European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.10, No.4, 2018

Undergraduates' Use Behavior of Learning Management Systems: A Sri Lankan Perspective

Mohamed Fathima Rashida[1] Samsudeen Sabraz Nawaz[1] Mohamed Aboobucker Mohamed Sameem[2]
1.Department MIT, South Eastern University of Sri Lanka, University Park, Oluvil, Sri Lanka
2.Department of English Language Teaching, South Eastern University of Sri Lanka, University Park, Oluvil, Sri Lanka

Abstract
This research aims to explore the perceptions of students in using Learning Management System (LMS) in order to enhance the learning process of students, especially those undergraduates in government universities in Sri Lanka. Almost all government universities in Sri Lanka have implemented LMS for students to make their learning process interactive and engaging. These higher educational institutions have made considerable amount of investments in terms of finance and other resources, but the benefits enjoyed by these institutions and student are far below expectations unless the usage of such systems are made compulsory. Therefore, although many studies have been conducted overseas, it is of high recognition that a study is very much needed to understand the reason(s) for low usage by students in Sri Lankan free education context. Quantitative study based on self-administered questionnaire survey was conducted. Out of the 15 government universities in Sri Lanka, 03 were selected. Results from 344 valid responses reveals that Attitude, Experience and Anxiety significantly influence the students' use behaviour of LMS in Sri Lankan universities, while Efficacy and Collaboration do not have any impact. The research identifies what factors would influence these students' use behaviour of LMS in state universities. Variables Students' Attitude towards LMS, Efficacy, Experience, Anxiety and Collaboration with Lecturers and Students are considered to be the predictor variables and their influence and impact on Use Behaviour of LMS (predicted variable) is studied.
Keywords: Undergraduates' Perspectives, Learning Management Systems, Use Behaviour, Sri Lankan Universities.

1. Introduction

The use of Information and Communication Technology (ICT) is a dynamic qualification for the growth of a knowledge-based economy, to develop human resources specifically for developing countries. Because of the greater use of information and communications technologies, universities are enduring typical shifts. The result of this typical shift in the consumption and use behaviour of e-learning, which has arisen as an overbearing tool to communicate knowledge in the academic as well as corporate sectors.

According to Kelly and Bauer (2004), E-learning is the use of Web-based communication, collaboration, learning, knowledge transfer (Samsudeen et al., 2015), and training in order to add value to learners and businesses. E-learning is controlled to become an essential module of information propagation and develops as the new standard of modern education meanwhile it has several advantages such like increased efficiency and cost reduction, transparency, scalability, flexibility, accessibility consistency and improved student performance. According to Fathi and Wilson (2009), all methods of Internet-mediated learning continue to succeed across all stages of higher education and are increasing continually.

Some academic and technical training organizations use e-learning systems to support for traditional ways of teaching (blended learning), while others use it as a supportive tool for distance learning (pure exclusive e-learning). In case of blended learning environment, according to Gribbins et al. (2007), it mixes instructional delivery in a face-to-face manner with online learning, either synchronously or asynchronously. Hence, it is defined as a combination of online-learning and face-to-face classroom learning environments (Graham, 2006; Wu et al., 2010). On the other hand, in distance learning, e-learning can be used to construct a complete virtual learning environment with all course works can be done absolutely in an online manner.

In the blended learning environment, Learning Management Systems (LMSs) are noticed as the simplest and trustworthy e-learning tool among several available e-learning tools in the market, and they are the initial idea of any internet-learning program (Kakasevski et al., 2008). Content Management System (CMS) is the umbrella and Learning management systems are a part of it: that manages teaching and learning environment. An LMS is a software program that encompasses a sequence of web-based tools to support a number of activities and learning management techniques. According to Sridhar (2007), LMS is same as to e-learning in the way of using internet support in the classrooms to boost the learning process. WebCT, Moodle, Desire2Learn, Blackboard, ANGEL and eCollege are some examples of LMS. In fact, LMS does not only supports to teach and train the individuals, but also it allows them to efficiently codify and share their academic knowledge. (Al Busaidi et al., 2012).

Within the e-learning environment, it is possible to notice authors using a number of alternative terms for

CMS (Clark et al., 2004; Fahrni et al., 2004; Sturgess and Nouwens, 2004). LMS is the one and most popular such labels among this. The selection of the label is freely depending on the country of origin for example, Virtual Learning Environment (VLE) is used to express e-learning in United Kingdom, or discipline used by Jeanne McConachie et al. (2005) however this study prefers to LMS.

For government universities, the usage of the LMS has become as a condition. Further, most of the universities have developed their own LMS portals for their own lecturers' and students' use. However, the successful acceptance of LMS completely depends on users' decision. Therefore, though there are upward number of faculties and or departments who are very passionate about accepting LMS, there are still a large number of ordinary faculties and or departments who seem doubtful or unwilling to accept LMS for their teaching tasks. Even though it's told that the successful acceptance of LMS depends on lecturers' and students' decision to use, actually the acceptance of LMS is originated by lecturers' acceptance and use, which initiates and supports students' utilization of LMS in classes as well as learners' continuous acceptance and use is substantial for the victory of LMS placement. This simply suggests that there are some influencing factors shaping the acceptance performance of the users. Also, as the way of LMSs adopted, the effectiveness will differ across users; proposing that the method and way of the adoption could be the determining factors. Theories such as Diffusion of Innovations or DOI (Rogers, 1995) and Technology Acceptance Model or TAM (Davis et al., 1989) suggest that individual behaviors focus some influencing factors such as individual characteristics, organizational characteristics or innovation characteristics. Models such as E-learning Success Model or ESM (Holsapple and Lee-Post, 2006) and Information Success Model or ISSM (Delone & Mclean, 2003) also suggest that effective adoption focuses to the degree of utilization behavior.

Additionally, the progress of e-learning systems is fairly a challenge for both government and government universities and industry. Success of the education does not rely only on technology, but it depends on careful planning and strategies for the use behaviour must be closely examined and that the use behaviour among users is a vital concern. Both Information System researchers and professionals deal various complications in theoretical and methodological concepts (Ozkan et al., 2008). Most of the initiative institutions of e-learning in developing countries have not been successful (Borstorff, et al., 2007; Saeedikiya et al., 2010). Some of them only know that why many initiatives stop their online learning after their initial experience (Sun et al., 2008). As a significance of these issues, the development of theories and principles for guiding e-learning triumph to lead to achieve an efficient system is become as a requirement. Furthermore, according to the importance of measuring IS success in terms of e-learning application increase, the requirements for the investment on e-learning also increase. But before investing in on an e-learning system, there is a crucial need to evaluate the success of the system.

Moreover, checking the e-learning system's success is very essential for its sustainable use. It seems that knowledge existing in the above situation is also deficient in Sri Lanka. Therefore, there is a requirement to recognize the use behaviour forms of LMS and impacts in respect of Sri Lankan government universities. This research is proposed to inspect the Determinant Factors for effective use behaviour of LMS, evaluating the results and providing set of recommendations in order to expand teaching and learning over LMS from students' perceptions.

Many researchers have encouraged to develop Internet technologies and web-based applications by the growing convention of Internet. The character of e-learning and information technologies in higher education endures to multiply in scope and density. Every public educational institution has got the chance to make the use of Internet as a backbone of communicating medium with the students with the help of the rapid development of ICT infrastructures. To confirm that the higher education programs delivered through technology are in standard, it is significant and only way to evaluate the e-learning systems used by them. In Sri Lankan context, the government also identifies the potential of new technologies as a tool for making changes and innovation in education system. Through the Higher Education for Twenty first Century (HETC) project Sri Lankan government gives highest priority for technology base education in universities. Therefore, it has invested large sum of money to purchase and develop technology infrastructures not only at university level but school level too. Therefore, in terms of research, since the e-learning system is increasing effectively, it has become as one of the most practically and theoretically important.

Thus, it is important to understand the determinant factors that impacting e-learning and are the initiators and difficulties of it might be. Furthermore, there is also very few numbers of research have been taken out on this area. As a result of this, in order to use e-learning applications proficiently for educational purposes, there is a significant requisite for identifying the determinant of students' perspective of LMS effective use behaviour and accomplishment of the e-learning system. Furthermore, it is believed that the findings of this study will be helpful to expand LMS environments further and contribute to future LMS use behaviour.

2. Literature Review

Higher educational institutions or professional institutions should employ with their students as active

participants in their learning in order to be effective. To be an effective one means that creating interactive learning opportunities through support for change and increase the learners' knowledge. This kind of educational practice hopes to motivate learners to be lifelong learners' themselves, increase the ability of critical thinking and problem-solving ability, produce keen learners and innovative knowledge makers. Furthermore, higher education institutions concentrate with constructing expressive educational relationships between students and lecturers, and among colleges themselves. It encompasses learning collaborations as well as learning cooperation; the appropriateness in technology which using in teaching is produce excessive opportunities for promoting innovative and interactive e-learning quality.

According to Papp (2000) and Volery & Lord (2000), tertiary institutional students are becoming as more challenging and mandate for online based e-learning courses is increasing. Students need to increase their ability themselves on time management, discipline and computer skill to achieve success in e-learning environment. Prior IT knowledge of students such as having own computer or laptop and interest on e-learning is one of the determinant factor of e-learning success. Most of the characteristics of the students is becoming as inspiration on learners' use behaviour of LMS. Learner's perception comprises approach of learner toward LMS, leaner's concern on computer, self-efficiency, enjoyable experience and collaboration with other students and lecturers (Ozkan et al., 2008). Characteristics of learners' such as concern of computer, technological experience and personal innovativeness are important factors for learners perceived ease of use of LMS, while technological experience is an important factor for its usage (Al-Busaidi, 2012).

This research study surveys students' perspectives towards LMS, self-efficiency, experience, computer anxiety, collaboration with lecturers and students impact on students' LMS use behaviour (Figure 01).

3. Theoretical Framework

The conceptual model was developed, and comprehensive literature review was conducted to develop the model based on many past studies by many researchers such as Ozkan et al. (2008), Sun et al. (2008), Al- Senaidi et al. (2009) and Al- Busaidi (2012).

Students' approach through LMS is a key determinant factor for their LMS acceptance. So, Learners' perception of usefulness is also interconnected to effective responses to the LMS environment (Johnson et al., 2008). Perceived e-learner satisfaction from LMS can be influenced by positive learner approach to computers (Ozkan et al., 2008). According to Arbaugh & Duray (2002), there are several surveys mentioned e-learning satisfaction can be determined by learner's approach towards computers or IT. Learner approach means the learners' impression of participating in e-Learning activities through use of computer. Use of E-Learning depends mostly on the computers use as an assisting tool. Lecturers upload their course contents on the LMS platform and learners downloading it through computer networks.

Learners' self-efficacy also may influence on view of LMS. According to Compeau et al. (1995), Computer self-efficacy means that assessing the ability of applying the computer skill themselves to complete some task of them. Self-efficacy refers to personal judgments of students themselves regarding their skills to organize and execute action necessary to reach selected types of performances (Bandura, 1977). If the learners' computer self-efficacy is high, it means that there is more possibility to be satisfied with it. In the e-learning perspective, this self-efficacy can be interpreted as a student's self-confidence on his or her talent to carry out some learning tasks using LMS. If a student has a strong confidence on his ability to deal with an LMS may have a more positive opinion of its ease of use and usefulness and is likely toward to be more willingness to accept and use the system. In this survey, self-efficacy is meant as the ability of learners to assess their ability to use the Internet to perform activities related to e-Learning.

Learners' continuous work with technology to do their works taking major role in the effective use of technology. An individual's daily work through using technology is the individual's experience to use it and the skills and the abilities that he or she earns from using the technology (Thompson et al., 2006). Wan et al. (2007) stated that learners' technology experience effecting the learning processes and, thus, learning outcomes. Learners' perceived ease of use and perceived usefulness of LMS depends on learners' experience (Pituch and Lee, 2006). When a learner has more technology experience it will lead for more familiarity to use ICT in education and will perceive it as easy and useful and use it. Likewise, experience earn from long-term use of technology indicates that learners are happy with the technology.

Computer anxiety has also been one of the factors to determine learners' acceptance of LMS. Users' anxiety and user's approach are two different terms. User's anxiety means the beliefs and feelings toward computers (Heissen et al., 1987). According to Simonson et al. (1987), computer anxiety can be defined as the fear or hesitation felt by persons when they used computers. Consequently, computer anxiety can negatively influence learners' acceptance and use of LMS. Many research studies illustrate that e-learning satisfaction and users' computer anxiety have negative impact (Sun et al., 2008), like that computer anxiety also has negative impact on the usage of LMS (Al-Busaidi, 2009). Learners with high computer anxiety, will probably hesitate to accept and use LMS and will not be satisfied with it further they might consider it as difficult and waste.

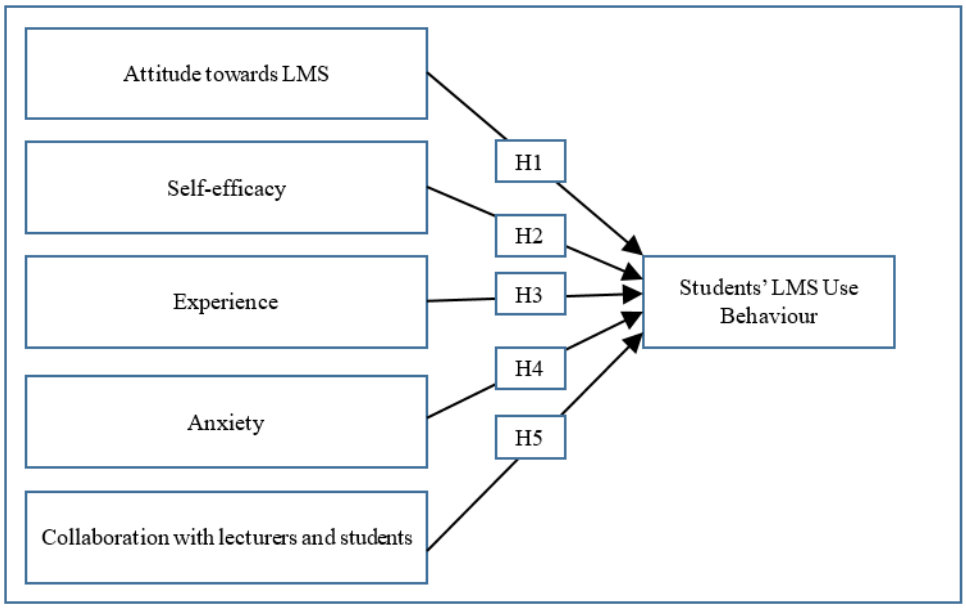

Figure 01: Research Framework

The main aspects of learning processes are the collaborations among students themselves, the collaborations between university and students, and the collaboration in learning that results from these interactions. In an e-learning environment collaboration does not only means the involvement of learners with the lecturers, but also learners with their colleagues. Increased learner collaboration is the major source of developments in e-learning which comes through technologies. Collaborations can be synchronous collaboration or asynchronous collaboration. (Abbad et al., 2009). Thus, collaboration with learners and lecturers is an important determinant factor for learners' acceptance of e-learning environment. According to Sun et al. (2008), the regularity, quality, and promptness of collaboration in LMS environment might affect the learner's satisfaction and LMS success. Therefore, collaboration via the LMS improves the learner's perception of LMS usefulness, stimulates learner use and satisfaction.

From the above model, the following hypotheses were developed;

H1: Attitude towards LMS significantly impacts Students' LMS Use Behaviour.
H2: Self-Efficacy significantly impacts Students' LMS Use Behaviour.
H3: Experience significantly impacts Students' LMS Use Behaviour.
H4: Anxiety significantly impacts Students' LMS Use Behaviour.
H5: Collaboration with Lecturers and Students significantly impacts Students' LMS Use Behaviour.

4. Methodology

The research study employed a quantitative study based on questionnaire survey. Quantitative method enables the researcher to test the relationships between the variables identified in the model and thereby let him provide evidence to support or disprove the hypotheses (Carter and Belanger, 2005). Questionnaires are an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest (Samsudeen, 2015; Samsudeen and Thelijjagoda, 2015). In this cross-sectional study the data collection was done from January to mid-June of the year 2016.

Population of this study includes all first-year undergraduate students who studied English as a subject in their first year of studies from three Sri Lankan government universities out of fifteen, namely Eastern University, South Eastern University and University of Ruhuna where LMS has recently been implemented. Respondents were selected by random sampling based on the sampling frame obtained from the Department of Examinations from each university. Instruments to measure the variables were adapted from the literature on IS adoption papers. Questionnaire was divided in two sections where Section I interrogated respondent's demographic details and Section II measured the constructs using closed ended questions specifically using Likert Scale; ranging from 01 which pointed to Strongly Disagree to 07 which pointed to Strongly Agree. Pilot test was conducted using selected ten academic staff and ten first year students to improve the questions and to realize respondents' comprehension of the questions and based on this some questions were reworded and modified without distorting the meaning. All the questionnaires were administered personally using drop-off and pick-up approach. Coded responses were first entered into Excel. Missing values were properly dealt, and outliers were also identified after importing the data in SPSS. Eventually, out of the 375 questionnaires filled up, 344 cases were taken for analysis.

The initial analysis included an examination of descriptive statistics of demographic variables with frequencies and percentages. For this analysis work MS Excel 2010 and SPSS 220 were used. Reliability tests were conducted to see the consistency of data; factor analyses were performed with a separate analysis of each of the independent and dependent variables. The resultant variables of the factor analysis were used for regression tests.

5. Data Analysis

The initial analysis included an examination of descriptive statistics of demographic variables with frequencies and percentages. For this analysis work MS Excel 2010 and SPSS 220 were used. Reliability tests were conducted to see the consistency of data; factor analyses were performed with a separate analysis of each of the independent and dependent variables. The resultant variables of the factor analysis were used for regression tests.

5.1 Demographic Details of the Respondents

According to Table 01, out of the 344 respondents 110 were male students which is 32% of the sample and 234 were female undergraduate students amounting to 68% of the sample. Since the respondents were the undergraduate students, more than 99% of them were between the age of 20 and 25 except only 01 students who was in the 26-27 age category. More than 41% of the students were from Business Administration and Commerce stream while almost 30% of were from Arts degrees, and the balance were from Science and Engineering streams. Students who owned personal computers were 141, which is 41% and the balance 59% did not own PCs but used computers available in the universities. Nearly 34% of the respondents used LMS since their lecturers instructed them to make use of the system and 21% utilized it since they like to use while the others numbering to 156 which is 45% used the system due to both reasons. Most of the students (73%) use LMS for just downloading teaching materials and uploading their assignments and so on but only 27% of them only use the LMS system regularly.

5.2 Descriptive Statistics

As presented in Table 02, the means and standard deviations of the items related to all 6 constructs included in the study. As found in the study (see Table 02), the average scores of respondents' for Student attitude towards LMS range from 3.32 and 3.71. For Use behavior it was 3.18 and for other single itemed variables such as Efficacy, Experience, Anxiety and Collaboration the mean values were 3.16, 3.50, 3.27 and 3.39 respectively. These mean values are reasonably high.

Table 01: Respondents' Profile

Items	Value	Frequency (n)	Percentage (%)
Gender	Male	110	32.0
	Female	234	68.0
Age	20 – 22	75	21.8
	23 – 25	268	77.9
	26 – 27	1	0.3
	28 above	-	0.00
Degree of Study	Arts	65	18.9
	Arts (Arabic)	38	11.0
	Business Administration	80	23.3
	Commerce	63	18.3
	Engineering	35	10.2
	Science	63	18.3
PC Ownership	Yes	141	41.0
	No	203	59.0
Laptop Ownership	Yes	231	67.2
	No	113	32.8
Reason for using LMS	Lecturer impose	115	33.4
	Like to use	73	21.2
	Both	156	45.3
Use of LMS	Regularly	94	27.3
	Just for download	250	72.7

6. Results and Discussion

A binary correlation test was conducted to examine the association between dependent and independent variables. The results from this test shows that the correlation is significant to all the variables. To check for the existence of first order correlations, the Pearson Pearson R among the independent variables are illustrated as

shown in Table 03.

Cohen et al. (2002) suggested that a correlation coefficient between independent variables above 0.9 is a cause of concern of multicollinearity. In this model, the correlation coefficients are highest at 0.719. Therefore, multicollinearity does not appear to be a problem.

Table 02: Descriptive Statistics

	N	Mean	Std. Deviation
StdAtti_1	344	3.69	.954
StdAtti_2	344	3.70	.939
StdAtti_3	344	3.58	.925
StdAtti_4	344	3.32	.985
StdAtti_5	344	3.56	1.000
StdAtti_6	344	3.71	1.028
StdAtti_7	344	3.69	1.033
StdAtti_8	344	3.60	.930
Efficacy	344	3.16	1.053
Experience	344	3.50	1.053
Anxiety	344	3.27	1.053
Collaboration	344	3.39	1.080
UseBeh	344	3.18	.402
Valid N (listwise)	344		

** Scores range from 1 to 5, where 1 = Strongly Disagree and 5 = Strongly Agree.

As presented in Table 02, the means and standard deviations of the items related to all 6 constructs included in the study. As found in the study (see Table 02), the average scores of respondents' for Student attitude towards LMS range from 3.32 and 3.71. For Use behavior it was 3.18 and for other single itemed variables such as Efficacy, Experience, Anxiety and Collaboration the mean values were 3.16, 3.50, 3.27 and 3.39 respectively. These mean values are reasonably high.

A regression analysis was performed with Use Behaviour as the dependent variable and Students' attitude towards LMS, Self-Efficacy, Experience, Computer Anxiety and Collaboration with lecturers and classmates as the predictor variables. Multiple regression analysis was conducted with Multicollinearity diagnosis.

Table 03: Correlations

	StdPerc	Efficacy	Experience	Anxiety	Collaboration	UseBehaviour
StdAtti	1					
Efficacy	.523**	1				
Experience	.706**	.448**	1			
Anxiety	-.686**	-.502**	-.532**	1		
Collaboration	.696**	.495**	.616**	-.601**	1	
UseBehaviour	.741**	.458**	.719**	-.575**	.616**	1

**. Correlation is significant at the 0.01 level (2-tailed).

R^2 = .63; taken as a set, the predictors Students' attitude towards LMS, Self-Efficacy, Experience, Computer Anxiety and Collaboration with lecturers and classmates account for 63% of the variance in Use Behaviour of LMS (Table 04). From the ANOVA (Table 05), it can be observed that the overall regression model is significant, F(5, 338)=115.5, p < .001, R2 = .63.

Table 04: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.794[a]	.631	.625	.61210

a. Predictors: (Constant), Collaboration, Experience, Anxiety, Efficacy, StdAtti

If the largest Variable Inflation Factor VIF is greater than 10 then there is cause for concern (Myers, 1990) and if the Tolerance below 0.2 indicates a potential problem (Menard, 1995). According to Table 06 Coefficients the maximum VIF is 2.032 below 10 and minimum Tolerance value is 0.492 which above the threshold of 0.2 therefore it confirms the absence of multicollinearity issue.

Table 05: ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	216.363	5	43.273	115.497	.000[b]
	Residual	126.637	338	.375		
	Total	343.000	343			

a. Dependent Variable: UseBehaviour

b. Predictors: (Constant), Collaboration, Experience, Anxiety, Efficacy, StdAtti

The Coefficients table (Table 06) shows the amount of unique variance each predictor accounts for statistically significantly. Variables Students' attitude towards LMS ($p < .001$), Experience ($p < .001$) and Anxiety ($p = .039$) are statistically significant and they uniquely account for variance in the students Use Behaviour of LMS. The independent variables Efficacy ($p > .05$) and Collaborations with Lecturers and Classmates ($p > .05$) are not statistically significant therefore, they do not account for any variance in the dependent variable.

According to the Table 06 (Coefficients), the variable experience accounts for 38% of the unique variance on the Use Behaviour students on LMS. Further, the hypothesis H3 is supported and can be generalized with the previous studies (Sumner and Hostetler, 1999; Pituch and Lee, 2006; Wan et al.,2007). Computer anxiety is also statistically significant and it accounts for 7% unique variance on the LMS Use behavior of students. The results are in line with previous studies such as Piccoli et al. (2001), Sun et al. (2008) and Al-Busaidi (2009) and the hypothesis H4 is supported. Since the significant levels above the threshold of .05 for the variables Efficacy and Collaborations (p=.735 and p=.700 respectively) the hypotheses H2 and H5 are rejected.

Table 06: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.001	.033		.022	.982		
	StdAtti	.471	.047	.471	10.016	.000	.494	2.023
	Efficacy	-.012	.036	-.012	-.339	.735	.830	1.204
	Exp.	.382	.047	.382	8.108	.000	.492	2.032
	Anxiety	-.069	.034	-.069	-2.071	.039	.973	1.028
	Collab.	.014	.036	.014	.385	.700	.864	1.157

a. Dependent Variable: UseBehaviour

7. Conclusions, Limitations and Future Direction

In an LMS use behavioral domain, specifically published works in Sri Lankan state university context, a little is known about the status of students' characteristics. Students' characteristics such as students' attitude towards LMS, self-efficiency, experience, computer anxiety and collaboration with lecturers and other classmates remain unknown until conducting this survey. This section is committed to discuss the outcomes. Results of this survey empirically presented that students' attitude towards the use of LMS were very positive and favorable.

Students' attitude towards LMS is their behavioural motivation to participate in e-learning activities through computer usage, thus using LMS in a blended learning environment. Respondents agreed that their attitude towards LMS is encouraging and cheering, and positively motivated towards creating an environment for LMS success. Because of that, all the students observed that using the LMS would make their lives of learning easier in several ways. According to TAM, it is believed that a new technology application is useful and it can influence the users' attitudes toward the technology and thus their decision to use the technology. This survey had delivered experimental evidence for supporting that usefulness, is one of the drivers of individuals' positive attitude towards using LMS.

This survey focused on measuring the self-efficacy of the students towards LMS use behavior as well. The reason behind this strong attention was that the declaration that self-efficacy was also important in determining LMS utilization. This study reveals that students' self-efficacy was not a predictor of their LMS use behavior, in the Sri Lankan context meaning that students' efficiency of using technology does not have any influence on their intention to use such technology.

When users of a technology have more experience, they feel more familiar with the use of that technology and thus they feel it easy and useful to make use it and they get satisfaction as well. The results of this study also validate this; Experience in using LMS positively influence the students' use behavior of LMS in universities, when they become more experienced they are likely to use it more. This result is in agreement with the past studies (Pituch and Lee, 2006; Wan et al., 2007) as well.

The outcome of this survey had confirmed that computer anti-anxiety positively correlated and significantly impacts students' use of LMS. The system quality features like easy user interface, easy structure, easy navigation, easy access etc. which made students feel comfortable and happy to use LMS for their learning activities. The respondents agreed that computer anti-anxiety positively associated with LMS use behavior and had impact on it and hence, they do not feel any troubles using the LMS.

The vital components of learning processes are the collaborations among students and between students and lecturers, and these collaborations result in better learning. In the case of the LMS use behavior of students, such collaborations, according to this study, did not have any significant influence in Sri Lankan context. The reason for such outcome may be attributed to reason that students who attend lecture sessions continually communicate

with lecturers and colleagues face to face and in many cases students have opportunity interact with lecturers personally and, hence, they might find it rather easier and lively; resulting in insignificant influence of collaboration of lecturers and students on the use of LMS.

These outcomes empirically confirmed that the LMS use behaviour can be determined to a considerable extend by students' perspectives such as their attitude towards LMS, experience and computer anti-anxiety.

Despite the fact that this research project has successfully achieved its objectives, as like with other studies, this study also suffers some limitations. Although there are 15 government universities are available in Sri Lanka, this study has managed to survey only three universities due the limitation of time and financial resources. Should the rest of the universities have been included more diversified insights would have been delineated including the variables that were not supported in this study. Apart from the factors identified in this study, Availability of LMS, Facilitating Conditions for the students while they are away from university campuses, Social Influence could also be considered. While studying the students' perspectives, lecturers' point of view and organizational support could also have been studied so that the study would have been more comprehensive. Future works can consider these factors and perspectives.

References

Abbad, M.M., Morris, D. and Carmel de Nahlik (2009). *Factors Affecting Student Adoption of E-Learning Systems in Jordan*. International Review of Research in Open and Distance Learning, 10(2). ISSN: 1492-3831

Al Senaidi et al., Lin Lin and Jim Poirot, (2009). *Barriers to adopting technology for teaching and learning in Oman.* Computers & Education 53 575–590

Al-Busaidi, K.A. (2009). *The Impact of Learning Management System Characteristics and User Characteristics on the Acceptance of E-Learning.* International Journal of Global Management Studies, 1(2), pp. 75–91.

Al-Busaidi, K.A. (2012). *Learners' Perspective on Critical Factors to LMS Success in Blended Learning: An Empirical Investigation.* Communications of the Association for Information Systems, 30(2).

Arbaugh & Duray, (2002). *Class section size, perceived classroom characteristics, instructor experience, and student learning and satisfaction with web-based courses: a study and comparison of two on-line MBA programs*. Management Learning, 33(3), pp. 331–347.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: PrenticeHall. (Available: http://www.esludwig.com/uploads/2/6/1/0/26105457/bandura_sociallearningtheory.pdf)

Belanger, F, Carter, LD, and Schaupp, LC (2005). *U-government: a framework for the evolution of e-government*. Electronic Government, an International Journal Vol. 2, Issue. 4 (2005).

Borstorff, P. C., and Keith, L. S. (2007). *Student perceptions and opinions towards e-Learning in the college environment*. Academy of Educational Leadership Journal, 11(2): ISSN 1095-6328.

Clark, S., Cossarin, M., Doxsee, H., and Schwartz, L. (2004). *Integrated learning management systems*. International Review of Research in Open and Distance Learning, 5(1). http://www.irrodl.org/index.php/irrodl/article/viewArticle/165/246

Compeau, D. R. & Higgins, C. A. (1995). *Computer self-efficacy: Development of a measure and initial test*. MIS Quarterly, 19(2), 189-211.)

Davis, F. D. (1989). *Perceived usefulness, perceived ease of use, and user acceptance of information technology.* MIS Quarterly, 13, 319–340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). *User acceptance of computer technology: A comparison of two theoretical models*." Management Science, 35, 982–1003.

DeLone, W.H. and McLean, E.R. (1992), "*Information systems success: the quest for the dependent variable.* Information Systems Research, Vol. 3 No. 1, pp. 60-86.

DeLone, W.H. and McLean, E.R. (2003), *The Delone and Mclean model of information systems success: a ten-year update.* Journal of Management Information System, 19(04)

Fahrni, P., Rudolph, J., and de Schutter, A. (2004). *Vendor-assisted evaluation of a learning management system*. International Review of Research in Open and Distance Learning, 5(1).

Fathi, M. and L. Wilson (2009). *Strategic Planning in Colleges and Universities.* The Business Renaissance Quarterly (4)1, pp. 91–103.

Gribbins, M.L., et al. (2007). *Technology-Enhanced Learning in Blended Learning Environments: A Report on Standard Practices.* Communications of the Association for Information Systems, 20(46), pp. 741–759.

Hair, J.F., Tatham, R.L., Anderson, R.E. and Black, B. (2006). *Multivariate Data Analysis*. Academic Internet Publishers Incorporated.

Holsapple, C. (ed.) *Handbook on Knowledge Management 2: Knowledge Directions*, Berlin, Germany: Springer, pp. 511–532.

Holsapple, C.W. and Lee-Post, A. (2006). *Defining, assessing, and promoting e-learning success: an information systems perspective.* Decision Sciences Journal of Innovative Education, 4(1), pp. 67-85.

Johnson, R.D., Hornik, S. and Salas, E. (2008). *An empirical examination of factors contributing to the creation of successful e-learning environments.* International Journal of Human-Computer Studies, 66(5), pp. 356-69.

Kakasevski, M., Sime A., and Slavcho C. (2008). *Evaluating Usability in Learning Management System Moodle*. Proceedings of the ITI 2008 30th International conference on IT interfaces, June 23- 26, Cavtat, Croatia.

Kian-Sam. H, (2002). *Relationships between students' and instructional variables with satisfaction and learning from a Web-based course.* Internet and Higher Education, 5, pp. 267–281

Lee, M.D (2008). *Three case studies in the Bayesian analysis of cognitive models.* Psychonomic Bulletin & Review, 15(01), pp. 1-15

McConachie, J, Luck, PADJ and Jones, D. (2005). *Central Queensland University's Course Management Systems: Accelerator or brake in engaging change.* The International Review of Research in Open and Distributed Learning (IRRODL), Vol. 6, No. 1 (2005) From http://www.irrodl.org/index.php/irrodl/article/view/219/302

Menard, S. (1995). *Applied logistic regression analysis*. Thousand Oaks: Sage University paper series on quantitative applications in the social sciences, 07-106.

Myers, R.H. 1990. *Classical and modern regression application*. 2nd edition. Duxbury press. CA.

Papp, R. (2000). *Critical success factors for distance learning.* Paper presented at the Americas Conference on Information Systems, Long Beach, CA, USA.

Piccoli, G, Ahmad, R and Ives, B (2001). *Web-Based Virtual Learning Environments: A Research Framework and a Preliminary Assessment of Effectiveness in Basic IT Skills Training.* MIS Quarterly Vol. 25, No. 4, pp. 401-426 (2001).

Pituch, K. and Y. Lee (2006). *The Influence of System Characteristics on E-Learning Use.* Computers & Education, 47(2), pp. 222–244.

Rogers, M. E. (1995). *Diffusion of Innovations* (4th ed.). New York: The Free Press.

Rogers, M. E. (2003), *Diffusion of innovations* (5th ed.). New York: The Free Press.

S. Sife, E.T. Lwoga and C. Sanga, (2007). *New technologies for teaching and learning: Challenges for higher learning institutions in developing countries.* International Journal of Education and Development using Information and Communication Technology (IJEDICT), 3(2), pp. 57-67. Available at http://ijedict.dec.uwi.edu/ viewarticle.php?id=246/&layout=html (24/02/2016)

Saeedikiya, M., Mooghali, A., and Setoodeh B. (2010). *Stages of the Implementation of E-Learning in Traditional Universities.* Edulearn10 Proceedings, Pp. 6620-6624. http://library.iated.org/view/saeedikiya2010sta.

Samsudeen, S. N. (2015). Factors Influencing Undergraduates' Intention to Use E-Government Services: Reference to South Eastern University of Sri Lanka. *International Journal of Advanced Research in Computer Science and Software Engineering*.5(3). 18-23.

Samsudeen, S. N., Thowfeek, M. H., & Rashida, M. F. (2015). School Teachers' Intention to Use E-Learning Systems in Sri Lanka: A Modified TAM Approach. *Information and Knowledge Management*. 5(4). 54-59.

Samsudeen, S.N., & Thelijjagoda, S. (2015). Sri Lankan Citizens' Use Behaviour towards E-Government Services. *European Journal of Business and Management.* 7(8). 219-231.

Selim, H.M. (2007). *Critical Success Factors for e-learning acceptance: confirmatory factor models.* Computers & Education 49 (2007) pp369-413.

Sevgi Ozkan, Refika Koseler & Nazife Baykal., (2008). *Evaluating Learning Management Systems: Hexagonal E-Learning Assessment Model (HELAM).* European and Mediterranean Conference on Information Systems. 2008.

Simonson, MR, Maurer, M, Montag-Torardi, M and Whitaker, M (1987). *Development of a Standardized Test of Computer Literacy and a Computer Anxiety Index.* Journal of Educational Computing Research Vol. 3 No. 2 231-247 (1987).

Sturgess, P and Nouwens, F. (2004). *Evaluation of Online Learning Management Systems.* Turkish Online Journal of Distance Education-TOJDE, Vol. 5 No. 3, (2004).

Sumner, M and Hostetler, D (1999). *Factors Influencing the Adoption of Technology in Teaching.* Journal of Computer Information Systems Vol. 40 Issue. 1 (1999).

Sun, P., et al. (2008). *What Drives a Successful E-Learning? An Empirical Investigation of the Critical Factors Influencing Learner Satisfaction.* Computers & Education (50)4, pp. 1183–1202.

Thompson, R., Compeau, R. Deborah, and Higgins, C. (2006). *Intentions to Use Information Technologies: An Integrative Model.* Journal of Organizational and End User Computing, 8(3), 25-47.

Venkatesh and F. D. Davis. 1996. *A model of the antecedents of perceived ease of use: Development and test*. Decision Sci. 27 451–481.

Volery, T., and Lord, D. (2000). *Critical success factors in online education.* The International Journal of Educational Management, 14(5):216–223.

Wan, Z., Y. Fang, and H. Neufeld (2007). *The Role of Information Technology in Technology-Mediated*

Learning: A Review of the Past for the Future. Journal of Information Systems Education 18(2), pp. 183–192.

Wang, A. Y., & Newlin, M. H. (2002). *Predictors of web-student performance: the role of self-efficacy and reasons for taking an on-line class*. Computers in Human Behavior, 18, 151–163.

Webster, J. and Hackley, P. (1997). *Teaching Effectiveness in Technology-Mediated Distance Learning.* Academy of Management Journal (40)6: pp1282–1309.

Wu, W. C, Hwang, L. Y.(2010). *The Effectiveness of e-Learning for Blended Courses in Colleges.* International Journal of Electronic Business Management, Vol. 8, No. 4, pp.312-322 (2010).