

An LMS Usage Assessment Among Students in Blended Learning Environment

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Abstract: Rapid expansion of Internet technology has made the human life much easier and efficient and also heavily influence in any business activity; education sector is not an exception to this [13]. Learning Management Systems (LMSs) are the typically adopted technology and they provide a significant tool in supporting blended learning in universities. Therefore, these systems are being explored from various aspects. Educational technologists conclude that every university or even departments within the same university differ in its experience in adopting these systems. Department of Industrial Management, University of Kelaniya is adopting the LMS portal for supporting blended learning. This university administration raises considerable attention in assessing the actual extent of staff and student adoption of the LMS. In this regard, this paper presents data collected from the surveyed 100 students at the Department of Industrial Management, university of Kelaniya regarding their LMS adoption. The result of this study shows that lecturers play a significant role in determining students' LMS adoption.

Keywords: Learning Management System, Blended Learning, Adoption

1 Introduction

The significance to the advancements of web-based technologies is the development of powerful software systems, known as Learning Management Systems (LMS), have become a widely-used technology and a key instrument in supporting e-learning in higher educational institutions. As LMS offers numerous benefits to individuals and institutions, many universities have deployed some form of LMS. Students can access course materials independent of time and location. Significantly, it opens up fresh potentials for initiating academic innovations where students function as dynamic, control their own learning, develop critical thinking and become collaborative participants. In addition, LMS provides an automated mechanism for teachers in the management of online courses, allowing them to create, add, modify, customize, and reuse digital content and learning objects and tracking learner progress.

Blended learning is defined as a combination (blend) of e-learning and face to face classroom learning environments [3] [15] [10]. Recently, blending learning has been increasing in higher education, as students are involved in collaborative learning and interaction with instructors and classmates [15].

Almost all universities in Sri Lanka have developed their own LMS portal for the use of their own lecturers and students [12]. The administrators of Sri Lankan universities are keen on assessing the actual status of faculty and students' usage of the LMS as the acquisition or construction of such a system and its annual cost of operation are significant [11]. Investigating and assessing the usage of LMS within a department and especially between different departments and universities is essential for its continuous use.

The objective of this study is to investigate the status (extent of use) of LMS adoption in blended learning at university level. This research will be interested to both researcher and university community, as it will significantly contribute and improve the body of knowledge in the context of LMS adoption.

2 Literature Review

All learning management systems are not the same; they can be adopted in different ways. Different tools such as activity tools (Lesson, HTML page, Glossary, Assignments, Quiz, Choice, Database, Workshop, Wiki, Chat and Forum etc.), blocks (People, Calendar, Online Users, Latest News, Upcoming Events, Search, etc.) and filters (associated components to the activity tools and the blocks) are integrated in a single system which offers all necessary tools to run and manage an e-learning course. All learning activities and materials in a course are organized and managed by and within the system.

Significant dedication in universities using an LMS is how to evaluate the actual extent of LMS usage by the students. While the trends are towards more student centric learning tools, the research done has shown that yet the teaching staff is the key driver of an LMS usage. The need for a reliable guide of the extent of LMS usage becomes apparent when one considers the complexity of assessing to what extent an LMS is actually used within a university. In this direction, range of aspects of LMS adoption, implementation, support, and usage have been the subject of numerous studies [8].

Lane [7] determined that the manner of LMS usage was largely shaped by the nature of the product as introduced to faculty. Kincannon [6] the reaction of faculty to use of a LMS and determined that faculty expressed dissatisfaction at the time demands imposed by using it. Amrein-Beardsley et al. [2], Allen and Seaman [1], View [14], Harrington [4] and Morgan [9] all attempted to gain insight into LMS usage via student or instructor-supplied data, and to assess the level of faculty adoption of LMS via the use of surveys, determining that 96% of the largest institutions of higher learning were, as of 2006, using LMS to support online learning in addition to in-class courses. All of the above studies were conducted in foreign countries and knowledge is lacking in the context of Department of Industrial Management, University of Kelaniya, Sri Lanka.

In order to assess the usage and extent of use of LMS, this research adopted Janossy's, [5] assessment method that make it possible to assess usage between units of a university and between universities, drove the development and proposal outlined in detail in Figure 1, which depicts a model for the derivation of a simple metric expressed as a number from 0 through 13.

The formation of this model proceeds from the definition of five overall "levels" of possible LMS use. These five levels span the continuum from no use of the LMS by an instructor through a level which exceeds the capabilities of most LMS systems using the technology currently available to many institutions [5]. The Figure 2 provides greater detail concerning the functional usage represented by each metric value, proceeding from the lowest value through the highest:

Level 0 refers to no LMS usage. Thus, the lecturer does not create a course in LMS or does not activate student access to the LMS for the students in the course if a course is automatically created in the LMS.

Level 1, refers to the very basic usage of the system only for uploading lesson contents by the teaching staff and downloading lesson contents or submitting assignments by the students.

Level 2, refers to the usage of communication tool in an LMS. It includes the usage of modules such as email, discussion forum or chat.

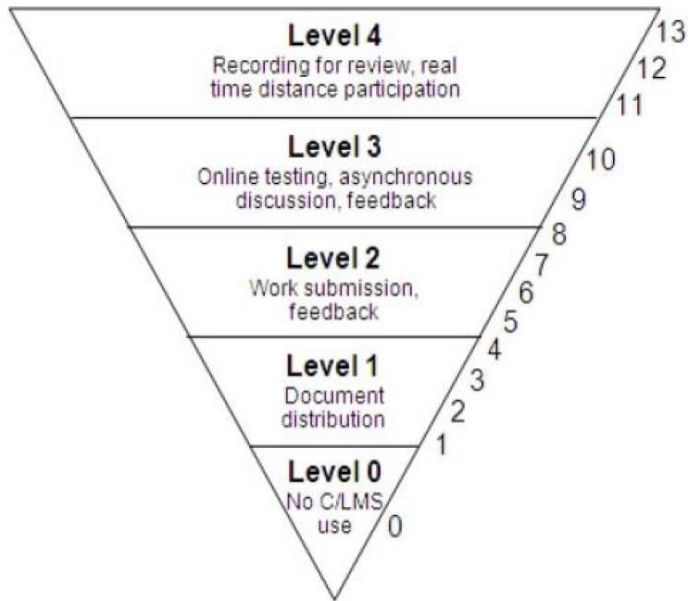


Fig. 1: Janossy's LMS Usage Level and Metric Values

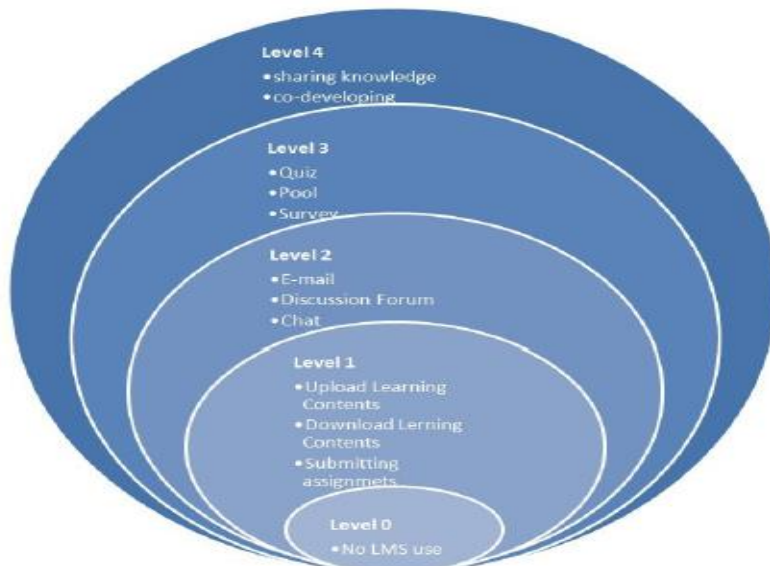


Fig. 2: A Level-Model for Assessing The LMS Usage among Staff and students

.Level 3, refers to the usage of the testing tool (quizzes, pool or survey). For instance, students can take some quizzes and tests online, with some scores provided immediately possibly with “feedback” answers for incorrect items and similar.

Level 4, is defined with a view to the current technological developments which require to share knowledge and to treat users as co-developers. Currently this was achieved by adding a blog module on the system but in the future, there might be other modules to enrich this level of LMS usage.

It is interesting to note that one could draw a parallel between the levels of this model and the theories of learning. In fact, the lowest levels of the LMS usage actually correspond to the more teacher centered approach which is typical for a basic level of learning and behaviorism. As we go upper in the level spectrum of LMS usage actually we move towards constructivism and social constructivism and end up in Level 4 which promotes building knowledge through sharing experiences and co-developing which on the other hand are some of the main principles of connectivism.

3 Research methods

This study is descriptive in nature and self-administered survey questionnaires were used to gather data. The questionnaires were divided into two parts. The Part A consisted questions relevant for respondent's demographic profiles. The Part B contained the questions related to the adoption of LMS by the students. A total of 100 questionnaires were distributed to students at the Department of Industrial Management, university of Kelaniya and all of them were returned and usable. Table 1 summarizes the demographic profile and descriptive statistics of the respondents.

Table 1: The demographic profile and descriptive statistics of the surveyed students

Item	Frequency	Percentage
Gender		
Male	38	38
Female	62	62
Age or Level		
20-22 (Level 2)	48	48
23-25 (Level 3)	52	52
PC ownership		
Yes	84	84
No	16	16
Laptop ownership		
Yes	94	94
No	06	06

4 Assessment of the LMS adoption in learning process.

This section describes the answer for the research question, thus how is the status of LMS adoption in learning process? In doing so, descriptive profiles for each of the adoption

variables were explored. Table 2 exhibits the descriptive profile of the five LMS adoption tools i.e. downloading lesson, chat, discussion forum, e-mail and assessment.

Table 2: Descriptive Profile of LMS Adoption Tools

Item	Mean	Std.Dev	Var	Min	Max
Downloading Lesson Content	4.26	1.065	1.135	1	5
Chat	1.72	1.089	1.185	1	4
Discussion Forum	1.84	1.149	1.321	1	4
E-mail	2.14	1.429	2.041	1	5
Assessment	3.82	1.119	1.253	1	5

N=50, 1= None use; 2 = Low use; 3 = Medium use; 4 = High use; 5 = Very high use

The conceptualization of students' LMS adoption consists of five LMS tools namely, downloading lesson content, chat, discussion forum, e-mail and assessment. However, based on the analyzed data only two LMS tools i.e. downloading lesson content and assessment were prominently adopted by students at Department of Industrial Management, University of Kelaniya.

Downloading lesson content relates to the utilization of LMS for downloading notes that are uploaded by their lecturers. In this instance, lecturers impose the students to use this tool by uploading their lesson contents. In fact, findings of this study revealed that students downloading lesson contents was the highest in terms of mean compared to other LMS tools. Since being a student, one is always subject to lecturers' decision. Hence, by uploading lesson content lecturers insist or impose students to use this tool and students without any questions must abide and adhere. Further investigation indicated that almost all lecturers use this tool to upload their lesson content.

Chat denotes to the utilization of LMS for the purpose of pedagogical chatting via LMS and students are being monitored by the administrator. Hence, they use this tool only for the above purpose. Findings of this study showed that chat tool recorded the lowest mean. There would be two reasons behind this lowest mean. The first reason is, normally students are being more interested and constantly engaged in chatting other than pedagogical one and use chatting tools such as facebook, twitter, skype, whatsApp, viber, tango etc. The second reason is, a very few lecturers use this chatting tool and they do not insist or impose the students to use this tool as they insist the students to download the lesson content.

Discussion forum, relates to the utilization of LMS for the purpose of discussing on a certain topic with their peers and lecturers to enhance the critical thinking, analytical skills and exchange of their knowledge. Findings of this study showed that the tool of discussion forum also recorded lower mean. There would be two reasons behind this. The first reason is, as the respondents are the internal students, they have enough time for discussing face to face. The second reason is only 25% of lectures use this discussion forum. Hence, students also do not give preference to this tool as their lecturers do.

E-mail denotes the adoption of LMS for communication purposes. This is also same as the previous two tools. Thus, students use other mail accounts in yahoo, Gmail for their e-mailing purposes.

Assessment tool relates to the utilization of LMS for the purpose of assessing students through various sub assessment tools such as quizzes, short answers, multiple choice, essay questions etc. Results revealed second scoring for assessment tool in adopting LMS. This is because; students are being imposed by their lecturers to adopt this tool, as they are imposed by lecturers to download lesson contents.

From the above discussion it is obvious that, subjective norm has a strong predictive power in determining individuals' behavior. Thus, subjective norm in the form of lecturers' acceptance and use of technology were found to influence students' acceptance and use of the same. Thus, if lecturers use or adopt LMS, students also believe it as important to them and they also imitate their lecturers and vice versa.

5 Conclusion

Learning management system (LMS) grants proficient ways to train and teach students. The objective of this study was to evaluate the actual extent of LMS adoption in blended learning environment from the students' perspectives.

Based on 100 students, results showed that lecturers play a significant role on students' LMS adoption. Thus, if lecturers adopt LMS, students also trust it as important to them and they also adopt it. Therefore, lecturers must make sure that they are trained and experienced well with LMS before adopting it in their teaching process and should possess a good attitude towards LMS. Further, lecturers must timely response to the students' online problems and requests, and also lecturers should know how to arrange their lessons online; they should design their lesson content and activities in a way that is useful to learners and improves the learning outcomes. Moreover, lecturers need to make sure that students are trained well and have good perception about the ease and usefulness of LMS.

As well, LMS developers must regularly improve the quality of LMS and ensure its richness, easiness, fastness, responsiveness, flexibility, reliability, and interactivity, user friendly, and security for students.

Additionally, LMS adopting universities must highlight the importance of LMS on curriculum, guarantee the quality of the utilized system, ensure that lecturers are entirely on board regarding the adoption of LMS, improve learner attitude towards LMS, experience and provide good enough service for effective LMS adoption in blended learning environment.

6 Limitations and Future Research

This study has limitations. First the sample was collected from the Department of Industrial Management, University of Kelaniya, more researches could be conducted at numerous department, and different universities to generalize the LMS adoption pattern in Sri Lanka. Second, since this study is a descriptive in nature, more researches need to be carried out further to investigate the adoption barriers and challenges of LMS. Moreover, as an alternative approach to paper based survey, the instruments can be embedded on the LMS itself so that periodic assessment can be easily managed and monitored, and hence appropriate actions or necessary arrangements can be taken accordingly.

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