The Impact of Learning Management System on Learning Process in Myanmar: Student Perspective

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Abstract: The digital transformation of education, accelerated by the Covid-19 pandemic, has spurred widespread adoption of e-learning platforms globally, with Learning Management Systems (LMS) at the forefront. Despite the enhanced communication channels they offer, LMS implementation can introduce unique challenges in the educational arena. This study explores the impact of LMS on the learning process in Myanmar's education system from a student's perspective, focusing on five key factors: convenience, emotional engagement, technological barriers, assessment effectiveness, and cost. A total of 400 questionnaires were distributed to students who had used an LMS, with 264 valid responses received. These were analyzed using SPSS software, revealing significant correlations between all five factors and the learning process, with assessment effectiveness demonstrating the strongest relationship. The results provide valuable insights into how LMS can be optimized to support the learning process in the context of Myanmar's education system, indicating a need for educators and LMS developers to consider these factors for more effective e-learning experiences.

Keywords: Learning Management System (LMS), E-learning, Education in Myanmar, Technology in Education, Learning Process, Student Experience.

Introduction

Due to the introduction of cutting-edge technologies in educational institutions since the late 1990s, the environment of teaching and learning there has undergone significant change (Pishva et al., 2010). Over the past few years, e-learning has gained traction both within society and educational contexts. More and more, educators are utilizing information technology for lesson planning, instructional delivery, and student data management (Saw et al.,2019).

Defined by several experts and authors, e-learning is the process of imparting knowledge and information via the internet for educational or training purposes. Current implementations of e-learning are often hosted on internet-linked websites. Among its numerous benefits, the most celebrated ones are time efficiency and cost-effectiveness. Notably, e-learning allows students and employees to save both money and time, eliminating the need for travel to other countries to complete coursework (Shkoukani, 2019).

A crucial tool in this regard is the Learning Management System (LMS), which is software or internet-based technology used to organize, carry out, and assess a particular learning activity. LMS often provides educators with tools for developing and delivering content, tracking student engagement, and assessing student performance. It also extends to learners the advantage of interactive features such as forums, video conferencing, and threaded discussions (Kate, 2019).

An effective learning management system (LMS) promotes a supportive environment for academic development while offering extra features that encourage online collaborative teams, expert training, discussions, and user interaction (Dinis,J.A., & Dias, S.B. , 2014). It enables autonomous learning for online students (Hameiri, I., & Blau, M., 2010). According to statistics, Asia led the world in e-learning growth in 2018 with a rate of 17.3% (Saw et al., 2019). The primary function of an LMS is to supplement traditional lectures with online content accessible either on campus or via the Internet, thus extending rather than replacing the traditional classroom environment (Landry, B.,Griffeth, R., & Hartman, 2006).

A society must encourage inventive and creative thought if it is to prosper on a national, international, and economic level. Institutions of higher education (HEIs) are crucial in this regard (Umek et al., 2015). Recognizing this, many HEIs in various countries have adopted Learning Management Systems (LMS) due to the flexibility and distance learning opportunities they offer (Mafata, 2009)   .
In Myanmar, many students utilize online education as a part of their learning process, with both public and private educational institutions disseminating courses through LMS. Despite its numerous benefits, e-learning also presents unique challenges, such as the need for instructor retraining (Tamrakar, A. & Mehta, K., 2011). Learning management systems (LMS), which are widely used in a range of educational institutions, including schools, colleges, and universities, to support and enhance their entire learning process, are necessary for creating a successful e-learning system.

Background of the Study

The advent of the smartphone market around 2013 and the introduction of more affordable options drastically reduced internet costs in Myanmar. This shift led to a dramatic increase in smartphone usage, growing from 10% of the population in 2013 to 90% just three years later. The widespread availability of smartphones and internet access has significantly propelled the adoption of e-learning in Myanmar (LindaStandnard, 2022). As a part of their educational pursuits, some Myanmar students have begun utilizing well-known Learning Management Systems (LMS) like Moodle, LearnPress, OpenEdX, and Tutor LMS (Builtwith, 2022).

However, towards the beginning of 2020, the COVID-19 pandemic, which had a significant impact on many areas, including education, the economy, society, and public health, created a variety of challenges for the global populace. Myanmar, like other developing countries, felt the adverse effects of this crisis. With the education system at a standstill, students yearned for continuity in their educational journey, seeking to avoid any disruptions to their learning process (Naw, 2020).

Responding to this need, an increasing number of students turned to the online education system. Both public and private educational institutions leveraged the LMS, virtual classrooms, and online meetings to bolster student engagement (Coman et al., 2020). With the proliferation of numerous LMS platforms developed by various institutions, students can now easily select and pursue a range of courses in their chosen fields for academic or professional purposes online (Alturki, U., & Aldraiweesh, A., 2021).

Although the importance of LMS systems on the learning process has been studied in earlier academic work, the goal of this study is to pinpoint various aspects that will help us pinpoint the precise impact of LMS systems on student learning in the context of Myanmar. This subtle knowledge will help educators and decision-makers better meet the special educational demands of pupils in Myanmar, boosting the effectiveness of online learning there.

Research Aims

The major goal of this study is to identify the essential LMS elements that have the biggest bearing on students' learning processes and to identify areas that might use modification to make it more successful. In this pursuit, the investigation will consider five key dimensions of the LMS: convenience, emotional engagement, technology barriers, assessment capabilities, and cost. The insights derived from the study will serve as valuable resources for public and private educational institutions in Myanmar, enabling them to optimize their Learning Management Systems (LMS) for greater efficacy.

Research Questions
The study answers the following research queries:
- How does the convenience of LMS influence the learning process?
- What is the nature of the relationship between student emotions regarding LMS use and the learning process?
- What impact does the technological barrier in LMS have on the learning process?
- How does the LMS's assessment functionality relate to the learning process?
- What effect does the cost of using LMS have on the learning process?

Research Hypotheses
The hypotheses of the study are as follows:
- H1: The convenience of the LMS has a significant impact on the learning process.

- H2: There is a positive relationship between students' emotional responses to LMS and their learning process.
- H3: Technological barriers in LMS significantly affect the learning process.
- H4: There exists a positive relationship between the assessment capabilities of LMS and the learning process.
- H5: The cost of using the LMS significantly influences the learning process.
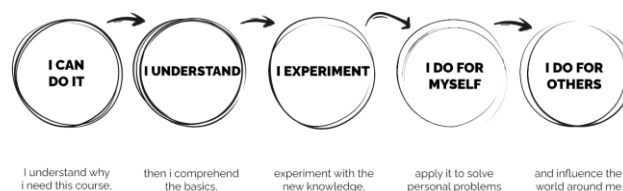

Figure 1: emotional states (source: own)

Literature Review

The word "e-learning" refers to any type of education that is offered online and allows users the flexibility to learn whenever and wherever they want (Marija et al., 2017). Online learning is impossible without the Learning Management System (LMS), a part of the larger Content Management System (CMS). The LMS is crucial in controlling the learning environment, offering multiple web-based solutions to support various tasks and improve the learning management process (Ankita Sharma, 2013). It typically facilitates two main forms of interaction: instructor-student and student-student communication (Shkoukani, 2019). The current study focuses on five elements of LMS—convenience, emotions, technology barriers, assessment, and cost.

Convenience

A student's perception of comfort and freedom with regard to time, place, and technique of study is referred to as convenience in the context of an LMS. The capacity of technology to make study materials easily accessible and facilitate quick communication with educators and peers contributes to a student's sense of convenience (Mokhtar, S. A., Katan, H., & Hidayat, R., 2018).

Emotions

According to contemporary learning theories, such as the Self-Directed Learning Model (SDLM), TRIZ pedagogy, and Robert Gagne's "The Conditions of Learning," students undergo five emotional states during the learning process:

- Initiation: "I can do it."
- Understanding: "I understand."
- Experimentation: "I experiment."
- Independence: "I do for myself."
- Contribution: "I do for others" (Alexey, 2021).

Technology Barriers

Technology barriers, including a lack of shared vision, organizational resistance to change, and challenges in keeping up with technology advancements, often create differing and occasionally negative attitudes towards the use of digital technologies in education (Julian, 2018).

Assessment

Assessment in eLearning is crucial as it creates a feedback loop between the teacher and learner. This interactive process ensures teaching is not done in a vacuum. The assessment methods include exams, exercises, assignments, projects, one-on-one meetings, and reports (Nikos, 2014).

Cost

Online classes can deliver information in manageable chunks, using interactive simulations and multimedia like videos to ensure students can learn at their pace. The primary costs associated with e-learning are often internet access and, for some courses, enrollment fees. However, the overall cost of e-learning can be significantly less compared to traditional methods like printed materials or in-person seminars (Gamelearn, 2020). Some LMSs even offer free courses, making quality education more accessible.

In summary, this review has explored the five critical aspects of LMS—convenience, emotions, technology barriers, assessment, and cost—from a variety of scholarly perspectives. Each of these components is essential to the learning procedure and the LMS's efficiency in a classroom environment. However, there is a notable shortage of study on students' perceptions on these concerns, particularly in the context of Myanmar. This study, therefore, aims to investigate these factors in relation to the use of LMS in Myanmar's educational system, thus contributing to the broader knowledge and application of LMS in the field of education.

Conceptual Framework

This study's main goal is to assess how learning management systems (LMS) affect the teaching and learning process. Refer to Figure 1 for further information. In order to accomplish this, the researcher developed a conceptual framework based on thorough assessments of prior research and empirical data. Convenience, emotions, technology hurdles, assessment, and cost are five essential LMS dimensions that are highlighted in this model as independent variables. These elements were chosen because they play a crucial part in how learners interact with and perceive the LMS, which has an effect on the learning process.

The learning process, representing the outcome of the learner-LMS interaction, functions as the dependent variable in this proposed model. This includes aspects such as knowledge gain, skill development, attitude or behavioral changes, and overall academic achievement.

This research seeks to uncover the relationships between these independent and dependent variables within the context of Myanmar's education system. By doing so, it aims to attain a nuanced understanding of how different LMS features contribute to enhancing the learning process. The insights derived from this exploration will be instrumental in identifying potential avenues for improving the efficacy of LMS utilization in both public and private educational institutions in Myanmar.
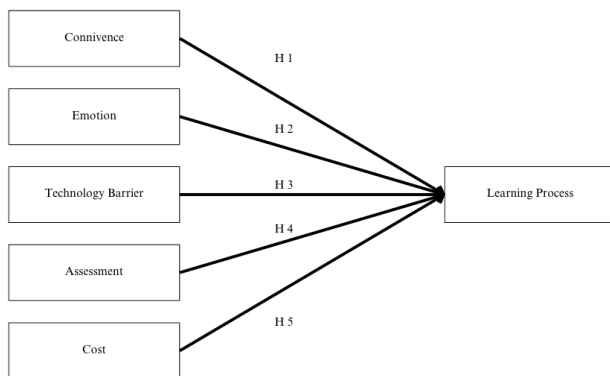

Figure 2: Conceptual framework illustrating the relationships between various aspects of the LMS (independent variables) and the learning process (dependent variable)

Methodology

The methodology section of a research study is crucial in establishing the reliability and validity of the findings. It not only outlines the strategies and procedures employed in the research but also provides a roadmap that guides the research process. This systematic approach aids researchers in maintaining focus and achieving their objectives efficiently and effectively. Additionally, a well-articulated methodology ensures that readers can comprehend the processes and techniques employed, contributing to the transparency and reproducibility of the study (INDEED, 2012).

In order to investigate how Learning Management Systems (LMS) affect the learning process in the context of Myanmar's educational system, a descriptive research methodology was employed in this study. Descriptive research aims to accurately depict the characteristics of a particular phenomenon or relationship within a population, making it well-suited to an investigation of the influences of different LMS features on student learning outcomes. This method allows for an in-depth examination of the dynamics at play, facilitating a nuanced understanding of how LMS use is shaping learning processes in Myanmar's educational landscape.

Sampling and Data collection

Sampling serves as an efficient approach to study a population when logistical and financial constraints restrict the feasibility of studying every individual within the target group. When the exact population size is unknown, as is the case with this study, an appropriate sample size can be estimated using the following formula:

$$n = \frac{z^2 \; x \; \hat{p} \, (1 - \hat{p})}{\varepsilon^2}$$

Where;
z is the z score
ε is the margin of error
N is the population size
p̂ is the population proportion (Daniel, 1999)

This computation showed that 384 samples will be needed for the inquiry. 27 questions were used to analyze the effect of the Learning Management System (LMS) on the educational system in Myanmar (see Table 1 for the complete list). On a Likert scale of 1 to 5, where 1 denotes strong disagreement and 5, strong agreement, they were rated. Almost all of the pertinent previously released information utilized to develop these queries.

The survey was administered to 400 respondents via Google Forms, yielding 344 responses. Of these, 264 were complete and used in the data

analysis, while 80 responses were discarded due to their incompleteness.

Secondary data for this research were obtained from a variety of sources including government reports, academic articles, case studies, textbooks, media publications, websites, relevant academic journals, and previous research papers (Donald R. C., & Pamela S.S, 2014).

Table 1: Questionnaire of the study

convenience	
1	Downloading the course material is sample.
2	The assignment is simple to download and submit.
3	Accessing timetables and course information is made possible by LMS
4	LMS makes it possible to improve learning
5	LMS makes it possible to facilitate communication between teachers an student.
6	LMS can run on various system with respectable need.
Emotions	
1	LMS is a real support for learning process
2	I am willing to use LMS at least 10 hours during a week
3	chat and forum functions of LMS is very useful and I like it.
4	I very satisfy in LMS service
Technology Barrier	
1	LMS should more user friendly
2	I have difficulties in using LMS
3	require more training and effort to understand the LMS
4	some feature of LMS is not compactable with mobile phone
Assessment	
1	Exams, quizzes, home works, and exams in LMS are can be conducted.
2	Student' grades are displayed on the LMS through semester.
3	Some LMS features assist in evaluating booth individual
4	The LMS provides surveys and feedback.
Cost	
1	Cost are reasonable when it is not an free course
2	most of the course on LMS are free
3	In LMS, certificate for competition cost is reasonable
4	Using LMS is reduce cost than physical class
Learning Process	
1	Learning in LMS is helpful for my learning journey
2	Courses in LMS are effective

3	I spend more time in LMS within Covid 19 pandemic compare with before covid
4	LMS can replace the Physical class
5	LMS and Physical class are equally important in learning process

Data Analysis

Data analysis is a key step in research, involving cleaning, transforming, and modeling data to extract valuable insights (Guru99, 2019). To further understand the correlations between the variables examined in this study, Pearson's correlation analysis was employed.

The Statistical Package for the Social Sciences (SPSS) program, version 26, and Microsoft Excel (2019), which allows for the creation of data visualizations, were used to conduct this investigation. The findings of this analysis are presented in the following sections.

finding and Discussion

It is possible to quantify internal consistency, or how closely somethings connect to one another. The 264 valid surveys were subjected to a Cronbach's alpha test; bear in mind that a reliability value of 0.70 or higher is regarded as "acceptable" (Mark, N.K., Saunders, Philip, L., & Adrian, T., 2015).

Table 2: Cronbach's alpha Analysis

Variable	No of Items	Cronbach's Alpha
Convenience	6	0.807
Emotions	4	0.722
Technology Barriers	4	0.732
Assessment	4	0.704
Cost	4	0.714
Learning Process	5	0.811

The data from the 264 respondents who filled out the questionnaire were analyzed by the researcher using the SPSS application, and the Pearson Correlation method was used to assess the hypotheses. The findings were as follows in table 3:

Table 3: Correlation analysis

Variable	Learning Process	Convenience	Emotions	Technology Barriers	Assessment	Cost
Learning Process	1					
Convenience	.552**	1				
Emotions	.587**	.401**	1			
Technology Barriers	.639**	.664**	.659**	1		
Assessment	.672**	.108*	.886**	.584**	1	
Cost	.526**	.358**	.298**	.135*	.294**	1

** Correlation is significant at the 0.01 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed).*

It is clear from the data that there is a strong connection between the ease of use of a Learning Management System (LMS) and the learning process. An r-value of 0.552 and a p-value less than 0.01 (p=0.00), indicating a statistically significant connection at the 1% level, show this relationship.

Furthermore, the data revealed a substantial correlation between student emotions related to LMS use and the learning process, as indicated by an r-value of 0.587 and a p-value of 0.00. This shows that the emotional aspect of using an LMS cannot be disregarded as it substantially impacts students' learning processes.

The technological barrier, another variable in this study, exhibited a strong relationship with the learning process. The r-value for this variable was 0.639 and the p-value was 0.00, thereby establishing a significant correlation.

Interestingly, the strongest correlation in this study was observed between the assessment component of the LMS and the learning process, indicated by an r-value of 0.672 and a p-value of 0.00. This suggests that the manner in which LMS platforms implement assessments significantly influences learning outcomes.

Lastly, the cost of using the LMS also bore a significant relationship with the learning process. Though this was the least strong correlation in this study, with an r-value of 0.526 and a p-value of 0.00, it nonetheless denotes a significant impact.

The aforementioned results successfully validate the study's hypotheses, conclusively demonstrating that various elements of the LMS system have a significant impact on the learning process. The importance of these findings is far-reaching, indicating that when designing and implementing LMS platforms, factors such as convenience, student emotions, technology barriers, assessment methods, and cost must be taken into consideration to optimize student learning outcomes.

Conclusions and Recommendations

Drawing from the data analysis, a statistically significant association is discernible between the characteristics of Learning Management Systems (LMS) and the learning process within Myanmar's educational landscape. This correlation is seen across various parameters, including the convenience, emotional resonance, technological barriers, assessment techniques, and cost of the LMS.

These findings present actionable insights for organizations developing LMS platforms. Given the influence that these characteristics wield over the learning process, particularly in assessments, it is crucial that developers place substantial emphasis on these aspects during the development phase of these systems.

Moreover, in the light of these findings, it is strongly recommended that educational institutions not yet incorporating an LMS should gravitate towards e-learning. The adoption of an LMS could significantly enhance their support structure for student learning, delivering substantial benefits.

Notably, this study only examined five characteristics of LMS (convenience, emotion, technology barrier, assessment, and cost), constrained by time and budget limitations. The data was gathered online and analyzed exclusively using Pearson correlation method, which might have limited the scope and depth of the study.

Therefore, it would be advantageous to broaden the scope of this research to include more LMS properties in the future. Furthermore, adopting a physical data collection method could lend more reliability to the study. Also, using diverse analytical methodologies would enhance the accuracy and comprehensiveness of the results, thereby contributing more broadly to the understanding of the role and impact of LMS in education.

Acknowledgments

Conflict of Interest

References

Alexey, I. (2021, September 11). *elearning industry.* Retrieved from elearningindustry.com: https://elearningindustry.com/how-to-use-emotions-motivate-students-complete-course

Alturki, U., & Aldraiweesh, A. (2021). Application of Learning Management System (LMS) during the COVID-19 Pandemic: A Sustainable Acceptance Model of the Expansion Technology Approach. *Sustainability, 13(19),* 10991. https://doi.org/10.3390/su131910991.

Ankita Sharma, S. V. (2013). Role of Learning Management Systems in Education. *International Journal of Advanced Research in Computer Science and Software Engineering*, 997-1002.

Builtwith. (2022, September 02). *Learning Management System Usage Distribution in Myanmar*. Retrieved from trends.builtwith.com: https://trends.builtwith.com/cms/learning-management-system/country/Myanmar

Coman, C., Țîru, L. G., Meseşan-Schmitz, L., Stanciu, C., & Bularca, M. C. . (2020). Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective. *Sustainability, 12(24),* 10367. https://doi.org/10.3390/su122410367.

Daniel, W. (1999). *Biostatistics: A Foundation for Analysis in the Health Sciences.* New York:: ohn Wiley & Sons.

Dinis,J.A., & Dias, S.B. . (2014). Towards an enhanced learning in higher education incorporating distinct learner's profile. *Educaional Technology & Society*, 307-319.

Donald R. C., & Pamela S.S. (2014). *Business Reserach Methods 12th edition.* New York: Mc Graw- Hill Irwin.

Gamelearn. (2020, March 13). *game-learn*. Retrieved from www.game-learn.com: https://www.game-learn.com/en/resources/blog/why-online-learning-is-profitable-and-efficient-for-companies/

Guru99. (2019, November 25). *Guru99*. Retrieved from www.guru99.com: https://www.guru99.com/what-is-data-analysis.html

Hameiri, I., & Blau, M. (2010). Implementing technological change at schools: The impact of online communication with families on teacher interactions through learning management system. *Interdisciplinary Journal of E-Learning & Learning Objects*, 245-257.

INDEED. (2012, December 15). *indeed*. Retrieved from www.indeed.com: https://www.indeed.com/career-advice/career-development/research-methodology#:~:text=Why%20is%20a%20research%20methodology,process%20smooth%2C%20effective%20and%20manageable.

Julian, S. (2018). *Barriers of Digital Technologies in Higher Education:A Teachers' Perspective from a Swedish University.* Linneuniveristetet.

Kate, B. (2019, December). *techtarget*. Retrieved from www.techtarget.com: https://www.techtarget.com/searchcio/definition/learning-management-system

Landry, B.,Griffeth, R., & Hartman. (2006). Measuring Student Perceptions of Blackboard Using the Technology Acceptance Model. *Decision Sciences Journal of Innovative Education*, 87-99.

LindaStandnard. (2022). *Myanmar: Internet and smartphones increase education access*. Retrieved from www.australianvolunteers.com: https://www.australianvolunteers.com/discover/stories/myanmar-internet-and-smartphones-increase-education-access/

Mafata, M. P. (2009). *Investigation of the use of Learning Management Systems in Educational Technology Modules: A Case Study.* University of KwaZulu-Natal.

Marija, J., Milica, K. S., & Ema, N. (2017). Factors Affecting Students' Attitudes towards E-Learning", Management. *Journal Of Sustainable Business And Management Solutions In Emerging Economies*, 73-80.

Mark, N.K., Saunders, Philip, L., & Adrian, T. (2015). *Research methods for business students.* England: Pearson Education Limited.

Mokhtar, S. A., Katan, H., & Hidayat, R. (2018). Instructors' behavioral intention to use learning management system: An integrated TAM perspective. *TEM Journal*, 513-525.

Naw, N. (2020). Designing a Flipped Classroom for Myanmar Universities during COVID-19 Crisis. *University Journal of ICT in Multidisciplinary Issues on Arts & Science, Engineering, Economics and Education*, 295-300.

Nikos, A. (2014). *efront*. Retrieved from www.efrontlearning.com: https://www.efrontlearning.com/blog/2014/09/lms-tools-help-assess-students-progress.html

Pishva, D., Nishantha, G.G.D., & Dang, H.A. (2010). A Survey on How Blackboard is Assisting Educational Institutions around the World and the Future Trends. *12th International Conference on Advanced Communication Technology (ICACT)* (pp. 7-10). Korea: Phoenix Park.

.

Saw, T., Win, K.K., Aung, Z.M.M. & SuOo, M. . (2019). Investigation of the use of learning Management System (Moodle) in Univesity of Computer Studies, Mandalay. *Big Data Analysis and Deep Learning Application*, N/A.

Shkoukani, M. (2019). Explore the Major Characteristics of Learning Management Systems and their Impact on e-Learning Success. *International Journal of Advanced Computer Science and Applications*,, 296-301.

Tamrakar, A. & Mehta, K. (2011). Analysis of Effectiveness of Web based E-Learning. *International Journal of Soft Computing and Engineering*,, 55-59.

Umek, L., Keržic, D., Tomaževic, N., & Aristovnik, A. (2015). Moodle E-Learning System and Students Performance in Higher Education: The Case of Public Administration Programmes. *International Conference e-learning.* International Association for Development of the Infromation Society