teaching can do.

2.0 E-Learning Systems in Education

There is several LMSs providing online education facility to institutions, with Moodle and Blackboard learning system is being one of the systems.

2.1 Moodle

Moodle is an open source and freely available LMS (http://moodle.org/). It is also an adjustable environment for learning community and a software package designed by guided to "social constructionist pedagogy" which related to following four concepts, Constructivism, Constructionism, Social Constructivism, and Connected and Separate (Moodle.org, 2009). It supports small and large learning communities in schools and enterprises. According to Koh (2009), Moodle is beneficial for language teaching and learning. Apart from simplifying course-management, Moodle is a good mode of interaction between teachers and students. Moodle is open-source software which is easy to modify, and free to be downloaded and distributed at any time and place. Based on the review by Taylor (2006), there are pros and cons of Moodle as LMS, as shown in Table 1.

Table 1: Pros and Cons of Moodle

Pros	Cons
It is an open source software, free to download, modify and even distribute it.	Still in the growing period in which there have been some significant changes between releases.
Easy to learn, operate and certain features are better than other LMSs.	Difficult for novice to install, many technical glossaries in installation instructions
Source of learning materials and exercises and even a space of interaction.	Lack of illustrations and with too many technical application.

2.2 Blackboard

Hearsay-II (Erman, Hayes-Roth, Lesser, & Reddy, 1980), Copycat (Hofstadter, 1984), and Jumbo (Hofstadter, 1983) are those earlier stage of Blackboard systems for academic purpose. Based on Nii (1986), the use of blackboard system is as problem formulation tool, system development tool and research tool.

In recent year, Blackboard system evolved into more easy access system for most people to access. Blackboard learning system is a web-based server LMS developed by Blackboard Inc. (http://www.blackboard.com/). Like most of the learning management system in market, Blackboard learning system fosters learning process by providing online web-based learning environment for instructors and students to access in real-time.

Blackboard has made a difference from others LMS, where mobile devices and smart phones in particular like Blueberry, or iPhone are able to access Blackboard system. This feature has changed the way instructors and students interact and communicate with each other not only limited in online web-based environment. Further information on Blackboard learning system can be obtained through URL below: http://www.blackboard.com/release9/whats-new.aspx

3.0 STUDIES OF LEARNING MANAGEMENT SYSTEMS (LMS) IN MALAYSIA HIGHER INSTITUTION

Several studies on LMSs in Malaysia's higher institution have carried out in this section where Tunku Abdul Rahman University (UTAR), Multimedia University (MMU), and Open University Malaysia (OUM) were the selected institutions to be studied.

3.1 WBLE (Universiti Tunku Abdul Rahman)

WBLE is established in year 2005 in Universiti Tunku Abdul Rahman (UTAR) to facilitate lecturers and students of the institution (http://www.utar.edu.my). WBLE is created by using Moodle. The communication level between lecturers and students is improved with the existence of WBLE as resources from lecturers are obtainable through the system without boundaries.

Figure 1 shows the features of WBLE and figure 2 depicts the printed screen of WBLE main page. The page is divided into three parts which are left frame, center frame, and right frame. Feature of forum is embedded in WBLE, in which lecturers are able to create topics for discussion and reply to the posts written by students. There is a place

which accumulates all the files for a certain course and also a search engine to search the keywords in forum.

In administrator option, it is compacted with most of the features of the system as it permits the adjustment of most of the general settings of the system. Display of Courses can be adjusted into a few formats, such as Learning Activity Management System (LAMS), Sharable Content Object Reference Model (SCORM), "Social" (oriented around one main forum), "Topics", "Weekly", and "Weekly with no table" (organised weekly without using tables for layout).
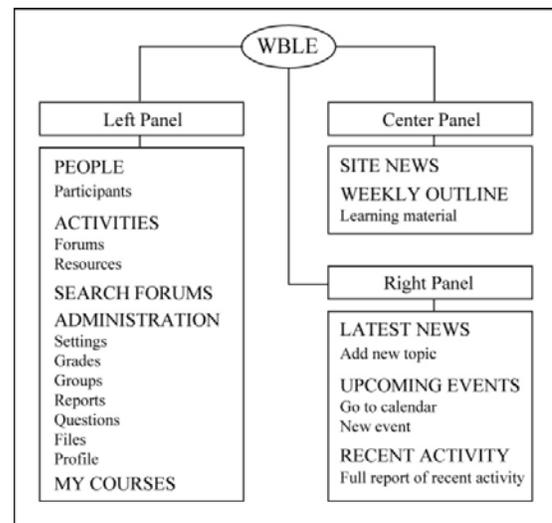

Figure 1: Features of WBLE

Figure 2: Printed screen of WBLE main page

In WBLE, courses' commencement dates, number of weeks and even the maximum upload file size can be altered too. Student enrolment parameters such as enrolment expiry date and notification for student, and language selection can be modified in the system. Furthermore, the grades scored by students can be keyed into the system for student to keep track with own latest grades. Interactive tests or quizzes prepared by lecturers for students can be imported into WBLE in the "questions" section.

The "interactive" term which could be found within this section denotes the feedbacks and responses received by students based on the answers inserted. Nevertheless, monitoring of students' activities in WBLE is accessible, in which the accessed time and sections browsed by students are clearly stated. The right frame of the page is the place which deals with all the information on latest announcements, activities, and events respectively.

In WBLE, the feature always utilised by lecturers is the transmission of lecture notes and any other learning materials to students. Students have access to the lecture notes anytime at own pace; assignment guidelines are available online in the system. Nowadays, there is no longer the need to photocopy lecture notes for all students.

3.2 MMLS (Multimedia University)

MMLS stands for Multimedia Learning System and it is a virtual learning classroom in Multimedia University (MMU) (http://mmlsmelaka.mmu.edu.my/ and http://mmlscyber.mmu.edu.my/). Both MMLS and WBLE perform as the communication tools among lecturers and students in institutions. MMLS is a system created by the university itself. Basically, most of the features of MMLS are similar to WBLE.

Figure 3 illustrates the features of MMLS for students and figure 4 shows the front page of MMLS after logged in with a student ID. A brief profile of the particular student and calendar are viewable in the front page, just like in WBLE. A list of courses registered by the student is listed out at the center of this page; further information of the courses is achievable by clicking on the respective course codes. The only difference between WBLE and MMLS is the presence of user manual. Whereas MMLS provides a user manual to its users, WBLE leaves out the facility of user manual.

In MMLS, not only the announcements concerning the courses taken by the student are viewable, it is also possible to view announcements made by the faculty. This feature could be functioned by switching between the buttons of "Course" and "Faculty" top frame. Figure 5 exemplifies the main page of course announcements for the particular student. The interface of the left frame appears similar with the interface of Windows's Operating System. Each of the navigation links is further subdivided into different topics. For instance, in "View Course", one could find the subdivisions of "Course Profile", "Lecture Notes" and "Tutorials". It is worthwhile to mention that lecture notes and tutorials are viewable in topic basis in MMLS, whereas in WBLE, weekly basis applies.
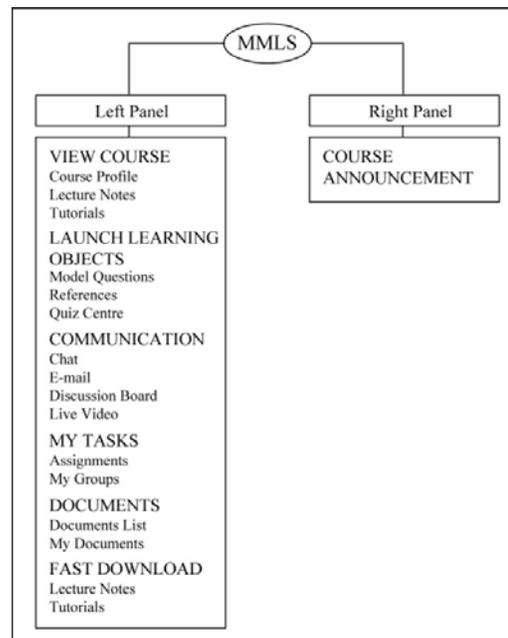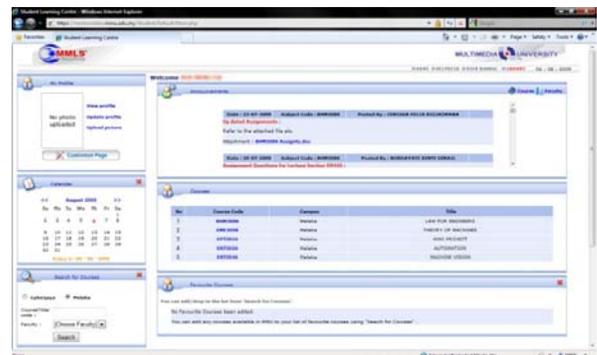

Figure 3: Features of MMLS

Figure 4: Printed screen of MMLS front page after logged in with student ID

Figure 5: Printed screen of MMLS main page

Just like WBLE, MMLS is provided with the facility of putting quizzes in the system. Meanwhile, assignment guidelines are downloadable in MMLS. The communication tools in MMLS include chatroom, discussion board, E-mail, and live video. In this aspect, MMLS has similar features as WBLE. While facility for users

to store personal documents in is available as well in MMLS, however, WBLE has a blog space for every lecturer and student. This is one of the differences between MMLS and WBLE.

3.3 myLMS Open University Malaysia

myLMS is a learning management system of Open University Malaysia (OUM) which established on year 2006 (http://lms.oum.edu.my/loginft.php). myLMS is manages by METEOR Technology and Consultancy Sdn Bhd (MTCSB) which MTCSB is a organisation collaborates with OUM.

myLMS is rather consists with much information compared to WBLE and MMLS, not only learning material is downloadable in the system, however, information such as radio station service, e-services, email services, application documentation of OUM, and links to administration services of OUM can be found in the system as well. Nevertheless, myLMS is accessible in Facebook as well; however, WBLE and MMLS do not have this feature. (http://www.facebook.com/apps/application.php?id =147974272422)
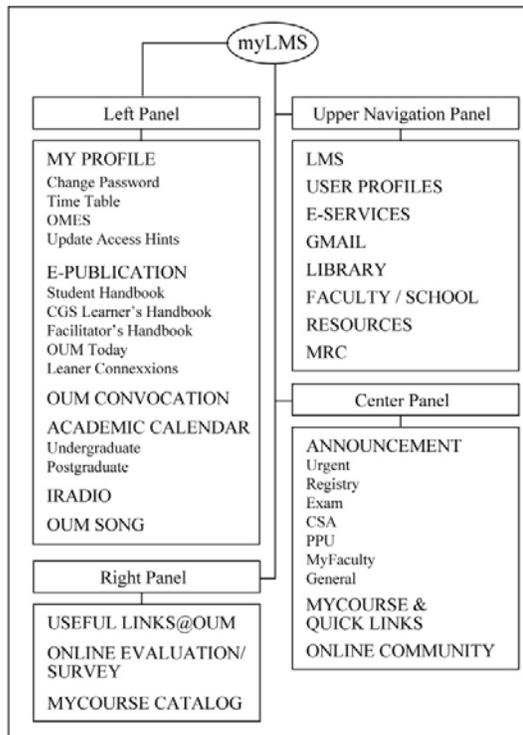
Figure 6: Features of myLMS

Figure 7 shows the printed screen of myLMS main page. At the first glance of the main page, it is full of contents, linkages and information from university's administration services to teaching and learning materials. myLMS is a one-stop web page to access most of the linkages of OUM. myLMS is divided into three frames just like any other learning management system (WBLE and MMLS which mentioned previously). At the upper area of the main page, there are eight navigation buttons with the functions of the navigation buttons are listed in Table 2.
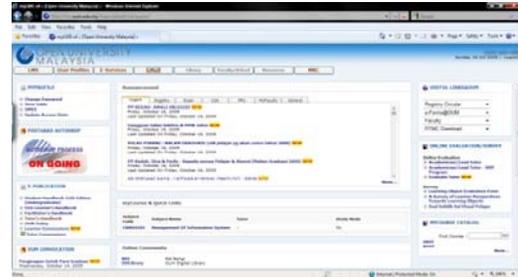
Figure 7: Printed screen of myLMS's main page

Table 2: Function of navigation buttons at upper layout of myLMS's main page

Navigation button	Definition
LMS	Go to myLMS's main page
User Profiles	View of user's personal details, finance status and timetable
E-Services	Links to OUM's administration services web page
GMail	Link to user's Gmail mailbox
Library	Link to OUM's library web page
Faculty / School	Information on faculties in OUM
Resources	Resources of OUM is downloadable here (eg. Forms)
MRC	Link to "Mathematics Resources Center"

As mentioned earlier, myLMS is a one-stop web page where comprised most of the links to access OUM's information. Linkages to information such as university's circulars, e-forms of OUM, faculties in OUM, online survey and evaluation, OUM's convocation particulars, academic calendar for undergraduates and postgraduates, IRadio of OUM and even OUM theme song can be accessible through myLMS.

4.0 INCORPORATION OF LEARNING THEORIES IN E-LEARNING

E-Learning is an electronic-based learning where the use of specified delivery technologies can provide effective result to learning. However, Ally (2004) quoted Beynon (2007), Clark (2001), and Kozma (2001) as commenting that there is a constant argument about whether applying a particular technology of the learning medium improves the learning process. According to Clark (1983), technologies are just medium that used in conveying information but do not themselves influence learner accomplishment. Schramm (1977) proposed that the content and instructional strategy

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in the learning materials, rather than the type of technology used in delivering the instruction, affect learning; Clark (1983) supported his statement by conducting meta-analysis studies on media research.

Since long time ago, theories of instruction was embedded in behavioral psychology which heavily stressed on tutorial aspect of instruction and element of analysis was fixed to the description and teaching of different categories of knowledge such as facts, concepts, and principles (Dijkstra, Krammer, & Merrienboer, 1991). Therefore, the embedded of learning theories in E-Learning system definitely enhance and influence the quality of learning.

4.1 Cognitive Flexibility Theory

Cognitive Flexibility Theory is a theoretical direction to knowledge attainment and *ill-structured domains* which is application in complexity content and irregularity application contexts (Spiro, Vispoel, Schmitz, Samarapungavan, & Boerger, 1987; Spiro, Coulson, Feltovich, & Anderson, 1988). Spiro, Feltovich, Jacobson, & Coulson (1992) defined that *ill-structured domain* hold two properties, which are firstly, concurrent interactive participation of multiple, wide-application conceptual structures are usually involved in each case study or example of information application and secondly, cases technically of the same type has a significant irregularity in the pattern of conceptual incidence and interaction.

"*By cognitive flexibility, we mean the ability to spontaneously restructure one's knowledge, in many ways, in adaptive response to radically changing situational demands*" (Spiro & Jehng, 1990). Cognitive flexibility theory declares that effective learning is context-dependent due to the theory is emphasises on the multiple ways of conveying the information and use of many case studies that present various examples, therefore, instructions require explicit notice (Kearsley, 2007). Learner tends to be adaptive in learning provided with case studies which help learner gain the knowledge effectively compared to direct learning from instructor.

4.2 Elaboration Theory

Elaborate theory proposed instruction guidelines for numerous patterns of simple-to-complex sequencing which developed principally from cognitive theory (English & Reigeluth, 1996). Modules of courseware can be organised from the most general and simple tutorial to the specific and complex tutorials such as learning starts from learning to access the main page of the system to the learning in accessing administration settings.

E-Learning system such as computer assisted learning (CAL) application is best fits the Elaboration Theory framework particularly due to the reason it is amenable to present information in sections which can be linked to the selections that are available to learner (Tau, 2000) and nevertheless, Chou (1999) declared some of the approaches which are top-down or simple-to-complex approach of Elaboration Theory are most suitable for development of hypertext-based learning courseware. With the assistance of CAL, the sequence of the learning module can be decided by the learner based on learner's needs according to which the module is considers to be easier to obtain in the beginning can be opted to learn in the first place and followed by the module learner deems to be complex to learn in later.

4.3 Multimedia Learning Theory

Richard Mayer brought up the Multimedia Learning Theory which learning occurs based on visual and verbal information are presented concurrently because learners are able to build connection between the information of visual and verbal in learning. According to Mayer (1997), there are five major principles of how to apply multimedia to assist students in understanding of knowledge, which are as listed below:-

- Multiple Representation Principle – Explanation is always better to present in words and pictures rather than solely in words.
- Contiguity Principle – Multimedia explanation presents consequently words and pictures rather than separately.
- Split Attention Principle – Multimedia explanation presents words as voice over narration rather than as visually present text.
- Individual Differences Principle – The prior principles are more important for low-knowledge than high-knowledge learners, and for high-spatial rather than low-spatial learners.
- Coherence Principle – Multimedia explanation presents through using few rather than using many irrelevant words and pictures.

By referring to the five principles listed here, an attractive E-Learning multimedia courseware can be developed and the courseware could enhance the learning process of a learner.

5.0 CONCLUSION

E-Learning systems are getting enhanced rapidly and used broadly in Malaysia's higher institutions. Students and lecturers benefit from the flexibility and usability of LMS. Today, learning is not only limited to conventional teaching – E-Learning is also part of the vital medium in improving the

teaching and learning process. The flexibility of WWW and the usability of current computers are encouraging the employment of E-Learning in education. Particularly, the presence of multimedia elements in E-Learning will certainly enhance teaching and learning process since Mayer (1997) has introduced the usefulness of embedding multimedia elements in learning. On the other hand, environmental pollution will surely be minimized with the extensive utilisation of Web-based technologies in education and thus a greener environment will be formed (Hoh et al., 2009).

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