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Exploring student preferences for Learning Management Systems (LMS): The impact of Performance Expectancy, Effort Expectancy, and various factors on Behavioural Intentions in Undergraduate and Postgraduate students of higher educational sector of West Bengal

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Abstract: *Today, educational institutions often use their own proprietary learning management systems (LMS). It leverages internet capabilities to provide a variety of intelligent learning tools to meet the needs of diverse students. This study aims to identify key factors that influence students' preferences for using an LMS by exploring how LMS adoption can enhance learning outcomes. Survey of 417 undergraduate and postgraduate students conducted from several Private Universities and B-schools in West Bengal. This research uses a validated Technology Acceptance Model (TAM) to assess students' perceptions of LMS adoption. The findings shed light on the perceived effectiveness of learning management systems (LMS) in higher educational context of West Bengal. In this research study, the researcher has tried to address the answers of the research questions listed below:*

- *What factors influence the adaptation rate of LMS among students in higher educational institutes of West Bengal, and how can these factors be conceptualized within a theoretical framework to better understand LMS adoption and usage patterns in the region?*
- *What is the level of acceptance of LMS among Undergraduate and Postgraduate students attending Private Universities and B-Schools in West Bengal's present education ecosystem?*

Keywords: *LMS, TAM, key factors, higher educational context, West Bengal*

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I. Introduction

Online education refers to the process of acquiring knowledge using electronic devices such as computers, laptops, mobile phones. All of which are facilitated by internet technology. This approach creates a virtual learning environment. LMS helps teachers reach students with flexible options and teach related topics more effectively. Students have access to online learning resources 24/7 to tailor their learning to their needs. This has been especially evident during and after the COVID-19 pandemic when traditional methods of education are disrupted. The lockdown in West Bengal has posed major challenges in the higher education sector. As a result, students are unable to attend regular classes and this has a negative effect on their studies. To solve this problem the Indian government has implemented online classes which have increased the demand for online education, especially among higher education students. Although in the past online learning methods existed in West Bengal but widespread adoption emerged as the dominant method during and after the pandemic. A key tool in this regard is the Learning Management System (LMS) which is a software application designed to manage, document, track, and deliver educational curriculum and training programs. An LMS facilitates the development, distribution, and score assessments and increase student understanding with performance. On the other hand, accessibility ensures that the LMS is accessible to all users, including those with disabilities, and provide a user-friendly navigation system so and easy to use integration of new systems like integrate instructional technology with other systems such as student information systems, databases, video platforms, and external learning tools, to increase collaboration and interactivity.

II. Literature review

Sinha, A.,et al.(2023) highlighted the research endeavors to analyze the factors shaping higher education students' inclination toward online education. It delves into the significance of students' stability and resilience in shaping their perceptions of usefulness and ease of use, which in turn influence their attitude toward adopting online education. Ouajdouni, A.,et al. (2021) discovered the impact of the COVID-19 pandemic on higher education in Moroccan universities, specifically focusing on the transition from traditional offline learning to e-learning platforms. The researchers aim to assess the success of these e-learning systems. Ellahi, A. (2018) pointed out the main objective of this paper was to investigate the impact of social networking sites on learning effectiveness and how they can be complementary tools to educational strategies prevalent in developing countries, especially in Pakistan. Adeyemi, A.,et al. (2024) portrayed the effectiveness of reporting procedures are particularly crucial, especially in developing nations. Understanding the key factors contributing to the success of learning management systems (LMS) is vital for improving the overall efficiency of information systems. Almufarreh, A.,et al. (2021) highlighted the aim of this study is to investigate the effective use and evaluation of Blackboard Ally among academic staff at Jazan University, Saudi Arabia. The main objective of this study was to assess the use of Ally in Blackboard's Learning Management System (LMS) at in online learning through critical research and analysis of the use of Blackboard. Islam, A., et al. (2015) portrayed this looks at aimed to examine the attitudes of instructors and college students in the direction of Learning Management Systems (LMS), particularly Moodle. Shahzad, A., et al. (2021) observed a theoretical framework aimed toward evaluating the effectiveness of e-mastering portals amidst the COVID-19 pandemic. Researchers performed a comparative analysis of male and female students' utilization of e-gaining knowledge of portals, proceeding to delve into student perceptions regarding accessibility. Bervell, B., et al.(2017) pointed out the paper covers the evolution of learning management systems (LMS) in higher education across sub-Saharan Africa (SSA) over the last decade, where both online and blended e-learning modes emerged LMS recipient‘s acceptance. Sezer, B., et al. (2019) highlighted the study aimed to create a reliable tool for measuring medical students' acceptance of learning management systems. It was based on a model called the Unified Theory of Acceptance and Use of Technology. Chao, Cheng-Min.(2019) discovered the aim of this study was to build and validate a prediction model to understand the determinants of students‘ behavioral intentions towards using mobile learning (m-learning) using the Unified Theory of Technology Acceptance and Use (UTAUT) model the bottom of the extended section. And in addition to perceived risk, the study examined consumers ‘perceptions of m-learning acceptability. Sitar-Taut, DA. (2021) highlighted these studies pursuits to underscore the proof of m-gaining knowledge of adoption amongst college students triggered by the sudden transition to online schooling amidst the swiftly spreading and unpredictable COVID-19 pandemic. Sims, D. A., et al.(2024) discovered the COVID-19 pandemic precipitated a swift transition of Higher Education from traditional face-to-face instruction to online modalities worldwide, initially characterized as emergency remote teaching. Adhya, D., et al. (2022) portrayed this paper presents the outcomes of an exploratory investigation delving into the perceptions of technology-enabled learning (TEL) amongst Indian trainer educators. It explores ability variations based on elements such as age, gender, teaching vicinity, and instructional approach. Additionally, it explores how their views on TEL may also evolve inside the aftermath of the pandemic, especially while distance mastering is not obligatory. Sulisworo, D., et al. (2021) examined endeavors to investigate and elucidate the execution of online guides geared toward enhancing the management of such courses. Agyeiwaah, E., et al. (2022) discovered this study makes use of the User Experience Questionnaire (UEQ) to investigate college students' on-line learning encounters, especially amidst the COVID-19 pandemic. Acebedo, E. D. (2024) highlighted a learning management system (LMS) plays a crucial role in managing educational, training, and development programs across various learning institutions. Particularly in the wake of the recent Covid-19 pandemic, the presence of such a system becomes imperative to sustain the teaching-learning process amidst unforeseen catastrophes. This study focused on the development of a Learning Management System tailored for the College of Arts and Sciences at Eastern Visayas State University, investigating its significance for faculty, staff, and students and the need for institutionalization. Okoro, E. P. (2024) investigated the utilization of the Zoom e-learning management system within the framework of Business Education in Nigerian universities. Nannim,A.F., et al. (2024) examined the evidence of the use of Learning Management Systems (LMS) to teach Science, Technology, Engineering, Arts and Mathematics (STEAM) subjects at the secondary school level in South Eastern Nigeria in the post-COVID era. Angelino, F. J. D. A., et al. (2021) explored how students' engagement can be promoted through transmedia using a set of activities within the Moodle learning management system for a syllabus topic about innovation, during a full semester. The analysis of case studies, the writing of essays, or the participation in an online forum was among the performed activities by a group of 81 university students in their senior year. Onajite, F. O. (2024) explored the proficiency of caregivers in utilizing online technologies, specifically social media and learning management systems (LMS), to facilitate adult learning in literacy settings in Delta State. Ilieva, G., et al. (2021) highlighted the COVID-19 pandemic has had a great impact on secondary training, affecting numerous components of teaching and training. In response, a novel contextual

framework for academic records processing has been introduced to evaluate the pandemic's have an effect on college students' getting to know studies.

III. Exploration of Research Gap

A review of the literature reveals several important gaps which has the following details:

- Most research on the perceived benefits of Learning Management Systems (LMS) has been conducted internationally, with limited studies specifically focused on India, particularly in West Bengal.
- The concept of LMS is relatively new in West Bengal. While online teaching and learning methods have existed, there is a noticeable scarcity of literature addressing the widespread adoption of LMS platforms for these purposes.

IV. Research Objectives

- The objective of this study was to investigate the use and implementation of learning management systems (LMS) in higher education institutions in the state of West Bengal. The research objectives are summarized as follows.

- To develop a theoretical framework based on factors affecting actual LMS usage by students in higher education institutions in West Bengal using the Adapted Technology Acceptance Model (TAM).

- Three moderating constructs were identified: social, environmental, and individual with behavioural intention (BI) being the dependent construct. These components help to clarify the independent structure of performance expectancy (PE) and effort expectancy (EE).

- To explore strategies for learning management systems (LMS) and to assess the influence of performance expectancy (PE), effort expectancy (EE), with social, environmental, and individual factors on behavioural intention (BI).

V. Theoretical Framework

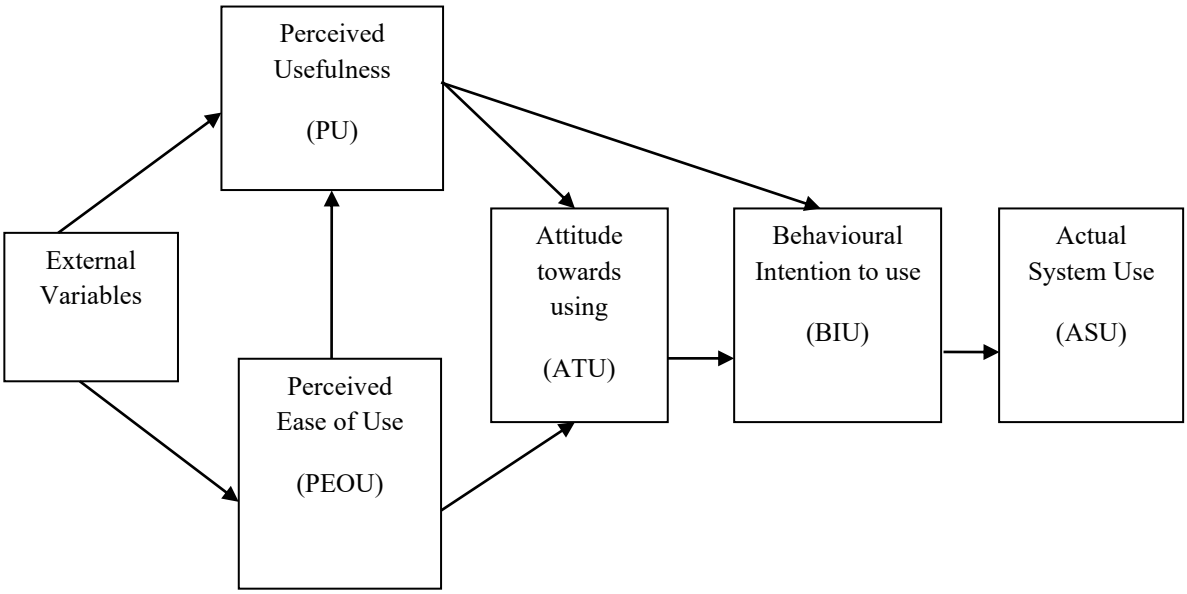

Fig.1: TAM Model (Davis, 1989)

Conceptual framework is based on validated model namely Technology Acceptance Model (TAM) (Davis, 1989). TAM is an information systems theory that models how users come to accept and use a technology. In this model, Perceived ease-of-use (PEOU) was defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989) and Perceived usefulness (PU) was defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989). This conceptual model is a simple flow chart illustrating the hypothesized

relationships between research constructs that constitute the key determinants of undergraduate & postgraduate student's intention to practice online learning.

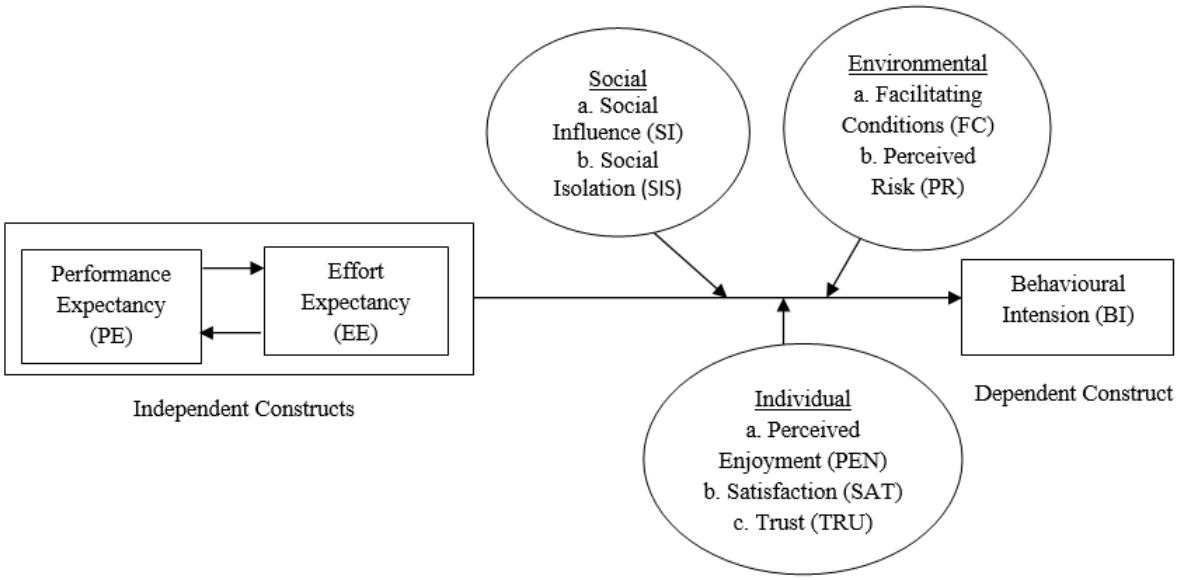

Fig.2: Proposed Research Framework

In Fig.2: Performance Expectancy (PE) and Effort Expectancy (EE) are distinct independent constructs, which jointly influence students' behavioural intentions (BI) which acted as dependent construct. Social, Environmental, and Individual factors serve as moderating constructs, shaping both the magnitude and direction of the relationship between Performance Expectancy (PE), Effort Expectancy (EE), and Behavioral Intention (BI).

VI. Methodology

a. Survey Instrument Development: For the development of the survey instrument (structured questionnaire) for this research study, six constructs were identified along with their respective parameters and sources. Performance Expectancy (PE) and Effort Expectancy (EE) each encompass six parameters and serve as independent constructs. Social, Environmental, and Individual factors include twelve parameters and act as moderating constructs to assess the strength of the relationship between the independent and dependent constructs. Finally, Behavioural Intention (BI) consists of two parameters and serves as the dependent construct.

b. Data Collection: The study surveyed 417 Undergraduate and Postgraduate students from several Private Universities and B-schools in West Bengal to collect perceptions regarding all identified items in the proposed theoretical framework (Fig.2) using a structured questionnaire.

c. Sampling technique and determination of the sample size: This study involved convenience sampling technique at the first stage as purposively some higher educational institutes of West Bengal were selected where LMS had been already implemented and the second stage from those higher educational institutes, randomly undergraduate and post graduate students were selected to know their perception about LMS. Cochran's (1977) formula for infinite population was used to calculate the necessary sample size, using a confidence level of 95% (corresponding Z-score is 1.96 and level of precision is 0.05) and a p value of 0.5.

Sample Size for infinite population = $(\text{Z-score})^2 * p*(1-p) / (\text{level of precision})^2$

$= (1.96)^2 * 0.5*(1- 0.5) / (0.05)^2 = 384 = SS$ where SS is the Sample size calculated using an assumption of infinite population. Hence, SS is computed as 384.The computed sample size based on Cochran's (1977) formula is 384 and in the present research study, the response was taken from 417 respondents who were pursuing their higher studies at the university level. All the respondents were admitted in the in the undergraduate and postgraduate programme of the university.

d. Pilot Survey and Final Survey: To testify our survey instrument (designed questionnaire) at the initial stage we conducted a pilot survey having 120 sample size and the result of the reliability measurement Cronbach's Alpha was 0.911 was the strong evidence of reliability of the designed questionnaire and at the time of final survey having 417 sample size where Cronbach's Alpha was 0.930 (Table 1: Cronbach's Alpha Summary).

e. Reliability and Validity of the Instruments: Cronbach's alpha test was conducted to evaluate the reliability and validity of the designed questionnaire using final survey data from 417 respondents on the SPSS version 21 platform, the results of these test is presented below.

Reliability-Cronbach's Alpha Output

Reliability Statistics

Cronbach's Alpha	N of Items
.930	20

Table 1: Cronbach's Alpha Summary

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Varianceif Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PE1	65.502	191.205	.688	.925
PE2	65.560	189.741	.746	.924
PE3	65.493	189.851	.736	.924
EE1	65.464	191.493	.715	.925
EE2	65.565	189.620	.746	.924
EE3	65.555	191.023	.713	.925
SI1	65.740	189.879	.796	.924
SIS1	65.651	190.093	.710	.925
FC1	65.079	193.982	.644	.926
FC2	65.435	193.379	.669	.926
FC3	65.389	195.067	.618	.927
FC4	65.502	192.945	.700	.925
PR1	66.385	204.657	.238	.935
PR2	66.344	201.677	.287	.934
PR3	66.180	208.476	.124	.937
PEN1	65.589	191.341	.723	.925
SAT1	65.599	191.070	.770	.924
TRU1	65.538	191.801	.723	.925
BI1	65.656	201.315	.332	.933
BI2	65.553	190.041	.757	.924

Table 2: Item Total Statistics Summary

The output of Alpha value was 0.930 from Table1 indicating excellent reliability of the designed questionnaire (as alpha>0.9) where number of designed variables were 20 (N=20) but from Item Total Statistics Summary (Table2) it observed out of 20 variables PR3 variable was found insignificant and if PR3 variable could delete then Cronbach's Alpha value would be the highest 0.937. So one variable namely PR3 had been deleted for the next iteration of Cronbach's Alpha calculation and this time designed variables were 19 (N=19) and the results of the tests were illustrated below-

Reliability Statistics

Cronbach's Alpha	N of Items
.937	19

Table 3: Cronbach's Alpha Summary

f. Method: For the first stage an Exploratory Factor Analysis had been performed based on 17 items (as out of 19 items 2 items: BI_1 & BI_2 were considered as outcome of Behavioural Intension (BI)) where emerged factors were 5 as an outcome of the factor analysis. For the second stage, regression analysis had been performed in two separated models. For the Model 1, Model 2, Segmentation of the respondents was being made on the basis of criterion: Level of Education [UG/PG]. 5 emerged factors were considered as independent variables in all the cases and their influence on the Sustain growth of LMS in the higher education were measured where segmentation criterion was considered as moderating measure/s.

VII. Analysis and Findings: An exploratory factor analysis had been performed based on 17 items where emerged factors were 5 as an outcome namely, "Performance Expectancy driven by Social Influence" as Factor1, "Facilitating Environmental Condition" as Factor2, "Individual Perceived Usefulness" as Factor3,

"Effort Expectancy" as Factor4 and "Assessment Perceived Risk" as Factor5. To measure the influence of 5 emerged factors on Behavioural Intension (BI), multivariate regression analysis were conducted where criterion or responding variable was Behavioural Intension (BI) and explanatory or controlled variables were 5 emerged factors. The factor analysis findings are illustrated below-

Section 1: Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.948
Approx. Chi-Square		4710.990
Bartlett's Test of Sphericity	df	136
	Sig.	.000

Table 4: KMO and Bartlett's Test Summary

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.972	52.776	52.776	8.972	52.776	52.776
2	1.384	8.140	60.915	1.384	8.140	60.915
3	1.158	6.810	67.725	1.158	6.810	67.725
4	.738	4.340	72.065	.738	4.340	72.065
5	.667	3.924	75.990	.667	3.924	75.990
6	.538	3.163	79.153			
7	.468	2.750	81.903			
8	.434	2.551	84.454			
9	.401	2.357	86.811			
10	.368	2.163	88.974			
11	.325	1.914	90.889			
12	.318	1.870	92.759			
13	.294	1.732	94.490			
14	.271	1.596	96.086			
15	.245	1.441	97.528			
16	.228	1.343	98.871			
17	.192	1.129	100.000			

Table 5: Total Variance Summary

	Component				
	1	2	3	4	5
PE1	.819				
PE2	.779				
PE3	.754				
EE1				.656	
EE2				.599	
EE3				.664	
SI1	.605				
SIS1	.693				
FC1		.632			
FC2		.780			

FC3		.786			
FC4		.601			
PR1					.838
PR2					.833
PEN1			.749		
SAT1			.651		
TRU1			.704		

Table 6: Rotated Component Matrix Details

From Table 4 (KMO and Bartlett's Test) the value of KMO measure of sampling adequacy was 0.948 which was > 0.5 means the sample data were eligible enough to run Factor Analysis. Moreover from Table 5 where Total Variance Explained in detail, 5 emerged factors (components) was extracted based on Initial Eigen values and Sums of Squared Loadings where cumulative Sums of Squared Loadings explained up to 75.990% of total variance.

From Rotated Component Matrix Details (Table 6) the 5 emerged factors were distributed among the 17 variables where rotation was done by varimax method to get as much unique factor loading as possible. The details of factor names and factor loadings are illustrated below in tabular form-

Factor Name	Item Code	Item Description	Loadings
Performance Expectancy driven by SocialInfluence (Factor1)	PE1	I find LMS useful in my daily life for study	0.819
	PE2	My important task are achieving easily through LMS	0.779
	PE3	LMS helps me to complete my task more quickly	0.754
	SI1	Peer who influence my behavior think that I should use LMS	0.605
	SIS1	I found it easy to get in touch with others while using LMS	0.693
Facilitating Environmental Condition (Factor2)	FC1	My College/University supports for LMS(infrastructure wise)	0.632
	FC2	I have the resources necessary to use LMS (Policy wise)	0.780
	FC3	I have the necessary knowledge to use LMS	0.786
	FC4	LMS is compatible with other technologies I use	0.601
Individual Perceived Usefulness (Factor3)	PEN1	Using LMS is enjoyable for me	0.749
	SAT1	I am satisfied with the quality of interaction between allinvolved parties in LMS	0.651
	TRU1	The LMS is reliable	0.704
Effort Expectancy (Factor4)	EE1	Learning how to use LMS is easy for me	0.656
	EE2	My interaction with LMS is clear and understandable	0.599
	EE3	Using LMS is as easy as using any other systems I havepreviously used	0.664
Assessment	PR1	Using LMS I might loss privacy	0.838

Perceived Risk (Factor5)	PR2	LMS is incompatible with my device	0.833

Table 7: Factor Name, Item Code, Item Description & Factor Loading Details

From the Factor1- "Performance Expectancy driven by Social Influence", it was clear reflection of peer influence of the student's who believed that if they used LMS system in their education process then their performance would be automatically enhance. Similarly from Factor2- "Facilitating Environmental Condition" emphasizes the good infrastructure support along with technical support and sufficient training programs of higher educational institutes enhanced the teaching learning pedagogy in LMS platform. Similarly Factor3-"Individual Perceived Usefulness" signifies good LMS system capable to provide more perceived enjoyment, satisfaction and trust among the students during their learning process. Moreover, Factor 4- "Effort Expectancy" reflected the facts that if the students put more effort in their learning process through LMS platform then their performance would automatically enhanced and they would get reward for their effort. Finally, the Factor5-"Assessment Perceived Risk" pointed out the fact that if more number of students prefer to use LMS system into their learning process then more number of perceived risk reduced among the students.

Regression Model with Demographic Segmentation

Segmentation based on the level UG/PG and the study had been made to explore the influence of the emerged factors on the Behavioural Intention (Sustained use of Online Learning system) in the mentioned segments. Considering all the emerged factors as independent variables (X: All emerged factors) and Behavioural Intension as dependent variable (Y: BI_1) where Y signifies —"Sustained use of Online Learning system". In the regression analysis of Model 1, focusing on Undergraduate (UG) candidates. The regression analysis findings were illustrated below-

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error ofthe Estimate
	Segmentation based on UG /PG = Undergraduate (Selected)			
1	.816[a]	.665	.660	.6355

Table 8: Regression Analysis (Model 1)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	284.743	5	56.949	141.029	.000[c]
	Residual	143.351	355	.404		
	Total	428.094	360			

Table 9: Regression ANOVA Details (Model 1)

Dependent Variable: Sustained use of Online Learning system		
Independent Variables: All the emerged factors with the respective standardized co-efficient at the significance level		
Segment _Basis_ Educational Levels _ UG Students		
Factor Name	Standardized Co-efficient	Significance Level
Individual Perceived Usefulness (Factor 3)	0.544	0.000

Performance Expectancy driven by Social Influence (Factor1)	0.412	0.000
Facilitating Environmental Condition (Factor 2)	0.369	0.000
Effort Expectancy (Factor4)	0.230	0.000

Table 10: Summary of Findings: Regression Analysis (Model 1)

From the Regression Model Summary (Table 8), it was evident that the correlation (R value) was robust, standing at 0.816 or 81.6%, indicating a strong relationship between the five emerged factors and BI_1. For BI_1: R^2 =0.665 means 66.5% variations or change of Behavioural Intension (BI_1) of UG students due to change in 5 emerged explanatory factors. From the study it proved for BI_1, adjusted R^2 =0.660 which was decrease from R^2 = 0.665 implied no need to introduce new independent variables except 5 emerged factors. The most critical factor was "Individual Perceived Usefulness". This factor indicated the perceived enjoyment, satisfaction, and trust experienced by UG students when utilizing the LMS system through online platform. Following closely in importance was "Performance Expectancy driven by Social Influence". This factor reflected the influence of social factors on performance expectancy and social isolation experienced by UG students when using an online system. The third significant factor was "Facilitating Environmental Condition". This factor pertains to the comfort provided by the LMS system and the infrastructure support offered by educational institutions, enhancing the learning experience for UG students. Lastly, "Effort Expectancy" was identified as the fourth most important factor. This factor denotes the ease of effort experienced by UG students when using an online system. Notably, "Assessment Perceived Risk" was deemed insignificant, suggesting that as more UG students opt for online systems, the perceived risk decreased among them. Given the influential effect of online system among UG students highlighted by regression analysis in Model 1, there was a strong emphasis on —"Sustained use of Online Learning system" in the teaching-learning pedagogy of higher education in West Bengal.

In the regression analysis of Model 2, focusing on Postgraduate (PG) candidates. The regression analysis findings were illustrated below-

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	Segmentation based on UG /PG = Postgraduate (Selected)			
1	.799[a]	.639	.603	.7018

Table11: Regression Model Summary

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.585	5	8.717	17.697	.000c
	Residual	24.629	50	.493		
	Total	68.214	55			

Table 12: Regression ANOVA Details

Dependent Variable: Sustained use of Online Learning system		
Independent Variables: All the emerged factors with the respective standardized co-efficient at the significance level		
Segment _Basis_ Educational Levels _ PG Students		
Factor Name	Standardized Co-efficient	Significance Level
Performance Expectancy driven by Social Influence (Factor 1)	0.585	0.000
Individual Perceived Usefulness (Factor3)	0.443	0.000
Facilitating Environmental Condition (Factor 2)	0.351	0.000

Effort Expectancy (Factor4)	0.329	0.001
Assessment Perceived Risk (Factor5)	0.153	0.079

Table 13: Summary of Findings: Regression Analysis (Model 2)

From the Regression Model Summary (Table11), it was evident that the correlation (R value) was robust, standing at 0.799 or 79.9%, indicating a strong relationship between the five emerged factors and BI_2. For BI_2: R^2 =0.639 means 63.9% variations or change of Behavioural Intension (BI_2) of PG students due to change in 5 emerged explanatory factors. From the study it proved for BI_2, adjusted R^2 =0.603 which was decrease from R^2 = 0.639 implied no need to introduce new independent variables except five emerged factors. Analyzing the Summary of Findings: Regression Analysis (Table13), the most critical factor was "Performance Expectancy driven by Social Influence". This factor reflected the influence of social factors on performance expectancy and social isolation experienced by PG students when using an online system. Following closely in importance was "Individual Perceived Usefulness". This factor indicated the perceived enjoyment, satisfaction, and trust experienced by PG students when utilizing the online system, specifically the LMS system. The third significant factor was "Facilitating Environmental Condition". This factor pertains to the comfort provided by the online system and the infrastructure support offered by educational institutions, enhancing the learning experience for PG students. Similarly, "Effort Expectancy," was identified as the next most important factor. This factor denotes the ease of effort experienced by PG students when using an online system due to their prior experience of the system. Notably, "Assessment Perceived Risk" was also deemed significant. Given the influential effect of online system among PG students highlighted by regression analysis in Model 2, there was a strong emphasis on "Sustained use of Online Learning system" in the teaching-learning pedagogy of higher education in West Bengal.

VIII. Conclusion

This article provides a comprehensive review of the literature, and highlights a noticeable shift towards finding factors that influence students' perceptions of LMS adoption and acceptance. Through research it has become clear that of LMS many benefits for users, including students. Integrating an LMS into a classroom environment aims to enhance teaching and learning processes and increase student engagement, ultimately improving learning outcomes. The survey indicated that most of the students were quite computer literate and had no significant barriers to using the LMS. Furthermore, it emphasizes the importance of student perspectives for the success of an LMS program. Learning management systems (LMS) represent the digital backbone of modern education and training processes. As technology advances, so just as LMS capabilities also improve, ensuring that it remains at the forefront of educational innovation. By harnessing the power of technology to deliver personalized, engaging, and efficient learning experiences, LMS platforms empower UG and PG (both for male and female) students to unlock their full potential and thrive in an ever-evolving knowledge economy.

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