Journal of Engineering and Applied Sciences 12 (21): 5501-5507, 2017
ISSN: 1816-949X

University Students Awareness of LMS and LCMS

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Abstract: Technology revolution has taken a great impact and profoundly influenced in higher education worldwide. Educational institutes positively invested to the internet and technology infrastructures as a tool to enhance teaching and learning program. Learning Management System (LMS) and Learning Content Management System (LCMS) are two types of educational tool used for learning purpose. Generally, LMS and LCMS have several similarities and benefits. Thus, this study aims to investigate the functions differences of LMS and LCMS. Furthermore, the study offers students awareness towards the usage of LCMS. The LMS and LCMS literature are reviewed to understand the functional criterions and benefits. Later, the both systems are compared. A total of 40 students from Universiti Utara Malaysia were identified to study the awareness of LCMS. The study reveals the students known the existence and the availabilities of LCMS to them.

Key words: LMS, LCMS, IDEWL, e-Learning, higher education, availabilities

INTRODUCTION

Now a days, the internet is a familiar choice of the foremost platform in education. A web-based application is an ideal platform to access knowledge and communication for educational activities. The distance has disappeared when the internet learning has been used for globalizing education. Internet and other related web technologies have offered boundless solutions to learners for presenting learning outcome, publishing papers and ideas and input learning content and information in several areas. An electronic learning (e-Learning) system has played an important role and offers a most popular method of higher education learning.

To support student's learning activities through an e-Learning system, there are numerous challenges can be faced. The growth of internet and its popularity in the globe has given a wide range of sophisticated and computerized tools to students to share knowledge and continue learning through these tools. Thus, both instructors and students have to edit, change and comment on the course materials constantly for learning purposes. It is necessary that the collections of the course materials are flexible and adaptable in an e-Learning to represent the content. On the other hand, there are plenty of tools available to allow students and author or instructor for the purpose of managing content of learning in which those resources and administration have flexibility to manage as well.

As online education has grown, the use of Learning Management Systems (LMS) has increased as all types of higher education institutions have begun offering online or hybrid course experiences. Learning management systems are enterprise-wide and internet-based systems that integrate a wide range of pedagogical and course administration tools (Coates *et al*., 2005). Institutions use these systems to create virtual learning environments for learners which focus on the delivery of educational experiences. While many LMS have some level of content management integrated into the system, they are first and foremost about the delivery of online courses and often do not have the robust content management that is required of many universities. About the functions of LMS and LCMS generally people often have confusion. Therefore, misinterpreted and wrong perception occurred about the actual functions of them.

These confusions cause of the similarities of the two systems in the learning manner. Both of these systems perform in a same manner such as enrolling learners, communicating with them, assessing learner's performances and activate learning materials into the system. The LMS enables the learning content to be available online, allowing students to view and interact with learning materials through a web browser on essentially any computer operating system or even on a mobile device with browsing capability (Awang and Darus, 2012). According to Bryan terms; LMS and LCMS

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are not mutually exclusive most of the learning content management systems provide basic many functionalities of LMS (Alexander, 2004).

Similarly, LMS includes some features of content management as well. Argument still exist among these despite the potential of LCMS to progress the delivery of e-Learning, expand the features and functionalities have been built into these systems are often underutilized till today. In this regards, this study aims to discuss in detail of the learning management system and learning content management system in e-Learning from student's perspective. This study specifically seeks to compare between LMS and LCMS functions and student base perception towards LCMS and LMS by collecting previous published papers.

Literature review: In this modern era of technology, educational technology and its related fields continue to progress and evolve, the academicians, researchers and practitioners do not agree upon making a common terminologies and definitions (Lowenthal and Wilson, 2010; Volery and Lord, 2000). Therefore, it is difficult for researchers to draw a conclusion and perform significant cross-study evaluations for learning technology. Consequently, this contributes pushed to conflict findings of learning content management system and learning management system. Hence, these terms are being often used and exchanged without a meaningful definition. Thus, to meet the objectives of this study previous relevant literature had reviewed to differentiate LMS and LCMS learning environments functionality and uses.

e-Learning can be defined as an instructional learning program that delivered through online or the internet (Ruhe and Zumbo, 2009). e-Learning systems as a tool to help the delivery of the course content and enhance the access of the courses and subjects by both teachers and students (Khalkhali *et al*., 2011). This learning program is integrated of tutorial which is delivered on campus, used for workshops and short courses as well as worksite-based instruction. However, Ruhe and Zumbo (2009) added that to achieve individual or organization's performance and its goal e-Learning as a supporting tools use to deliver training through the Internet 6. In addition, an e-Learning and learning management system provides a student in-process collaboration and interactivity and cross student if even the particular learner is out of communication and class. e-Learning is advanced method for providing well designed, collaborative learner-centered enabled learning environment regardless of the place, distance and time that an individual learner can use (Khalkhali *et al*., 2011).

Moreover, several digital technologies and other learning materials along with attributes and resources e-Learning is a distributed leaning environment that is open and flexible (Khan, 2005).

An important characteristic of e-Learning discussed in Berlanga and Garcia Penalvo found four important and crucial basic features that any e-Learning environment should consist of the feature discussed.

Interactivity: This characteristic makes users aware about the central role of the learner own learning process.

Flexibility: A set of functionalities of an e-Learning that allows an organization the easy way of adaptation to where it can be set. To adapt this there are some specific and aspects. Those are organization's structure adaption capacity, ability to adapt the reflections of organization's learning plans accordingly and It must have the capacity to adapt aligning with organization's contents and pedagogy.

Scalability: This is the capacity to function of an e-System for both numbers of users either large or small.

Standardization: The e-Learning system should be a standard course developed platforms which allows an institute to develop courses outside of the institute so that courses will not only be available for the institute itself also for other that meet the same standard. Moreover, it also assures the durability of the courses created, updated the courses constantly and allows monitor students behavior and learning outcome during the courses.

Learning Content Management System (LCMS) also termed learning curriculum management system or learning course management system, designed to facilitate self-regulated and lifelong learning. The adoption of LCMS in higher education for web base instruction is increasing. LCMS is an integrated software program to support online course and other related activities and management procedure of the course, the software program comprised of web-based tools (Vovides *et al*., 2007). Previous researches focused on the adoption of leaning content, some of the studies conducted strengthen the standards of this system. Whereas, others researchers put their effort to make personalization of the LCMS for overcoming these shortcomings of these standards (Yaghmaie and Bahreininejad, 2011).

All the component and functions in learning content management system use to create give description, import and export of contents for learners. In addition, consisting

functions allow reusing the content and can share (Colace *et al*., 2003). According to Irlbeck and Mowat (2007) core components of LCMS are listed:

- It is a suitable tool for non-programmers authoring
- Interface of the LCMS provides dynamic delivery and content of the learning
- An administrative component that manages learner records launches courses
- LCMS can track progress of central database and the stored content as well as a repository of learning object

LCMS development can be considered successful and effective if the system uses the learning objects efficiently. Moreover, the objects consisted in LCMS can be reused, regardless of media dependency and amounts of information within it is organized by meta-data classification systems 14. According to Oakes (2002), a LCMS can be considered good if it is conformed of the following functions:

Firstly, according to Sural (2010), a Learning Content Management System (LCMS) can manage course content or learning materials that are assisted an institute or program for the right learner at the right time. Furthermore, it helps institutions to provide the effective solution to meet the requirements and allow them to allocate their educational investments effectively for managing learning, tracking administration and reporting functions by focused applications (Awang and Darus, 2012; Sural, 2010; Cavus, 2010). LCMS usually work with content that is based on a learning object model (Yaghmaie and Bahreininejad, 2011).

Secondly, LMS provides all features of learning environment and benefits by delivering and managing (Szabo, 2002; Watson and Watson, 2007). The learning process also identifies, evaluates and supervises an individual or organizational educational goal through data collection and presents it to the institute. Learning management system uses the internet technologies to manage interaction between learners and learning resources in the system (Rosenberg, 2001). It is a software program and an educational technology which is use through internet to provide web-based learning environment to the learners (Awang and Darus, 2012). It can house e-Learning content and course descriptions and enable online registration for available classroom-based workshops.

Thirdly, the availability of the open source LMS characteristics is to promote learning as an economic tool.

An assessment and evaluation should be carried out consistently using a commercial LMS or using open source LMS at no cost (Botturil, 2004). LMS can be easily access with free redistribution privileges (Feller and Fitzgerald, 2002). Open source LMS help institutions to upgrade their education capacities. LMS is mainly aimed at the management of learners (Cansu, 2010). It is to create users learning activities with a lot of features that will make it possible (Emelia, 2010). e-Learning courses should be developed in a way that teachers and students needs are met in the best way possible (Dimitrios *et al*., 2010). There are several open source LMS systems in the market which are: claroline, ATutor, Moodle. WebCT is available commercially. Enormous number of LMS Software, institutes or organization is available. The quality evaluation and the performance of the software are various to fulfill the requirements and satisfy the user (Cavus and Alhih, 2014). It is allowing institution or organization to manage training/educational courses over the internet and offering features for online collaboration (Cavus and Alhih, 2014; Mahnegar, 2012).

There are certain features or structures of a standard LMS. The LMS delivery tools are divided into 3; learner tools, support tools and technical tools. Improving the outcome of a learning management system is important (Faxen, 2011). An LMS comprises of the abilities to track progress towards mastery, assess the learning and appropriately sequence the instruction and store completion or progress records (Cavus and Alhih, 2014; Faxen, 2011). According to Ellis (2009), a robust LMS should be able to do the following:

- Centralize and automate administration
- Use self-service and self-guided services
- Assemble and deliver learning content rapidly
- Consolidate training initiatives on a scalable web-based platform
- Support portability and standards
- Personalize content and enable knowledge reuse

E-IDEWL is as a Learning Content Management System (LCMS) in general, Interactivity Distance Education Web Learning (IDEWL) is an enhanced e-Learning with interactivity module such as web conferencing which differs from normal video on demand based online learning, thus, the IDEWL is as objectives of LCMS that is creating the all new distance learning material and enhances with interactivity tool that attract users (Ellis, 2009). In this project, IDEWL is used to achieve the second objective which is to evaluate the student's awareness of LCMS.

MATERIALS AND METHODS

The design of this empirical study employed the mix mode research method. Initially, qualitative data was chosen for this study. In order to identify and compare the LMS and LCMS and to determine which learning environment is effective for students. Secondly, the quantitative study is to find out the student's awareness about elicit information on acceptance, user friendliness, didactic efficiency and feasibility of learning content management system LCMS. Qualitative data is data that involves quality a representation of characteristics or quality or kind.

The collection, analysis and interpretation of comprehensive narrative and visual (i.e., non-numerical) data to gain insights into a particular phenomenon of interest (Gay *et al*., 2009). Quantitative study allows the researcher to use numerical data to determine the outcome (Wendeson *et al*., 2010). The use of a quantitative research for this study appeared to be the most logical approach for getting the result from students that have been awareness LCMS has been existed. This study review papers related to LMS and LCMS to compare the function offered to meet the objectives and answer the research questions. The questionnaire has been adopted from Wendeson, Fatimah, Wan, Samiha and Haron (Neuman, 2000). The survey was conducted to a 40 students from different departments of Universiti Utara Malaysia. Those departments are Department of Science, Department of Business and Department of Art Studies.

RESULTS AND DISCUSSION

Table 1 comes up with a summary of comparing between LCMS and LMS. The LCMS and LMS provide a way for a student in order to identify the different among each of the LMS and LCMS. By observably understanding the differences, the core functionalities and the benefits of each of them by reviewing previous studies, consequently that can help to guide students to make the best decision toward them.

This study presents a survey with 40 students on the awareness about learning content management system (IDEWL). Table 2 shows the frequencies of the acceptance of IDEWL learning. It has found that most of the students were agreed up on it is easy to use with the mean 3.425. For learning different technology IDEWL can be used as students responded, they were agreed on it with the mean score 3.6. It has found that IDEWL is enjoyable and interesting to students with mean score 3.6. It is flexible to support students learning with the mean 3.7. So, it can be concluded from the findings that students have accepted IDEWL learning as all of the questions mean score are above 3 which is close to agree.

Table 3 shows the frequencies of the user friendliness of IDEWL. It has found that most of the students were agreed up on the questions had asked. Lowest mean score found is 3.65 which is agreed whereas

Table 1: Comparison between LCMS and LMS

LMS	LCMS
Delivery the learning contents, contents cannot be created (Yaghmaie and Bahreininejad, 2011)	Self-regulated and lifelong learning, created once reuse of content (Sjoer and Dopper, 2006; Ninoriya *et al*., 2011; Irlbeck and Mowat, 2007)
Can be tracked student learning (Cavus, 2010)	Leverage existing learning content (Sjoer and Dopper, 2006)
Allow testing of the student's performance (Szabo, 2002)	Institutions are willing to share the material (Sjoer and Dopper, 2006; Renaux *et al*., 2005)
Self-enrollment and access to courses. It allows the process of registration (Cavus, 2010; Cavus and Alhih, 2014; Watson and Watson, 2007)	Collaborative tools and easy to use (Yaghmaie and Bahreininejad, 2011)
Learners can communicate with the faculty (Park and Mills, 2014)	Assisted an institute or program for the right learner at the right time
Helps get student to the classroom door (Faxen, 2011; Lane, 2013)	Manages the experience inside the classroom (Davidson-Shivers, 2009; Sjoer and Dopper, 2006)
No integrated dynamic assessment and adaptive learning (Spirgi and Gebavi, 2007; Klonoski, 2005)	Integrated with dynamic assessment and adaptive learning
To manage learners by contrast (Emelia, 2010; Dimitrios *et al*., 2010)	Manages content or learning objects (Sural, 2010)
Allows instructors and students to share instructional materials (Shivers, 2009)	Allowing content to be reused within or across courses or programs (Hall, 2003)

Table 2: Acceptance of IDEWL learning

Questions	N	Mean	SD
IDEWL the situation of self-learning, so can access whenever it is needed	40	3.8500	0.86380
Is used to access lecture materials anywhere and anytime	40	3.7250	0.93336
It is easy to communicate with the instructor	40	3.6500	0.89299
That is possible to see classroom timetable	40	3.8500	0.92126
That is possible to send answers for assignments to the lecture	40	3.9000	0.92819
I recommend it as a one method of teaching and learning	40	4.0250	0.89120

Table 3: User friendliness

Questions	N	Mean	SD
Using of IDEWL as a learning instrument is easy	40	3.4250	1.05945
Can be used to learn different technologies	40	3.6000	0.90014
IDEWL makes learning more enjoyable and interesting	40	3.6000	0.81019
Flexibility used to support the students on their learning	40	3.7250	0.93336

Table 4: Technical feasibility

Questions	N	Mean	SD
Navigation through IDEWL learning is easy	40	3.5000	0.90582
Users can access and get connected with the content	40	3.8500	0.80224
Institutions are willing to share the material	40	3.7500	0.83972

Table 5: Didactic efficiency

Questions	N	Mean	SD
This learning makes me comfort and allows me to control my learning progress	40	3.6500	0.94868
Downloading course content is easy	40	3.9750	0.89120
IDEWL makes me comfort and allows me to control my learning progress	40	3.9500	0.90441
That is easy to collect feedback from the students and also convenient for communication with other students	40	3.9000	0.81019

Table 6: 8 Education background

Background	Frequency	Percent	Valid percent	Cumulative percent
Science (e.g., IT, ICT, Math, Engineering)	9	22.50	22.50	22.50
Business (e.g., Accounting, Finance, Management)	25	62.50	62.50	85.00
Art studies (e.g., Languages, Law, History)	4	10.00	10.00	95.00
Other	2	5.000	5.000	100.0
Total	40	100.0	100.0	

highest mean 4.02. In questionnaire more than three is agree. So, that base on this finding can be said that IDEWL is user friendly to the students.

Three questions had been asked to the students to respond about the technical feasibility of IDEWL. The lowest mean has found is 3.5 whereas highest 3.85 as showed in Table 4. Most of the students are agreed about that IDEWL is technically feasible.

About didactic efficiency four questions had been asked to the students to respond. The lowest mean has found is 3.65 whereas highest 3.97 as showed in Table 5. Most of the students are agreed about that IDEWL is efficient.

Table 6 shows 9% from science (e.g., IT, ICT, Math, Engineering) and 25% business (e.g., Accounting, Finance, Management) on the education background while 4% art studies (e.g., Languages, Law, History) and 2% other. The maximum value was business department.

CONCLUSION

In this study has been discussed about LMS and LCMS both has make a vital argument of interest in education institutes for learning and delivering courses. Thus, the comparison of both will be benefited to the students toward their learning purpose. This study also presents a survey from 40 students on the awareness of (LCMS) at Universiti Utara Malaysia. The result of the study demonstrated that LCMS interests had a direct and indirect effect on university student's familiarity with IDWEL technology and the availability to use e-Learning facilities.

SUGGESTIONS

This study was limited in the way to compare the two learning environment such as LMS and LCMS based on published journal articles. However, the findings in this study can be used as the basis for further research and developments regarding to provide an advanced in e-Learning environment. Therefore, the future research could include the wider scope of student throughout Malaysia in order to identify student's awareness of LCMS. The study can be expanded to a larger group of students and teachers in utilizing the e-Learning in education matter. A quantitative data collected from the students and teachers can give a better experimental environment on LMS and LCMS comparison studies.

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