Third International Research Symposium
Rajarata University of Sri Lanka

IRSyRUSl 2015

IT Knowledge and Infrastructure matters that affect the usage of LMS in Sri Lankan Universities

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ABSTRACT

Making Course Management Systems (CMSs) available for the students of the faculty causes challenges, questions as which products were adopted, how to provide them to the faculty, and how to maximize their effectiveness. What are Course Management Systems (CMSs), and why should higher education leaders be interested in CMSs and how do the faculty members use them? A broad range of factors that can influence the success of e-learning environments was mentioned by the literature. This study intends to measure the level of usage of Learning Management System (LMS) or Course Management Systems (CMSs) in a few selected universities and identify the factors affecting LMS usage.

A thorough literature survey identified Influence of others, Knowledge of Information Technology, Infrastructure facility available, towards LMS that directly affect LMS usage. Two hypotheses were developed based on the relationship between the factors and LMS usage. An analysis was conducted circulating questionnaire among 180 users (Academics and Students) in Sri Lankan Universities. Analyses of Variance (ANOVA), t-test, Correlation Analysis were administrated by using Statistical Package for Social Sciences (SPSS 16v.).

The findings of the research suggest more effective strategies for successful implementation of LMS in Sri Lankan university system. With these results, it can be suggested that knowledge of IT is immaterial with comparing to its effect to stimulate users to use of LMS. Infrastructure facilities not effected to adoption of LMS or level of usage. IT knowledge is not mandatory to use LMS, since it is one of the applications only. Still infrastructure provided is not utilized properly and capacity is not exceeded. Hence, people don't experience an infrastructure as matter.

KEYWORDS: *CMS, Infrastructure, Knowledge of Information Technology, LMS, LMS Usage*

1. Introduction

Sri Lanka as one of the South Asian countries has a history of educational activities dating back for millennia. Where education regarded essential for socio-economic advancement by all citizens, urban and rural, rich and poor, and investment in education is a regional priority. Conventional systems of education fail to cope with the demand for education. In order to prevent the problems associated with the conventional system, educational developers in develop countries introduced new learning methods. Because of this effort, Distance Education (DE) method arose. The introduction of DE considered as a solution, this too failed to cater to the challenges of increasing demand, rapidly changing content, and acute shortage of support systems. A possible solution is the Information Communication Technology (ICT) enabled learning support for learners.

Information Technology (IT) used in various forms in higher education for over half a century, virtually from the moment first mainframe invented. Over the past 10 years, it is evident this evolution with administrative systems adopt the Enterprise Resource Planning (ERP) systems to companies. Learning Management System (LMS) or Course Management System (CMS) has given on a similar important role in the academic enterprise of teaching and learning that ERP systems have in the administrative world. LMS may contain aspects of administration (class scheduler, recording of grades) also deal directly with core aspects of teaching (it may contain learning objects, class exercises, quizzes and tests). It may contain tools for real-time chats or asynchronous bulletin board type communications.

With the development of ICT infrastructure in Sri Lanka, e-learning has been regarded as a service valuable for small communities since the beginning of the new century. However, these e-learning applications have been limited to relatively few education institutions, teachers and students, however. University of Colombo School of Computing (UCSC) evaluated the use of e-learning to enhance its education services to both internal and external students. OUSL, the Sri Lankan Institute of Information Technology (SLIIT), and the University of Moratuwa are other higher education institutions which have begun investigating e-Learning as a mean of providing environments for 'blended learning' (campus and distance-based).

At the second stage of e-learning development in Sri Lanka, accessibility had been enhancing by the development of LMS Many academic and professional organizations have used commercial LMS software to improve their infrastructure. For example, UCSC used *theducation* as its initial LMS for BIT students. The OUSL has used *Manhattan* in some courses, and other institutions have used *WebCT* and *Blackboard* to provide a Virtual Learning Environment (VLE). However, these commercial products are not sustainable solutions for many public organizations owing to limited funds (education is free in Sri Lanka at public institutions and dependent on government subsidies). Recently, Open Source Software (OSS) has become a popular LMS solution for many educational institutions in Sri Lanka. A particularly popular OSS product is *Moodle,* used at almost all universities for providing DE as well as blended education in internal courses. Every state university started to use LMS for deliver their courses. It implemented by departments of the faculty as individual or collectively as a one faculty or as one university.

Sri Lanka is not only a consumer of OSS e-learning products but also contributes its own software development to international e-learning initiatives. For example, LMS research group at UCSC's e-Learning Center (eLC) contributes *Moodle* development. The centre has created localized versions of the *Moodle* interface in Sinhala and Tamil (lms.bit.lk/inst), and e-learning has become an area in the Information Technology curriculum. Most of the universities introduced several e-learning courses to their internal undergraduate and postgraduate programmes.

Since the late 1990s in the world, the utilization of LMSs for web-based instruction has steadily increased in higher education. A recent study in the United State (US) shows that among the largest colleges and universities (institutions with a total enrolment of 15,000 or more), more than 96 per cent have online courses offerings (Allen & Seaman, 2006). Further, the same study indicates that during fall 2005, about 3.2 million students were enrolled in at least one online course in the US, approximately a million more than in the previous year. These studies show that the educational technology revolution has resulted in an increasing use of LMSs.

There is increased interest in the effectiveness of CMSs and the ubiquity of CMSs seems to suggest that more research on the effectiveness of such systems needed. While many studies conducted on student impacts of CMSs, additional research focusing on the faculty side of the equation is in great need.

Morgan's (2003) study of CMS used in the University of Wisconsin system for EDUCAUSE provides background for studies of the faculty and CMSs. A review of the literature shows that research had been conducting regarding online CMSs from three perspectives. First, online education touches three key groups in higher education. From the viewpoint of an institution's administration, online education is desirable.

1.1 Statement of the Problem:

The LMS is also the major vehicle for offering online courses to students in universities and colleges throughout Sri Lanka and increasingly the rest of the world. Yet higher education technology administrators know relatively little about how faculty members actually use LMSs and the impact these systems have on pedagogy. Making LMSs available for use by faculty and students raises such challenges and questions as which products to adopt, how to provide them to faculty, and how to maximize their effectiveness. What are LMSs, and why should higher education leaders be interested in how faculty members use them? A broad range of factors that can influence the success of e-learning environments had mentioned in the literature. In terms of e-learning, critical success factors can be viewed as those activities and constituents that must be addressed in order to ensure its successful accomplishment. Therefore, it needed to flesh- out real or existing situation of LMS in Sri Lankan universities. For that, pilot survey conducted using the factors identified in literature survey. The survey revealed that following factors such as Influence to use LMS, Knowledge on Information Technology, Awareness of LMS, Infrastructure facility available, Benefits from LMS, Features on LMS and Attitude towards LMS directly affect on LMS usage and the successfulness of the LMS depends on the above-mentioned factors. Further, this research study aims at gaining an insight into how faculty uses CMSs in order to get a more nuanced understanding of the following sorts of issues:

1. What is the level of LMSs usage of the faculty ?

2. Whether Knowledge on Information Technology and Infrastructure facility needed to success of LMS?

The insights gained will provide us with the information needed to make decisions about how best to provide LMS's in the future. In this research project sought to go beyond that. In addition, this research study seeks to answer some of these questions and addresses some of those gaps in our knowledge by exploring how faculty members of Sri Lankan universities use LMSs. Factors that drive faculty to adopt LMSs, what motivates them to increase or decrease their use of tools, and how faculty members use the technology for organizationally and pedagogically are focusing throughout this study.

1.2 Objective/s of the Study:

Objective is to

1. Investigate the relationship between **Infrastructure** and LMS Usage.
2. Investigate the relationship between **Knowledge on IT** and LMS Usage.

1.3 Review of Literature:

In the education world, a concept of learning is expanded to conventional to e- learning. Further methods of learning can be identified as conventional, e-learning, DE and Online learning, Blended learning or hybrid learning. Commission of the European Community's, e-learning is defined as "the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration". One of the promising advancements is LMS providing synchronous and asynchronous learning environment with the rapid expansion of Internet. LMS play a vital role in high education sector. It can be justified based on the following empirical studies. Latest study on LMS by Bexheti et al., (2010) states that "LMS have become a widely used technology and they present a key instrument in supporting e-Learning in higher education institutions."

LMS is designed to run on Database Management System and Server. Need to run platform and web browser application. Implemented organization needs a high speed internet connection and personal *computers with server facility. Ayub et al., (2010a) state that innovations at most University in Malaysia were directed towards strong network infrastructures and up-to-date with a high speed* internet connection. According to Robert and Dhiraj (2007) the geographical, infrastructural, political and institutional factors on the ground gave rise to a working culture where priorities were defined by constraints such as time, human capacity and finance that all but decoupled the project from the specific goal of improving student performance. LMS offers several tools helping to learning and teaching process. Today, most of the course management systems include course content organization and presentation, communication tools, student assessment tools, gradebook tools, and functions that manage class materials and activities (Morgan, 2003). LMS users enjoy several types of benefits including easiness, availability, and easy communication. A course management system allows teachers to manage their classes, assignments, activities, quizzes and tests, resources, and more in an accessible online environment. Students can log on and work anytime, anywhere. Although, LMS gives vital range of benefits, several studies found some dissatisfaction and difficulties as well. Faculty generally found the currently available CMS gradebooks difficult to use and were dissatisfied with their functionality (Morgan, 2003).

Usage Level of LMS: Another perspective which raises considerable attention in institutions using Bexheti et al., (2010) a LMS is how to be able to assess the actual extent of LMS usage by the staff. Based on this model but with level of scale gained from the linear regression analysis the following level model for the assessment of LMS usage was designed by (Bexheti et al., 2010).**Level 0**: Defined in the proposed model is the null situation of LMS use, that is, non- use. **Level 1:** This is refers to the very basic usage of the system only for uploading lesson content by the teaching staff and downloading lesson content or submitting assignments by the students. **Level 2:** This refers to the usage of communication tool in an LMS. **Level 3:** This refers to the usage of the testing tool (quizzes, pool or survey). **Level 4:** This is defined with a view to the current technological developments which require to share knowledge and to treat users as co-developers.

Knowledge on Information Technology: The main overall conclusion is that the knowledge and experience in the use of computers are a key factor in the usage of an LMS (Bexheti et al., 2010). Who lacked the fundamental computer skills and are newcomers to the Internet. Gaide (2004) also stated that one of the key issues affecting students in using LMS is the lack of computer skills. Students' Technology Competency: capable of learning new technology, able to send and receive e-mail, able to include files (attach file) when sending, capable to surf the Internet, able to use search engines and WWW to find the information that I want, capable in installing web browser, able to reconnect Internet, able to download new software's, to copy and paste part of the documents from the internet if necessary are considered to (Ayub et al., 2010, b). So the institution must develop a strategy for constant IT training of the academic staff (especially for those faculties were the staff has no IT background). And secondly the teaching staff is the main driver of the usage of the system (Bexheti et al., 2010).

Infrastructure: LMS need more technological infrastructure such as computers, internet facility, and many more software. Many countries without fully developed infrastructure, services or educational facilities face specific problems related to LMS deployment (Robert and Dhiraj, 2007). Furthermore, students also feel that the facilities to access POLCA is adequate but improvement needs to be made in terms of network speed and stability (Ayub et al., 2010a). Lynch (2001) emphasized that an effective preparation using online learning environment by students and faculty can result in significant impact on students' success in their studies. Based on Ayub et al., (2010b) Innovations at University were directed towards strong network infrastructures, up to- date with a high speed internet connection. Local Area Network at the University has been provided to all offices, teaching rooms, lectures room, student residential colleges and also libraries. In addition, the wireless connection is also provided for staff and students so that an online learning environment can be implemented. Access to CALePORT LMS measures by easiness and to access, stability of the computer network, availability of computer, waiting time, Internet speed (Ayub et al., 2010b).

1.4 Methodology:

This section defines the study design, theoretical framework, population, samples, instrument, data collection procedures and the techniques of data analysis for examining the effect of Infrastructure and Knowledge of Information Technology towards LMS usage in university system.

1.4.1 *Research Design*

The study is descriptive and hypotheses testing is ordinary. The study aims to study the impact of the LMS user's knowledge on IT and Infrastructure facility towards LMS usage. The study was cross sectional and elaborates the hypotheses testing based on what has been developed in the framework. The hypotheses testing explained the impact and relationship between the independent and dependent variables. Finally, the data was collected using survey method where questioners were distributed to collect data.

1.4.2 *Research Framework*

The framework for this study relies on the models developed by reserachers based on the litreture findings. They found that knowledge on IT, and infrastructure, were also important drivers of LMS. Hence the constructs Infrastructure and Knowledge of Information Technology LMS usage reservation will be used in this research to test the hypotheses. Based on the frameworks below, this research framework is as stated in figure 1.

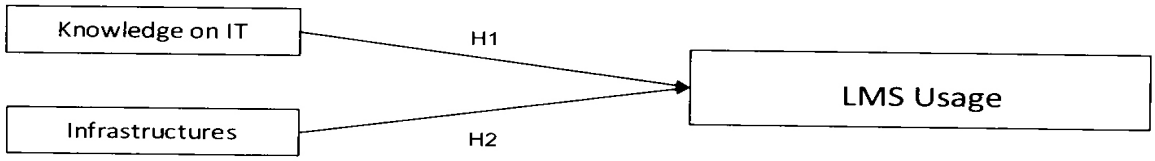

Figure 1. Research framework

Source: Developed by Researcher

The LMS Usage is dependent variable, knowledge on IT and infrastructure are independent variables. From the research model, the hypotheses of the research are developed as follows:-

Hypothesis 1(H1): There is a positive relationship between Knowledge on information Technology and LMS usage.

Hypothesis 2(H_2): There is a positive relationship between Infrastructure facility available and LMS usage.

1.4.3 *Population and Sample*

The population in this study was all the LMS users in state Universities in Sri Lanka. The sample of this study consisted of one hundred eighty (180) LMS users from tree selected universities. Universities selected based on random sampling method. Further, students and academics user selection completed based on stratified sampling method. 180 Questionnaires were distributed among three (3) universities namely University of Sri Jayewardenepura, Rajarata University of Sri Lanka and university of Kelaniya. From that 153 Questionnaires were received for the analysis.

1.4.4 *Data collection Technique*

The questionnaires were personally distributed and administrated by the researchers. This method was possible since the researcher's access to the responds was by sending the survey face to face, and then receiving the responses without delay after the respondents had completed the survey. The questionnaire consisted several parts with divergent questions whereas each part includes items of variables with depended and independent.

1.4.5 *Data Analysis Technique*

The data was analyzed by using the Social Sciences (SPSS) to get the outcome of the result of descriptive statistics and inferential analysis. Descriptive and explanatory (inferential) analysis was

used to analyze data collected from the respondents. Descriptive study takes into account the mean and standard deviations. In addition to that inferential study considered the correlation and multi-regression analysis. Correlation analysis is employed in order to achieve the objectives of the study as well as to measure the significance of linear bivariate between the variables.

1.5 Results and Discussion

Response rate of the survey, results of reliability test and results of univeriate analysis, bivariate analysis are presented. The sample for the study was adjusted with 153 participants. Accordingly, 85% of response rate was recorded for the present study. From that, 48% were male and 52% were female. For the purpose of internal consistency of each constructs was evaluated with reliability analysis. Alpha (α) values for the main variables are, LMS Usage Level (α =0.763), Knowledge on Information Technology competencies (α =0.931), university infrastructure facility available (α =0.852), since all the alpha (α) values were greater than 0.7 ($\alpha > 0.7$), the constructs used to evaluate research variables are accepted for the presents study (Sekaran, 2002).

Usage of LMS: Six items of survey directed to evaluate Usage of LMS of participants for the study. In the analysis, usage of LMS was evaluated with three levels namely, level 1 usage, level 2 usage and level three 3 usage. Descriptive statistics used to identify the level of LMS usage and results of t – test are presented in Table 1

Table 1. Descriptive Statistics and Results of t – test for LMS Usage

Dimension	Mean		Total		t – test	
	Academics	Students	Mean	SD	t	p
LMS Usage Level 1	4.56	4.27	4.35	1.07	1.59	0.12
LMS Usage Level 2	2.38	2.42	2.41	1.55	0.15	0.88
LMS Usage Level 3	2.33	2.26	2.28	1.87	0.21	0.83
Overall	**3.46**	**3.32**	**3.36**	**1.06**	**0.79**	**0.43**

According, to the total mean values, highest mean of 4.35 for level 1 usage indicates that participants for the study have used LMS for basic functions such as uploading lecture materials, down loading lecture materials and assignment handling than other two levels of usage such as LMS Usage Level 2, LMS Usage Level 3 With respect to the user type, both of academic (4.56) and students (4.27) have used the basic functions of LMS. In the other words, level 2 and level 3 usages of LMS of the participants for the study are less when comparing the level 1 usage. According to the overall means for academics and students, LMS usage of academics is slightly higher than that of students. Further, individual mean for two users on each levels also indicate that usage of LMS by academics are slightly higher than the usage of students. However, results of t – test revealed that there is no significant difference between academics and students on usage of LMS ($t = 0.79$, $p = 0.43$) as whole and on the each levels of usage.

Further, identification of differences on usage of LMS by gender, descriptive statistics and t – test were used. According to the results, both male and female use level 1 of the LMS than the other levels. More special usage of LMS level 1 by female ($m= 4.55$) is higher than that by male ($m = 4.12$). Results of t-test also revealed that LMS level 1 usage of female is significantly higher than the usage of male ($t=2.47$, $p=0.02$). Overall mean for male (3.24) and female (3.47) also indicate that overall usage of LMS by female is higher than male. However, according to the t – test, no significant difference can be identified between male and female on LMS usage ($t = 1.33$, $p = 0.19$).

Descriptive statistics and ANOVA used to further evaluation of differences of LMS usage among and between the universities. According to the overall means, LMS usage of the KLN is higher than the other two universities and SJP is in very poor situation on usage of LMS with comparing to the other two universities. Individual mean vales for each of usage levels by universities reveal that level 1 usage of LMS of each university is higher than the other two levels and level 3 usages of SJP and RUSL are very low with comparing to the level 3 usage of KLN. According to the results of ANOVA, significant differences can be identified between universities on each level of LMS usage ($F =1.33$, $P =0.19$)

Knowledge on IT to use of LMS: In the analysis, Information Technology Knowledge was divided into four dimensions. Descriptive statistics calculated for each of dimensions by user type and results of t – test used to evaluate the differences between two users on knowledge of information technology are presented.

Table 2. Descriptive Statistics and Results of t – test for Knowledge on Information Technology by User Type

Dimension	Mean		Total		t-test	
	Academic	Students	Mean	SD	t	p
Handling e-mail	4.58	4.09	**4.23**	**0.98**	2.94	0.00
Surfing World Wide Web	4.62	4.16	**4.29**	**0.86**	3.26	0.00
Installing software	4.37	3.79	**3.95**	**1.06**	3.47	0.00
Work with Application software	4.57	4.25	**4.34**	**0.81**	2.30	0 .02
Overall	**4.54**	**4.07**	**4.2**	**0.82**	3.38	0.00

According to the total mean values, as whole, participants for the study have good and sound knowledge on information technology to use of LMS. With respect to the user type, academics have similar knowledge on each dimension of information technology and have slightly higher knowledge on each aspect than the students have.

Results of t - test show that, as whole, academics have significantly higher level of information technology knowledge than students do (F =3.38, p=0.00). However, with respect to the knowledge dimensions, only significant differences were found between two group on Academic and student. Further evaluation of differences of Knowledge on Information Technology by gender, descriptive statistics and t –test were used.

Individual mean values for each dimension by gender indicate that male have sound and similar knowledge of handing each aspects information technology except installing software because of mean for the dimension (3.96) slightly below the other mean values for men. With respect to the female, they also have sound and similar knowledge about each aspects of information technology except installing software (3.94). moreover, individual mean values for female except for installing software are slightly higher than the those of male and indicated that female have somewhat higher level of knowledge on information technology than the male. However, according to the results of t – test, significant differences can be identified between male and female on Knowledge on Information Technology With respect to the overall means for male and female, no significant differences on knowledge of information technology are prevailing between two groups (t =0.81, p = 0.42).

Further, evaluation of information technology knowledge of user by university wise, descriptive statistics and ANOVA were used. Show that all the users have good and similar knowledge on each aspects of information technology and users in RUSL have slightly higher level of information technology than the users in other universities. Results of ANOVA reveal that there is no any significant difference between users in three universities either on different aspects of information technology or on knowledge of information technology as whole (F =1.33 , p = 0.27).

Infrastructure facility to use of LMS: Ten items in survey was directed to evaluate infrastructure facilities available to use of LMS. Descriptive Statistics and t- test run on the responses resulted are shown in Table 3

Table 3. Descriptive statistics and results of t – test for Infrastructure facility by User

Dimension	Mean		Total		T - test	
	Academic	Student	Mean	SD	t	p
Internet Facility	4.14	3.64	**3.78**	**0.87**	3.95	0
Computer Facility	3.77	3.41	**3.51**	**0.95**	2.16	0.03
Support Services	3.62	3.22	**3.33**	**0.98**	2.21	0.03
Home IT facility	4.37	4	**4.1**	**1.05**	1.91	0.06
Overall	**3.97**	**3.56**	**3.67**	**0.78**	3.42	0

Mean value for infrastructure facility (m=3.67, SD=0.78) indicated that infrastructure facilities available for LMS usage are moderately high. With respecting to the dimensions, the highest mean value of 4.1 indicates that home IT facility is higher the other infrastructure facilities such as Internet Facility, Computer Facility and Support Services. When comparing the facilities available for user type, academics (m=3.97) have significantly higher level of infrastructure facilities than students (m=3.56) (t=3.42, p=0.00).

Differences of infrastructure facility available for LMS usage between universities were evaluated with assistance of descriptive statistics and test of ANOVA. The results indicate that users in KLN (m=3.75) have slightly higher level of infrastructure facility than the other universities. However, there are no significant differences between universities on availability of infrastructure facility (F0.48, p=0.62). Further, no significant differences can be identified between universities on each dimensions infrastructure facility

Bivariate Analysis: Results of correlation used to evaluate the relationship between each dimensions of knowledge on IT with LMS. Since all correlations not significant either at 0.01 or at 0.05, no significant relationship can be found either between the main variables or between each dimension of two variables. According to the correlation results, therefore hypothesis 1 (H_1) for the study, there is a positive relationship between Knowledge on information Technology and LMS usage cannot be accepted. The relationship between infrastructure facilities and LMS usage reveal that infrastructure facilities available to use of LMS will not influence for LMS usage ($r = 0.11$, $p > 0.05$). However, positive relationship can be identified between computer and support with level 2 of LMS usage ($r = 0.212$, $p < 0.01$ and $r = 0.206$, $p = < 0.05$). According to the above results Hypothesis 2, there is no a positive relationship between Infrastructure facility available and LMS usage, cannot be accepted.

1.6 Discussion

Main objective of the study was to evaluate LMS usage in Sri Lankan universities. In lining with the underline objective knowledge on information technology, infrastructure facility available were tested. Out of 153 participants, 42(27.5%) were academics and 111(72.5%) were students and were 51 from SJP, 45 were from RUSL and 57 were from KLN. This study evaluates the research variables with Chonbach Alpha. Which results, had alpha well over 0.7, constructs used for the study were accepted.

The dependent variable of the study, usage of LMS, was evaluated with three levels on participants' responses on five pint scale ranging from 1 to 6. Statistical results on the responses indicated that participants for the study have moderately higher level of LMS usage (m=3.36, SD = 1.06). However, with respect to the usage levels, very higher usage level was found in usage level 1 (m =4.35 SD =1.07) while founding very poor usage in level 3 (m=2.28, SD =1.87). These results indicated that LMS was used for basic functions such as uploading and downloading than using for the important activities such as communication, testing and evaluating. Further, results of t-test and ANOVA revealed that there was no significant difference between academic and students (t= 0.79 , p=0.43) and were significant differences between users in each selected universities (F =19.70, P =0.00) on usage of LMS. More especially, higher level of usage was found for users in KLN (m=3.91) than other two universities, SJP (m=2.76) and RUSL (m=3.33).

Results of the analysis showed that the participants for the study have very high levels of information technology knowledge (m=4.2, SD = 0.82) . Results of t-test used in the analysis revealed that academics (m=4.54) have significantly higher level of information technology knowledge than the student's (m=4.07) (t=3.38, p=0.00). However, no significant differences were found between users in university wise on knowledge on information technology to use of LMS (F =1.33, p = 0.27). In the study, infrastructure facility to use of LMS was identified. Results of the analysis showed that participants for the study have sufficient and moderately higher level of facilities (m=3.67, SD =0.78). However, results also showed that students (m=3.56, SD =) have significantly lower level of each of facilities identified than for the academics (m=3.97, SD =) (t= 3.42, p=0.00). On the other hand, no significant differences were found between the three universities on availability of facilities to use of LMS (F=0.48, p=0.62).

Pearson correlation analysis was used to evaluate the general relationship between independent variables and dependent variable for the study. Results of correlation for the relationship between knowledge on IT with LMS usage suggested that knowledge of IT was not significantly correlated with usage of LMS. With these results, hypothesis 1 of the study was rejected and it can be suggested that

knowledge of IT is in material with comparing to its effect to stimulate users to use of LMS. However, no significant correlation was found between infrastructure available for LMS and its usage ($r = 0.11$, $p > 0.05$) and the hypothesis 2 was rejected.

1.7 Conclusion and Recommendations:

As developed countries in the world, Sri Lanka is also passing conventional industrial and information era and reaching knowledge era (economy) in this journey education must be given a prominent place and, new knowledge must be explored and disseminated effectively. In order to disseminate new found knowledge and meet the labour market requirements, Sri Lankan education system took couple of initiatives. Among them, LMS plays a vital role in e learning. However, as a country we could not yield the maximum benefit of the LMS due to some reasons. Some scholars and researchers have identified critical success factors that are affecting to LMS usage. This imperative study is designed to identify the factors that improve the LMS usage in higher education. Therefore this research was focused on evaluating the degree of LMS usage in few Sri Lankan universities. The empirical investigation was conducted base on the data gathered from a sample of 153 LMS users in three Sri Lankan universities. Results of the study revealed that LMS users in Sri Lankan universities have very low level of experience on LMS though it was introduced in 1997 to the education system.

In relation to the LMS usage, study found that LMS is used heavily for level 1 usage such as Uploading, downloading lesson content and assignment handling those other levels such as using communication tools, using evaluating tools and result report. According to the result of the survey both academics and students users of LMS have a higher level of knowledge on Information Technology and a good awareness about LMS. Further they have positive attitudes towards the LMS and technology developments. Results also revealed that universities have provided sufficient infrastructure facility for the current usage. Further, study found that no relationship between knowledge on IT and infrastructure facility with LMS usage which manifests that knowledge on IT is not a significant factor and it will not affect to the LMS usage. The relationship between infrastructure facilities and LMS usage is not a significant factor only in the current situation. This is a consequence of lower level of LMS usage.

1.8 Recommendation

So as to improve the existing situation of the LMS usage in higher education, recommendations can be advocated based on the conclusion. Knowledge on IT and infrastructure facilities not effected to adoption of LMS or level of usage. IT knowledge is not mandatory to use LMS, since it is one of the applications only. Still infrastructure provided is not utilized properly and capacity is not exceeded. Hence, people don't experience an infrastructure as matter.

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