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Evaluation of Interaction Activities between Students and Lecturer using UUM Online Learning

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ABSTRACT

Learning Management System (LMS) has become a necessity in the universities because it enhances the teaching and learning environment. Universiti Utara Malaysia (UUM) implements LMS since 2000 which was formerly known as Learning Zone and has recently been enhanced capability of the system and is known as UUM Online Learning. The system has a range of functions that support teaching and learning activities between lecturers and students. The interaction between lecturers and students in the LMS is very important. In Moore's Transactional Distance Theory, interactions are categorized under student-lecturer, student-student, and student-content. Effective interaction will further help lecturers to assess the ability of students and students also can interact with their lecturer and their peer via the LMS without any constraints of time and place. The aim of this study was to evaluate some kind of activities in UUM Online Learning often used by lecturers and students to interact. The research employs a case study of two selected classes that fully utilized UUM Online Learning. The first class consists of 39 students and second class has 95 students. The results showed that the activities of interaction are widely used by lecturers to interact with students. Among them are an online quizzes, online assignment submission and grading, class discussions and forums. Students' satisfaction is considered an important factor in evaluating the interaction activities. The result from the selected classes indicated that students were satisfied with all the interaction activities with their lecturers. Students, however, have difficulties interacting with their peer due to technology barriers and attitude.

Keywords: Learning Management System, UUM Online Learning, Interaction, Satisfaction

Introduction

The advance of Information Technology (IT) in the past decade forced radical changes in the way of teaching and learning style in higher learning institutions. These progressions resulted in worldwide amendments of education curricula and teaching methodologies to meet increasing demands of an advanced IT based system. Within this context, Information and Telecommunication technologies (ICTs) are now being adopted as mode of effective course delivery and teaching aid at various educational levels. Such tools offer learners a control over content, pace of learning, and time management allowing them to tailor their experiences and accomplish their learning objectives in a timely fashion. Therefore, e-learning is a useful teaching tool in education and is defined as "the use of internet technologies to enhance knowledge and performance".

Information and communication technology (ICT) enable the participants particularly lecturers and students to interact in digital environment. Lecturers will prepare and provide content and learning materials. These materials can be made specialized to the learners' need. The student or the learners will then interact with the course content. The interaction forms a

knowledge sharing environment that extend the traditional teaching and learning environment.

Currently, innovation in teaching and learning produced a system environment called Learning Management System (LMS). The system has become a necessity in the universities because it enhances the teaching and learning environment. Universiti Utara Malaysia (UUM) implements LMS since 2000 which was formerly known as Learning Zone and has recently been enhanced capability of the system and is known as UUM Online Learning. The system has a range of functions that support teaching and learning activities between lecturers and students.

Regardless to the methods that are utilized the efficacy and effectiveness of LMS still remains reliable and valid. In order to measure the efficiency and importance of LMS, users' satisfaction on the interaction activities offered by the system is counted as an essential parameter of success and failure. LMS is designed to help users keeping up the pace with management of their teaching and learning objectives. In addition, it also helps in dealing with ongoing and continuing updates, thus acts as a platform to seek and disseminate information at ease. Within this context, concerns towards interaction activities of LMS in enhancing teaching and learning process among lecturers and students are not well explored.

The interaction between lecturers and students in the LMS is very important. In Moore's Transactional Distance Theory (Moore, 1992), interactions are categorized under student-lecturer, student-student, and student-content. Effective interaction will further help lecturers to assess the ability of students and students also can interact with their lecturer and their peer via the LMS without any constraints of time and place. Therefore, this study is designed and aimed to evaluate some kind of activities in UUM Online Learning often used by lecturers and students to interact and also to evaluate their satisfaction towards all activities involved.

Learning Management System (LMS)

Learning Management system (LMS) is one of the teaching tools that support e-learning. LMS can be used to organize and provide access to online learning services where students, lecturers and administrators are the main user. Through LMS, user can plan, implement and access specific learning activities in e-learning environment. Thus there is a need to systematically measure the success and effectiveness of the LMS.

How Does LMS Work?

In line with the ever-changing modern times where students rely on the internet for most of their daily activities, it is appropriate for an online system or student portal to be set up to cater to their academic needs. The online portal has to be a place where students can confidently search and obtain information regarding their courses, and also to ensure the accuracy and reliability of the information. The Learning Management System (LMS) is one such system which is used by various universities all over the globe. Meanwhile, the LMS is also known in various universities as Virtual Learning Environment or Course Management System.

Ayub, *et al.* (2010) defined LMS as a web based technology which assists in the planning, distribution and evaluation of a specific learning process. It is a software environment designed to manage user learning interventions as well as deliver learning content and resources to students. LMS can also refer to an application that is used for tracking, managing learning and administrating system, and is especially used in a learning environment.

Though, it has been stated that the LMS is "a set of tools and a framework that allows the relatively easy creation of online course content and the subsequent teaching and management of that course including various interactions with students taking the course" (Mas Nida *et al*., 2010). According to Wahlstedt and Honkaranta (2007), the LMS consists of pedagogical devices, human interactions, learning contents and assessment supporting and advancing traditional learning in school or in higher education. LMS is a useful content distribution system, where instructors can distribute course materials and interact with students at a distance (Almarashdeh *et al*., 2010).

A typical LMS provides an instructor or moderator to prepare and deliver content, monitor participation by students, as well as assess students' performance online. The LMS provides interactive features to the students. As such, threaded discussions, video conferencing, and forums for discussion are the main features of an LMS. The goal of an LMS is to keep track of students' progress and performance. The LMS is not just viewed as an instructional trend but as a tool that benefits the adopters as well. As a web based learning tool, the LMS facilitates "any time, any place, any pace" access to learning content and management.

UUM Online Learning System

UUM Online Learning System is a platform to implement a blended learning mode (blended learning), which refers to a course that has a blended approach to learning through online and face to face approach. University e-learning policy has set a ratio of 30:70 for both of these methods, 30% of online, 70% in face to face.

UUM Online Learning System was upgraded by using the open source Moodle version 2.7 in July 2014. Enhancement includes the integration of data from UUM internal systems and authentication processes using Active Directory. It also be accessed via the car using either Android or iOS platform. Online learning has been fully implemented in the first semester 2015/2016 session.

The system offers various activities as shown in Figure 1 below. Examples of those activities are Assignment, Chat, Choice, Feedback, Forum, Quiz, etc.

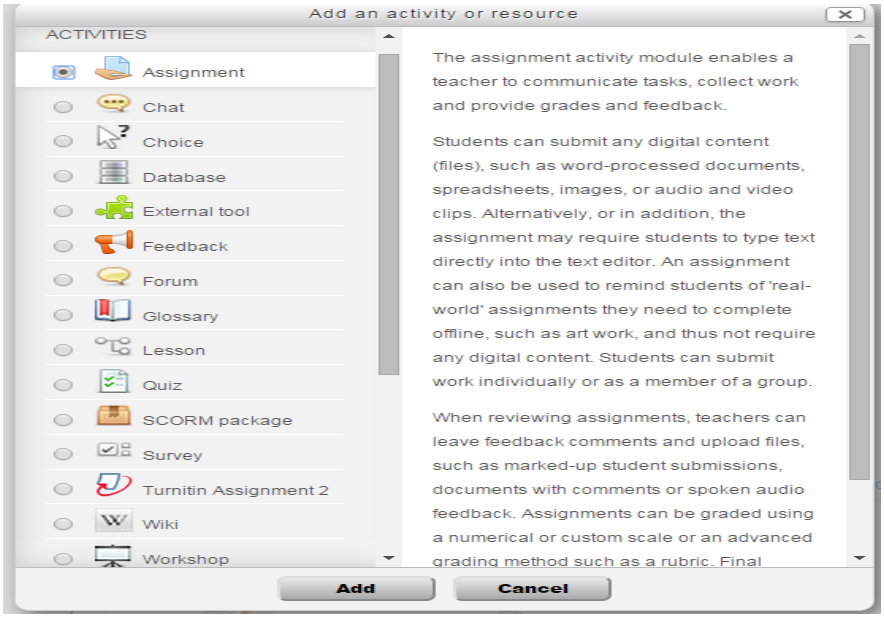

Figure 1. Activities in UUM Online Learning

The assignment activity module enables lecturers to communicate tasks, collect work and provides grades and feedback. Students can submit any digital content (files), such as word-processed documents, spreadsheets, images, or audio and video clips. Alternatively, or in addition, the assignment may require students to type text directly into the text editor. An assignment can also be used to remind students of 'real-world' assignments they need to complete offline, such as art work, and thus not require any digital content. Students can submit work individually or as a member of a group. When reviewing assignments, lecturers can leave feedback comments and upload files, such as marked-up student submissions, documents with comments or spoken audio feedback. Assignments can be graded using a numerical or custom scale or an advanced grading method such as a rubric. Final grades are recorded in the gradebook.

The chat activity module enables participants to have text-based, real-time synchronous discussions. The chat may be a one-time activity or it may be repeated at the same time each day or each week. Chat sessions are saved and can be made available for everyone to view or restricted to users with the capability to view chat session logs. Chats are especially useful when the group chatting is not able to meet face-to-face, such as (i) Regular meetings of students participating in online courses to enable them to share experiences with others in the same course but in a different location; (ii) A student temporarily unable to attend in person chatting with their lecturer to catch up with work; (iii) Students out on work experience getting together to discuss their experiences with each other and their lecturer; (iv) A question and answer session with an invited speaker in a different location; or (v) Sessions to help students prepare for tests where the lecturer, or other students, would pose sample questions.

The choice activity module enables a lecturer to ask a single question and offer a selection of possible responses. Choice results may be published after students have answered, after a certain date, or not at all. Results may be published with student names or anonymously. A choice activity may be used (a) As a quick poll to stimulate thinking about a topic; (b) To quickly test students' understanding; or (c) To facilitate student decision-making, for example allowing students to vote on a direction for the course.

The feedback activity module enables a lecturer to create a custom survey for collecting feedback from participants using a variety of question types including multiple choices, yes/no or text input. Feedback responses may be anonymous if desired, and results may be shown to all participants or restricted to lecturers only. Any feedback activities on the site front page may also be completed by non-logged-in users.

The forum activity module enables participants to have asynchronous discussions i.e. discussions that take place over an extended period of time. There are several forum types to choose from, such as a standard forum where anyone can start a new discussion at any time; a forum where each student can post exactly one discussion; or a question and answer forum where students must first post before being able to view other students' posts. A lecturer can allow files to be attached to forum posts. Attached images are displayed in the forum post.

The quiz activity enables a lecturer to create quizzes comprising questions of various types, including multiple choice, matching, short-answer and numerical. The lecturer can allow the quiz to be attempted multiple times, with the questions shuffled or randomly selected from the question bank. A time limit may be set. Each attempt is marked automatically, with the exception of essay questions, and the grade is recorded in the gradebook.

All the above activities create interaction between student-lecturer, student-student, and student-content. The system has been used to support the university teaching and learning. All lecturers and students are benefits towards the system.

Research Questions

Interaction is a fundamental component of teaching and learning. Moore (1992), in his seminal piece, defined three categories of interaction evident in distance education: student-lecturer, student-student, and student-content. Student-lecturer refers to the interaction between student and expert. These types of interaction take on many forms including delivery or presentation of information, student guidance, student-lecturer dialog, feedback, and student encouragement. Student-student interaction refers to the exchange of information and ideas amongst students as well as collaborative activities in which students engage to complete course projects and assignments. Student-content interaction, according to Moore (1992), is "a defining characteristic of education" and "without it there cannot be education" (p. 1). It is through content interaction that students internalize information they encounter.

UUM Online Learning provides all type of the mentioned interaction categories. As such, this study investigates the impact of the interaction activities to students based on the following item as stated in Table 1 below.

Methods

The research employs a case study of two selected classes that fully utilized UUM Online Learning. The first class consists of 39 students and second class has 95 students. A questionnaire based was employed as the method of data collection. All undergraduates (n=134) enrolled in two subjects: (i) Database System and Information Retrieval and (ii) Computer Application in Management , Universiti Utara Malaysia (UUM), Kedah, Malaysia were included in the study. The initial questionnaire was developed through an extensive literature review. The questions comprised of two parts. The first part consisted of demographic information including gender and academic year in which the students were enrolled. The second part consisted of 17 questions as discuss in previous section. All questions design in a five-point Likert scale format ("strongly agree", "agree", "neutral", "disagree", "strongly disagree"). The last question was open ended seeking suggestions on improving the interaction activities in UUM Online Learning.

Table 1
Items of Investigation

No.	Item
1	All activities keep me always alert and focused.
2	Interaction activities are adequately maintained with the lecturer when he/she is on the other side of the classroom.
3	Having students from the opposite gender in classroom listening to what I say might restrict my participation.
4	I cannot ask a question to lecturer when he/she is not in classroom.
5	I am satisfied with the quality of interaction between all involved parties.
6	I am dissatisfied with the process of collaboration activities during the course.
7	I am satisfied with the way I interact with other students.
8	I am satisfied with my participation in the class.
9	The use of activities in this course encourages me to learn independently.
10	My performance in exams is improved compared previous.
11	I am satisfied with all activities in this course.
12	I am willing to take another course that using the online activities.
13	I am satisfied enough with this course to recommend it to others.
14	The lecturer uses online interaction activities appropriately.

15	Class assignments were clearly communicated to me.
17	Feedback on evaluation of tests and other assignments was given in a timely manner.

Data collection

The questionnaire was tested for its reliability (Cronbach's α=0.75) and validity. Little modification was needed after the completion of the process. The study was conducted from September-November 2015. Data was collected by distributing the questionnaires to the students in the class during semester.

Results

A total of 134 students responded to the questionnaire given. The demographic characteristics of the study participants are presented in Table 2. The cohort was dominated by females (n=96, 71.6%). Majority of the students (n=39, 29.1%) were enrolled into Bachelor of Science Information Technology, and the other from various programme such as Bachelor of Finance (n=15, 11.2%), Bachelor of Multimedia (n=10, 7.5%), Bachelor of Economic (n=20, 14.9%), Bachelor of Communication (n=20, 14.9%), Bachelor of Laws (n=15, 11.2%) and Bachelor of Social Studies (n=15, 11.2%).

Table 2
Characteristics of the study participants (n=134)

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	38	28.4
Female	96	71.6
Programme		
IT	39	29.1
Finance	15	11.2
Multimedia	10	7.5
Economic	20	14.9
Communication	20	14.9
Laws	15	11.2
Social Studies	15	11.2
Study Year		
1st year	15	11.2
2nd year	93	69.4
3rd year	26	19.4

The overall mean for student satisfaction on interaction activities was 3.1 as shown in Table 3. The item (7) related to interaction with other students having the highest mean, 3.6 (4.0 for men and 3.2 for women). This suggests that students are satisfied with the level of interaction between themselves. The item (1) with the lowest score in this group was, "All activities keep me always alert and focused." The low score 2.6 is understandable (3.1 for men and 2.1 for women) because there may be less discipline and more interruption among students when the lecturer is in the remote classroom. Moreover, women show that they are less satisfied in item (2) than their counterparts (3.6 for men and 2.4 for women).

Table 3
Mean and Standard Deviation for Students' Satisfaction on interaction

Items	All Students		By Gender			
			Male		Female	
No.	mean	SD	mean	SD	mean	SD
1	2.6	1.248	3.1	1.470	2.10	0.957
2	3	1.266	3.6	1.426	2.4	0.972
3	3.45	1.354	3.6	1.343	3.3	1.341
4	3.3	1.516	3.5	1.676	3.1	1.401
5	3.1	1.171	3.6	1.300	2.6	0.959
6	3.4	1.308	3.9	1.302	2.9	1.191
7	3.6	1.131	4.0	1.066	3.2	1.070
8	4	0.935	4.4	0.944	3.6	.896
9	3.15	1.155	3.3	1.367	3.0	1.015
10	2.7	1.143	2.9	1.385	2.5	.947
11	2.7	1.183	2.9	1.437	2.5	1.023
12	3.2	1.150	3.2	1.356	3.2	1.51
13	2.55	1.288	3.1	1.490	2.0	.954
14	2.9	1.259	3.2	1.391	2.6	1.119
15	3.7	1.222	3.8	1.101	3.6	1.267
16	3.7	1.274	3.8	1.377	3.6	1.180

Majority of the participants gave positive feedback towards interaction activities in UUM Online Learning when they were inquired that whether usage of LMS helps and facilitates their studies.

As part of potential suggestions for improvement, majority of the participants recommended generating a section for question bank from past year exam questions which may help them in preparation of their examination. Up gradation of the network connection system in the campus thus enhancing the efficiency of student's usage of LMS with a more user-friendly interface was also suggested.

Discussion

This research is essential to understand the activities that can be achieve through rigorous interaction among students, provide anywhere, anytime interaction among the students community and remove the wall of classroom for students as well as lecturers through UUM Online Learning. It provide modular and extensible system with adaptive and knowledge management abilities for students and lecturers.

UUM Online Learning one of the LMS offers great opportunity to improve the teaching and learning process. Through the system lecturer can get a better understanding of their students by knowing what problems they may be facing, who can help them and how, when they are behind or ahead of their peers, and what roles can be assigned in discussion forums. So it can turn to a positive effect on students who can receive feedback tailored to their needs and problems. LMS also serve as one stop center for students to obtain a large number of resources online whenever they want and increases efficiency by saving time and convenience. This learning environment can get benefits from the integration of classroom and online delivery; students to pursue further knowledge thereby increase their learning outcomes.

In a study done by Link & Marz (2006), many students disagreed with the statement that LMS could replace traditional ways of teaching (20). This corresponds with the findings of our study which indicated that students prefer hybrid courses which includes lectures and tutorials with online learning as an addition. If learning was conducted only with lectures and tutorials, the learning process was believed to be boring and unattractive. Vice versa, learning by using LMS only is insufficient as there is less interaction between the lecturers and students.

Despite the wealth of research exposing the benefits of online interaction, frequent interaction and participation in online discussions is not a guarantee of higher grades (Jiang and Ting, 2000). Therefore, by encouraging students involved ardently in online discussions is unlikely to improve their performance. Our findings are in line with what is reported earlier by Davies and Graff (2005) that students seldom use LMS for online discussion purposes.

The findings also confirmed that females spent more time on LMS as compared to males. According to Garcia et al 2010, "although men are more prone to use computers than females, females tend to prefer communicative activities" (24). Supporting our findings, it was mentioned that e-learning is a flexible and inter-active learning approach which is most suited to women25.

Conclusion

Students at UUM are frequently engaged in using UUM Online Learning as they consider it convenient and easy to use. Students do feel that online based learning is enhancing their academic performances. However, factors including network connection and lag time hinder many of them from frequent use of e-learning. Nevertheless, students still prefer hybrid courses as mode of education which is the mixture of traditional and online teaching methodologies rather than choosing traditional system or LMS as an individual entity.

References

Mas Nida Md. Khambari, P. Moses, R. Khodaband, Wan Zah Wan Ali, S. L. Wong, and A. F. M. Ayub. (2010). *Students needs and concerns: Experiences from a learning management system*. 2nd International Malaysian Educational Technology Convention. Retrieved from: web1.fp.utm.my/seminar/22.../12-Masnida-UPM-U7-004-Ready.doc

Ayub, Ahmad Fauzi Mohd, Rohani Ahmad Tarmizi, Wan Marzuki Wan Jaafar, Wan Zah Wan Ali, and W. S. Luan (2010). Factors influencing students use a Learning Management System portal: Perspective from higher education students, *International Journal of Education and Information Technologies*, vol. 2, pp.4.

I. A. Almarashdeh, N. Sahari, N. A. M. Zin, and M. Alsmadi. (2010). The success of Learning Management System among distance learners in Malaysian universities. *Journal of Theoretical and Applied Information Technology*. Retrieved from: http://www.jatit.org/volumes/research-papers/Vol21No2/2Vol21No2.pdf

N. A. Alias and A. M. Zainuddin. (2005). "Innovation for better teaching and learning: Adopting the Learning Management System," *Malaysia Online Journal of Instructional Technology*, vol. 2, no. 2, pp. 27–40.

L. Greenberg. (2002). LMS and LCMS: What's the Difference? *Learning Circuits. ASTD's Source for e-Learning*. Retrieved from: http://www.learningcircuits.org/

Wahlstedt A., and Honkaranta A. (2007). *Bridging the Gap between Advanced Distributed Teaching and the Use of Learning Management Systems in the University Context,* Seventh IEEE International Conference on Advanced Learning Technologies (ICALT 2007).

Buzzetto-More NA, Koohang A. (2008). Student perceptions of various e-learning components. *Interdisciplinary Journal of Knowledge and Learning Objects,* 4, 113-35.

Jiang M, Ting E. (2000). A study of factors influencing students' perceived learning in a web-based course environment. *International Journal of Educational Telecommunications,* 6(4), 317-38.

Erah PO, Dairo EA. (2009). Pharmacy students perception of the application of learning management system in patient-oriented pharmacy education: university of Benin experience. *International Journal of Health Research,* 1(2), 63-72.

Greenfield S. (2004). *Tomorrow's people: how 21st century technology is changing the way we think and feel*. e-Penguin

Ryan S. (2001). Is online learning right for you. *American Agent & Broker*, 73(6), 54-8.

Song L, Singleton E.S., Hill J.R., et al. (2004). Improving online learning: student perceptions of useful and challenging characteristics. *The Internet and Higher Education,* 7(1), 59-70.

Govindasamy T. (2001). Successful implementation of e-Learning: Pedagogical considerations. *The Internet and Higher Education*, 4(3-4), 287-99.

Burgess L.A. (2003). WebCT as an e-learning tool: a study of technology students' perceptions. *Journal of Technology and Education,* 15(1), 6-15.

Sun P.C., Tsai R.J., Finger G., et al. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, 50(4), 1183-202.

Ardito C., De Marsico M., Lanzilotti R., et al. (2004). *Usability of e-learning tools*, Retrieved from: http://tesi.fabio.web.cs.unibo.it/twiki/pub/Tesi/ DocumentiRitenutiUtili/p80-ardito.pdf. (Accessed 1 January 2012).

Link T, Marz R. (2006). Computer literacy and attitudes towards e-learning among first year medical students. *BMC Med Educ,* 6(1), 34.

Garnham C, Kaleta R. (2002). Introduction to hybrid courses. *Teaching with Technology Today,* 8(6), 617–26.

Karayan S.S., Crowe J.A. (1997). Student perceptions of electronic discussion groups. *The Journal*, 24(9), 69-71.

Davies J, Graff M. (2005). Performance in e-learning: online participation and student grades. *Br J Educ Technol,* 36(4), 657-63.

Cuadrado-Garcia M., Ruiz-Molina M.E., MontoroPons J.D. (2010). Are there gender differences in elearning use and assessment? Evidence from an interuniversity online project in Europe. *Procedia Soc Behav Sci*, 2(2), 367-71.

Kramarae C. (2001). American Association of University Women Educational Foundation: The third shift. *Women learning online*. Washington DC: American Association of University Women Educational Foundation.