Learning Management System (*LMS*) among University Students: Does It Work?

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Abstract—**The Learning Management System (LMS) has been established in a number of universities worldwide to help connect students and lecturers without the confines of the traditional classroom. It is an environment with digital software which is designed to manage user learning interventions as well as deliver learning content and resources to students. Since the LMS system has already been implemented and it has also been made compulsory for the lecturers to apply in their daily lectures, it is vital to identify feedback of students as users of LMS. Previous studies have shown various findings in relation to the impact of using LMS in the higher learning environment in various universities worldwide. Therefore, this paper will provide several insights of the LMS phenomenon.**

Index Terms—**Learning management systems, higher learning, content, acceptance, impact, worldwide.**

I. INTRODUCTION

The Learning Management System or popularly known as LMS in the community of higher institutions is an online portal that connects lecturers and students. It provides an avenue for classroom materials or activities to be shared easily. It is also a portal that enables lecturers and students to interact out of the classroom, having discussions through forums that could otherwise take up too much of the time supposed to be spent learning in the classroom.

In this era of information technology, the internet is easily available and accessible by urban areas, which is where most universities are situated. The internet is defined as a vast computer network linking smaller computer networks worldwide, and it includes commercial, educational, governmental, and other networks, all of which use the same set of communications protocols.

Most university students nowadays also have access to the internet as their university provides internet access, and usually there are internet cafes within a walking distance from the university's campus, catering to students. Some also have internet access within their own home as they subscribe to an internet service provider.

University students are mostly independent in their learning as lecturers usually give out lecture notes, and further information are left for the students to discover on their own, as it is not a one-way learning process which is practiced in the primary and secondary school system. The learning process at the university level is a two-way process, lecturers share their knowledge and students give their

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opinions or thoughts in return a topic in a class discussion. Therefore, university students need to constantly broaden their knowledge by searching for information.

II. INTERNET USAGE BY ACADEMICIANS AROUND THE WORLD

A. Overview

Several studies had been conducted by researchers, and although the aim of their research on the use of the Internet may vary, their research shows that Internet is being used by academics around the world. From a local perspective, a study revealed that students at universities in Malaysia had used the Internet for course-related activities. Students with better basic skills in the Internet perceived the Internet to be supportive of learning environment by using the Internet for their learning tasks and also generally had better attitudes toward using the Internet to improve their studies [1].

B. Internet Usage by Academicians World-Wide.

For the academicians in the University of Delhi, India, the usefulness of the Internet is shown through the frequency of its use. Most of the respondents used the Internet more frequently, with 70 percent of them indicated using it daily, 16 per cent of them more than two or three times in a week, 12 per cent of them once a week and 2 per cent of them occasionally [2]. Internet presence helps to improve the educational process and address problems related to weak collaborative partnerships, declining educational standards, rising costs, increasing student numbers and to meet the general increased demand for higher education [3].

A well-managed information flow in an academic institution can lead to the improvement of academic standards and can ensure greater equality. With the introduction of the Internet, information-seeking activities and information access have become much easier, faster, and more cost-effective for the intellectual community, as showed in the research done at the Rajshashi University in Bangladesh [4]. In addition, internet access in the University of Ibadan, Nigeria, is primarily expected to help students and staff to access literature and to engage in academic communication [5].

A study in 2003 [6] evaluated the level of utilization of the Internet for academic research at the Obafemi Awolowo University, Ile-Ife, Nigeria. The results from the analysis of the responses showed that the respondents ranked the use of research materials on the Internet fourth (17 per cent). However, respondents who used the internet ranked research materials second (53 per cent) to e-mail (70 per cent). The study concluded that the use of the Internet for academic research would significantly improve through the provision

of more access points at departmental and faculty levels. The Internet made it possible for users to have access to large volumes of information on many disciplines, irrespective of the user's geographic allocation [7].

In general, we can deduce that academicians use the Internet as a tool to search for more information for academic purposes.

III. FACTORS INFLUENCING THE USE OF THE INTERNET TO SEARCH FOR INFORMATION

The internet is a useful tool for searching information since it is user-friendly and available for research at any time of the day, depending on the student's needs. But there are also other factors that influence a person to use the internet to search for information.

Personal characteristics of individuals could influence their use of the internet. For instance, age often indicates generational gaps while income distinguishes people according to their economic power, and educational level measures individuals' intellectual development. These issues are obviously expected to affect people's use of a facility that is evolving fast, varying in cost and use sophistication, and this has always been the case. According to a survey reported in The Daily, differences by income, education and age exist in the use of internet [8]. The survey also showed that the use of computer communications increased substantially with education. Households headed by someone with a university degree were far more likely to use the internet, and people in all age groups were more likely to be connected, regardless of the location of use. Therefore, the internet is mainly chosen by university students as a source of information because of its swiftness in delivering information, and also the potential it gives them to connect with other peers from around the globe for the purpose of sharing information.

Figures from the Current Population Survey's Computer and Internet Use Supplement and found that the most connected age group among Internet users is the segment of those between 18 and 24 who are in school, with 86.7% online in 2003. They also observed that past reports from the Pew Internet and American Life Project, a premier authority about Americans' Internet uses based on their surveys have shown growth in the percentage of young people using the internet. This shows that the trend of young people using the Internet has been around since the last few years [9].

Besides that, age is also associated with web access and web use. Citing Fox and Madden's research in 2005, Hargittai and Hinnant [9] suggested that young adults lead the age groups with their use of communication tools, such as instant messaging and chatting, and they are also more likely to pursue hobby or entertainment activities, such as downloading music or surfing for fun. They also use the medium for getting information about leisure time activities more than others. Therefore, young adults may choose to use the internet to search for information because it is a medium they are familiar with, but it is also important that they know how to use it wisely and not get distracted from their academics while on the internet.

A. Other Scenarios

Those who are between the age of 29 and 59 tend to use the Internet more than the younger people to perform job research and to use government sites [9]. Meanwhile, Hargittai and Hinnant [9] also cited Cotten and Gupta's work in 2004 which found that research on health information seeking has shown that individuals who seek health materials online are likely to be younger than those who report seeking health information only offline. The younger, more internet savvy generation often seek information online instead of going to the books or doctors, and this trend may extend to the method they use to search for information regarding academic purposes. This research suggests that there are differences among age groups in what they do online. However, we cannot conclude from these studies that there is homogeneity in Internet use within age groups.

In another study done in 2002 [10], the findings in the domain of gender are mixed. They shifted from a demonstration in the mid-1990s [11] which showed that men were more likely than women to use the internet to a reversal in 2000 when Jupiter Media Matrix reported that the number of women using the internet had surpassed the number of men [12].

Apart from demographic factors, there are other reasons why students chose to use the Internet to search for information. The existence of drawings and pictures available on the Web complements the almost constant flux of written information in textbooks. Also, Web resources allow for animations showing processes that otherwise are very difficult to describe in a textbook or in the classroom. Finally, short video clips can provide complementary information, thus enhancing the learning experience [13].

IV. THE INTERNET AND STUDENTS' ACADEMIC PERFORMANCE

Students use the internet when they need to gather further information when it comes to understanding lectures and ideas for assignments. There are contradicting views from researchers on whether the internet is a good medium for students to search for information, as some agree, while some disagree with this idea.

According to Schofield and Davison [14], the complexity of the situation is summarized as follows: 'Today, millions of students in the United States and around the world can connect to the Internet from their schools. Billions of dollars have been spent to provide such access with the expectation that the information and communication resources the Internet provides will improve educational outcomes. Yet educational benefits do not flow automatically from Internet access. Attitudes and expectations, technical knowledge, classroom culture and Internet culture, curriculum design, implementation, and follow-through all affect what teachers and students can accomplish with the Internet. In at least one critical respect, the Internet turns out to be no different from any other classroom resource. What you get out of it depends a great deal on what you put into it' [14].

Schofield and Davidson [14] are referring to the situation where students who have access to internet might benefit

from it, or not at all, depending on how the medium is used to instruct them. For example, if a student does not have basic computer skills, such as switching on the computer and using a web browser, then the internet is useless to them as a medium of instruction. This situation is similar if applied to university students as they also must have basic computer knowledge and search techniques in order to reap benefits when using the internet to search for information.

In another study done in 2010 [15], the results obtained from the data collected may prove to generate a solution of the main question of interaction of female students in the internet environment. The result of this investigation shows that during examination days, the time spent on SN Websites by female students increased. This seems there is a need to cope with examination stress among female students, and they do so by using social networking websites. This research shows that the internet may prove to be good and harmful for students as they can use it to aid their studies, but unfortunately may also get distracted by other attractions on the web.

V. The Learning Management System (LMS)

A. 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.

There are basically four types of e-learning systems: the Learning Management System (LMS), Learning Content Management System (LCMS), Learning Design System (LDS), and Learning Support System (LSS) [16]. For the purpose of this paper, we will be focusing on the Learning Management System (LMS), which is an e-learning system 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 [17].

Ayub, Rohani, Wan Marzuki, Wan Zah and Wong [18] 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.

Meanwhile, 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" (as cited in Mas Nida *et al.*) [17]. According to Wahlstedt and Honkaranta, 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 (as cited in Almarashdeh, Noraidah, Nor Azan and Alsmadi) [19]. The LMS can also be described as a high level web based technology solution for planning, conveying and managing a myriad of learning events within an organization such as online, virtual classroom and instructor-led courses that can assess a specific learning process [20], [21].

LMS is also one of the solutions which are useful for both students and instructor in online learning environment. LMS are tools for student communication and interaction among students and lecturers. LMS will help the lecturers to provide their learning materials and also interactivity features such as thread discussions, shared files and forums. As mentioned, LMS also support management task such as delivery and tracking, examination, planning, virtual live classes and several statistical analyses. This may save lecturers a lot of time and effort without making any substantial change in teaching process [18].

A typical LMS provides an instructor or moderator to prepare and deliver content, monitor participation by students, as well as assess student's 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 [17].

B. The Issues of LMS among University Students

With the introduction of a new system, there will be problems that ensue among the users. Ramayah's study found that many colleges are using LMS for e-learning courses and instruction, but many instructors restrict themselves to uploading course materials to the course web site and never use the interactive features such as chat, discussion forum, email, messages). Some instructors may use the discussion board to generate class discussion among students and themselves but the lack of immediate feedback with the discussion board in LMS has discouraged users to utilize them. Although many interactive features are available in the LMS, its capacity for use may still be limited because of its demand on the commitments from both instructor and students during a specific time frame (as cited in Almarashdeh, Noraidah, Nor Azan and Alsmadi) [19].

Wahlstedt and Honkaranta also stated that there also seems to be a gap between the reality and the many advanced teaching tools that are provided in LMS, such as multimedia materials, which were considered as possible means for enhancing teaching, but are not utilized. To bridge this gap, the LMS system should be build to be more adaptive and customizable. This is also to support teachers or instructors with different computer level skills (as cited in Almarashdeh, Noraidah, Nor Azan and Alsmadi) [19].

However, another study found that there are numerous barriers to the integration of instructional technology into

higher education, such as technology infrastructure, faculty effort, technology satisfaction, and graduates competency [22]. Many higher online educational institutions have failed due to the high cost of technology, poor decisions, competition, and the absence of a business strategy [23]. These universities that provide e-learning face enormous difficulty in achieving successful strategies, including the delivery, effectiveness, and acceptance of the courses [24].

Besides that, knowing students' intentions and understanding the factors that influence students' beliefs about e-learning can help academic administrators and managers to create mechanisms for attracting more students to adopt this learning environment [25]. Therefore, it is necessary to conduct research that deals more intensively with learners' perception of, attitude towards, and intention to use e-learning. However, little research has been done in Malaysia to empirically determine the relationship of university students' e-learning use with personal factors such as perceived usefulness, easiness, attitude, intention to use, and self-efficacy, with social factors such as subjective norm and organizational factors such as system accessibility.

C. Acceptance of LMS among University Students

Researches on LMS use has focused primarily on students with mixed results. Studies have confirmed that, on average, there is no extensive variations between the amount students learned with and without the aid of online systems, but that there is a considerable variation in student outcomes depending on how instructors use technology in their classes [26]. In order to better identify what advantages have been obtained from the investments in ICT, universities are turning their focus toward academic users of LMS [27].

A study in 2011 confirmed that Perceived Ease of Use (PEU) has a significant impact on Perceived Usefulness (PU), as suggested by Technology Acceptance Model (TAM) Theory. Both PU and PEU also have positive effect on Behavioral Intention to Use. This indicates that the ability of a LMS to allow student and instructors to accomplish his learning task, enhance effectiveness in learning and increase learning productivity is more important than the easy to use, easy to access information and clear interaction of the LMS [19]. Furthermore, the usefulness of the LMS led to high intention to use more than ease of use of LMS among learners. On the other hand, an ease of use of LMS led to high intention to use more than the usefulness of the LMS among instructors. In other words, the usefulness of LMS influence the learners intention to use more than an ease of use of LMS, while an ease of use LMS influence the instructor intention to use of the LMS more than usefulness of LMS. The findings indicate that generally distance learners and instructors using the LMS on their learning and teaching activities and the high acceptance level of LMS implies a desire on having learning management system in Malaysian universities [19].

The study shows that the acceptance of the learning management system is vital in deciding whether the system is usable and utilized by students and instructors in Malaysian universities [19].

In Korea, people are encouraged to use IT in every field to be updated with the social change caused by IT. University students may want to adopt e-learning because they think e-learning experience will be beneficial for future job preparation. A study in 2009 found that neither perceived usefulness nor perceived ease of use had a significant direct effect on behavioral intention to use e-learning. According to the original Technology Acceptance Model (TAM), perceived usefulness is hypothesized to affect intention to use, and perceived ease of use is not hypothesized to directly affect intention [28]. Some elements of the research were consistent with previous researches, whereas some elements were contrary to previous results. However it can be summarized that learning to use the Internet is normally considered easy and the benefits from learning through Internet are already familiar to students in Korea [28]. The result of the study demonstrated that some TAM constructs had a direct and indirect effect on university students' behavioral intention to use e-learning. In Konkuk University for instance, e-learning introduction, e-learning manuals, and an e-learning strategy were developed by the Center for Teaching and Learning [28].

VI. Concluding Remarks

In this modern world where information is disseminated quickly via the internet, the LMS is an essential tool for university students as not they can keep updated with their coursework, but get instant notifications pertaining to their daily assignments. In turn, lecturers have an easier time reaching out to their students out of class hours and can instantly update them over the LMS about issues regarding their coursework. Although those using the LMS might encounter some problems, it's all part and parcel of learning and using a whole new system altogether. Universities should provide proper training and guidance for students and lecturers using the LMS, as well as have a team which is on-call at all times to solve any problems that may arise.

Nevertheless, most university students have access to their university's LMS or similar systems that help to enhance their learning process. Many have also expressed positive views about LMS, therefore proving that LMS is a necessary implementation in all universities worldwide.

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