



Student's Perception of Learning Management System (LMS) on Academic Performance

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Abstract— The research explored how undergraduate students perceive the use of a Learning Management System (LMS) in the teaching and learning process. The study used a descriptive survey design and collected data through a survey instrument called "The Perceived Impact of Learning Management System on Student's Academic Performance Questionnaire (TPILMSSAPQ)". The sample consisted of 1251 undergraduate students from five faculties at the University of Nigeria Nsukka. The results indicated that the LMS is effective in identifying students' knowledge gaps before classes, enhance learning experience and improves student's academic performance. However, the study also identified challenges such as the cost of accessing the LMS, power outages, and poor internet connectivity. Therefore, the study recommends that students and lecturers should enhance their computer literacy skills to make better use of the LMS. Additionally, universities should improve and maintain the functionality of the LMS to support blended learning.

Keywords— LMS, Perceptions, Teaching-Learning, Undergraduates.

I. INTRODUCTION

Elevating student performance, improving the learning experience, and encouraging active student participation remain key priorities in education. To address these objectives in today's technology-driven society, educational institutions, particularly at the tertiary level, are integrating Information and Communication Technologies (ICTs). Faculty members are actively exploring these technologies to enhance traditional teaching methods. Online Learning Management Systems (LMS) have demonstrated potential in supporting such initiatives. ICTs have transformed how information is organized and delivered, fostering innovative and transformative learning environments. The educational landscape now features a diverse range of e-learning activities and programs at different points on the e-learning spectrum, from minimal online presence to fully online provision . Considerable literature exists on the application and benefits of ICT in education, with a focus on various stages of learning.

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Online Learning Management Systems (LMS) have become predominant in higher education. Ongoing research aims to evaluate their effectiveness in enhancing student learning and performance, with a particular emphasis on platforms like Blackboard, Desire2Learn, and Moodle. Additionally, publishing companies such as Pearson and McGraw Hill Education offer their own online learning/course management systems, contributing to the academic landscape in higher education. These adaptive and course management systems are utilized across various courses, playing a role in blended learning settings as complementary or supportive tools alongside traditional face-to-face instruction methods.

A Learning Management System (LMS), as described by Brush (2019), is a software application or web-based technology utilized for the planning, execution, and evaluation of a specific learning process. It constitutes an e-learning platform comprising two essential components: a server responsible for fundamental functionalities and a user interface operated by instructors, students, and administrators. The LMS, as highlighted by the author, empowers instructors to generate and deliver content, track student participation, and evaluate their performance. Brown (2020) emphasizes the LMS as a consolidated platform for delivering and monitoring e-learning initiatives. E-learning Basics (2021) defines the LMS as a digital learning platform, outlining its key features:

- Learning: Facilitating the creation of a centralized source for online courses and training materials.
- Management: Enabling the oversight of both courses and learners.
- System: Utilizing a computer-based infrastructure.

The LMS serves as a tool for online learning, fostering connections between teachers and students beyond the confines of traditional classrooms to facilitate effective learning activities. Instructors leverage the LMS to attain their instructional objectives, extending the impact of various classroom activities. As noted by Ben, Najar & Belghith (2018), online learning is a crucial medium, playing a pivotal role in virtual education. The primary motivation behind its adoption is to substitute face-to-face teaching and learning methods.

Scholars advocating for the adoption of the LMS as an instructional strategy have highlighted its considerable significance. Alecu, Marcuta, Marcuta, & Angelescu (2011) demonstrated the LMS's capacity to facilitate quicker and easier learning compared to traditional classroom methods. It promotes interactive and collaborative learning experiences, encourages individualized learning at one's own pace, enhances flexible learning systems, and provides opportunities for learners to access the latest materials. O'Leary & Ramsden (2002) reported the acknowledgment of LMS advantages by academics and instructors, recognizing its utility in enhancing students' learning experiences. Binti, Dulkaman, and Ali (2016) observed that the LMS has the potential to motivate students, positively impacting academic performance. Mödritscher, Andergassen, and Neumann (2013) identified a positive correlation between students' commitment to using the LMS and their academic performance. Oguguo, Nannim, Agah, Ugwuanyi, Ene, and Nzeadibe (2021) revealed significant effects of the LMS on students' academic performance compared to Computer-Assisted Instruction. Mohammed (2021) demonstrated a significant positive effect of the LMS on students' academic performance in financial accounting.

However, scholars have identified certain challenges that may hinder the effectiveness of the LMS in instructional delivery. Sahu (2020) pinpointed issues such as low-quality instruction when utilizing an LMS platform. Selim (2007) outlined challenges including inadequate internet facilities, difficulties in online teaching methods, limited technical competency among lecturers and students, challenges in motivating students, obstacles to accessing the site, and concerns regarding infrastructure reliability when using the LMS. Drent & Meelissen (2008) highlighted students' lack of ICT knowledge and lecturers' failure to provide necessary technical support. Becker (2000) identified barriers such as the reluctance of some lecturers to shift from face-to-face teaching methods, limited training on technology usage, and a lack of commitment to modern pedagogical approaches fostering skills for online learning. Orfanou, Tselios & Katsanos (2015) argued that online learning compromises the integrity and value of instruction and should be used minimally, especially in certain degree programs. According to Lim (2021), the LMS strategy faces challenges related to ineffective teacher training, difficulties in adapting to individual needs of both staff and students, and issues in course management.

The challenges associated with the LMS do not overshadow its inherent benefits, as these challenges are not overwhelming. Al-Hunaiyyah, Al-Sharhan, and AlHajri (2020) suggest that providing user-friendly interfaces, training users on effective LMS platform usage, along with appropriate guidance, can effectively address challenges in using the LMS for instructional delivery.

Lim (2021) proposes several strategies to overcome challenges, including proper support from school leadership, understanding the existing school culture, integrating pre-existing software into the LMS, conducting thorough user training, gaining adequate knowledge of the school's LMS limits, and establishing support links for users. The adoption of the LMS can be influenced by various variables related to technology integration in instructional delivery.

II. STATEMENT OF THE PROBLEM

Enhancing student's performance, improving the learning experience, providing access to higher education, and encouraging active student participation remain key priorities in education.

One of the widely used approaches to online learning is employing a Learning Management System (LMS) for instructional purposes. Scholars have found that an LMS can promote effective learning and facilitate interaction between educators and students. However, some are skeptical about the quality of instruction delivered through this platform, citing concerns about insufficient training for both teachers and students in utilizing the LMS to its full potential. Additionally, issues such as inadequate infrastructure and internet connectivity further complicate its effective implementation.

Given that adopting an LMS is crucial for ensuring access to higher education and improving the learning experience and academic performance, especially in less developed countries like Nigeria, it is important to investigate students' perspectives on its use. This research is essential for understanding the level of acceptance and identifying barriers to its effective utilization, thereby aiding in the development and implementation of appropriate policies for integrating LMS into instructional delivery.

III. RESEARCH QUESTIONS

This study was guided by the following research questions:

- 1. How often do students utilize the LMS?
- 2. What impact does LMS usage have on students' academic achievements?
- 3. What challenges do students encounter when using the LMS?

IV. METHODOLOGY

The study employed a descriptive survey design and utilized a questionnaire called "The Perceived Impact of Learning Management System on Student's Academic Performance Questionnaire (TPILMSSAPQ)" to gather quantitative data. The questionnaire comprised four sections: 1, 2, 3, and 4. Section 1 collected demographic data, while Section 2 focused on the frequency of participants' LMS usage and their preferred location for using the LMS. Five items in Section 2 assessed the frequency of LMS usage using a 6-point rating scale ranging from "never" to "daily."

Sections 3 and 4 contained items related to the impact of LMS usage, common activities, and difficulties faced by students when using the LMS. Section 4 used a 4-point rating scale including "strongly agree (SA)," "agree (A)," "disagree (D)," and "strongly disagree (SD)" to measure participants' responses. The questionnaire was validated by experts in educational technology and test construction. Its reliability coefficient was determined to be 0.77 using the test-retest reliability method.

V. PARTICIPANTS

The study involved 1251 undergraduate students from seven Faculties within the University of Nigeria, Nsukka. The selection of undergraduate students was based on the widespread use of Learning Management Systems (LMS) by higher education institutions.

Gender	Frequency(F)	Percentage (%)
Male	313	25.02
Female	938	74.98
Total	1251	100.0

Table	1.	Gender	Distril	bution	of the	Partici	nants
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The data shown in Table 1 indicates a significantly higher proportion of female respondents than male respondents in the study.

Faculty	Frequency(F)	Percentage (%)				
Agriculture	185	14.79				
Arts	214	17.11				
Biological Sciences	150	11.99				
Education	218	17.43				
Engineering	106	8.47				
Physical Sciences	136	10.87				
Social Sciences	242	19.34				
Total	1251	100.0				

Table 2: Distribution of Participants by College

The data in Table 2 shows that most of the respondents were from the faculty of Social Sciences (19.34%) with the faculty of engineering having the least of the respondents, accounting for 8.47%.

VI. RESULTS

Research Question 1: How frequently do students use the LMS?

The results presented in Table 3 below demonstrate that a significant portion of the students frequently utilize the Learning Management System (LMS) for various purposes. Specifically:

- 49.80% of students use the LMS daily to access and download lecture notes, while 33.73% use it once a week, 6.87% use it rarely, and 4.08% use it once a month. Only 2.00% reported never using the LMS for this purpose.
- Over half of the respondents (52.52%) use the LMS daily to attend live lectures or classes, with 8.15% rarely using it and 7.83% never using it for this purpose. Some students (2.56%) use it once a month, and 0.96% use it once every two weeks.
- When it comes to submitting assignments, 46.84% of students use the LMS once a week, 34.13% use it daily, 7.35% use it rarely, 6.00% never use it, 2.00% use it once every two weeks, and 3.68% use it once a month.
- For evaluation tests, 24.38% rarely use the LMS, 38.77% use it once a week, 20.46% use it daily, 9.59% use it once every two weeks, and 6.79% use it once a month.
- Regarding interaction with other students on the LMS, 57.95% of respondents interact with others daily, 19.98% rarely interact, and 10.00% never use the LMS for this purpose.

Overall, the level of student engagement with the LMS for learning purposes appears to be slightly above average. Notably, items related to academic use of the LMS scored close to 50% for daily use, with the highest proportion of use (57.95%) observed for interactions among students, which are not solely for academic purposes.

S/	ITEMS	RES	PONSE			1							
N		Never		ever Rarely		Once a month		Once in two weeks		Once a week		Daily	
		F	%	F	%	F	%	F	%	F	%	F	%
1	Access and download lecture notes	25	2.00	86	6.87	51	4.08	44	3.52	422	33.73	623	49.80
2	Attend live lectures/ classes	98	7.85	102	8.15	32	2.56	12	0.96	350	27.98	657	52.52
3	Submit assignments	75	6.00	92	7.35	46	3.68	25	2.00	586	46.84	427	34.13
4	Take evaluations/ tests	Nil		305	24.38	85	6.79	120	9.59	485	38.77	256	20.46
5	Interact with other students	125	10.00	250	19.98	24	1.92	42	3.36	85	6.79	725	57.95

Table 3: Analysis of the Frequency of Students' LMS Use

Research Question 2: How does LMS use influence students' academic performance?

The findings presented in Table 4 below indicate that a significant majority of students found the Learning Management System (LMS) to be beneficial for various aspects of their academic experience:

- 56.11% agreed that the LMS was helpful in identifying their knowledge gaps before class, while 28.53% disagreed and 15.35% were neutral.
- 56.59% reported that the LMS helped them prepare for exams and tests, with 33.49% disagreeing and 9.91% expressing a neutral stance.
- 58.19% indicated that their lecturers used the LMS effectively for teaching, compared to 28.38% who disagreed and 13.43% who were neutral.
- However, only 13.51% agreed that they learned better through the LMS than through face-to-face lectures, while 74.14% disagreed.
- In terms of the impact on grades, 33.73% agreed that they would have scored better without the LMS, while 49.32% disagreed.
- 44.20% agreed that using the LMS improved their chances of achieving better grades, with 30.85% disagreeing and 24.94% expressing a neutral opinion.
- 71.14% found the LMS to be a useful learning tool, while 19.11% disagreed and 9.75% were neutral.
- 41.32% agreed that the LMS enabled faster and better learning, while 37.49% disagreed and 21.18% were neutral.
- 45.56% agreed that using the LMS increased their productivity, with 20.06% expressing a neutral view.

Overall, the participants' perception of the LMS's effectiveness in various aspects of their academic performance was slightly above average. While many agreed on its benefits for reflection, preparation, and usefulness in learning, their perception of its contribution to academic performance was slightly above average.

S /	ITEMS	RESPONSE										
N		Strongly Agree		Agre e		Neutral		Disagree		Stron Disag	ngly gree	
		F	%	F %		F %		F %		F	%	
1	LM S was helpful to reflect on my knowledg e gaps when preparing for class?	92	7.35	610	48.76	192	15.35	235	20.22	104	8.31	
2	LM S helped me to prepare for examination s and tests	106	8.47	602	48.12	124	9.91	306	24.46	113	9.03	
3	M lecturer y s were able to use the LMS efficiently for teaching?	96	7.67	632	50.52	168	13.43	278	22.22	77	6.16	
4	I think I learned better via LMS than through face-to-face lectures	32	2.56	137	10.95	154	12.31	576	46.03	352	28.14	
5	I think I would have had better scores if LM S was not used for lecture delivery	101	8.07	321	25.66	212	16.95	486	38.85	131	10.47	

Table 4: Analysis of how LMS Use Influences Students' Academic Performance

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6	Using LMS has increased my chances of getting better grades (CGPA)	121	9.67	432	34.53	312	24.94	284	22.70	102	8.15
7	fin I d Learning Management System useful for learnin g	137	10.95	753	60.19	122	9.75	125	10.00	114	9.11
8	Using Learning Management System enables me to learn faster and better.	82	6.55	435	34.77	265	21.18	361	28.86	108	8.63
9	Using LMS has increased my productivi ty	118	9.43	452	36.13	251	20.06	334	26.70	96	7.67

*F= Frequency

Research Question 3: What are the problems faced by students in using the LMS?

The findings presented in Table 5 indicate the following:

- 57.63% of students disagreed with the notion that the Learning Management System (LMS) contains irrelevant information that could distract users, while 27.97% agreed.
- There was a high level of agreement (80.41%) among students regarding the high cost of accessing the LMS.
- A significant majority (72.99%) agreed that the institution provides training (workshops) for students and lecturers on eLearning.
- 85.93% of students agreed that the LMS is affected by poor Internet speed services.
- Additionally, 95.36% of respondents agreed that power failures mostly contribute to poor access to the LMS.

Overall, the data suggests that the cost of accessing the LMS, poor Internet services, and power failures are major challenges that impact the use of the LMS by students.

S /	ITEMS	RESPONSE										
Ν		Strong	gly	Agree		Neut	ral	Disag	gree	Stro	ngly	
		Agree								Disagree		
		F	%	F	%	F	%	F	%	F	%	
1	Learning Management systems do contain irrelevant information, which could distract	112	8.95	238	19.02	180	14.39	486	38.85	235	18.78	
	users											
2	The cost of accessing the Learning Management System is very high	285	22.78	721	57.63	86	6.87	108	8.63	51	4.08	
3	My institution holds training (workshop) for students and lecturers on eLearning	227	18.15	686	54.84	150	12.00	108	8.63	80	6.39	
4	LMS is mostly affected by poor internet speed services	395	31.57	680	54.36	56	4.48	66	5.28	54	4.32	
5	Power failure contributes to poor access to LMS	408	32.61	785	62.75	20	1.60	28	2.34	10	0.80	

Table 5: Analysis of the Problems Faced by Students in Using LMS

*F= Frequency

VII. DISCUSSION OF RESULTS

The study indicates a significant level of LMS utilization for academic purposes. A considerable number of participants confirmed the daily use of the LMS for accessing and downloading lecture notes, frequent interaction with other students, and weekly submission of assignments. These findings align with those of Olakunle and Bolaji (2017), which suggest a positive attitude among undergraduate students toward LMS usage. The participants' strong engagement could be attributed to their familiarity with traditional instructional methods, limited ICT skills, and insufficient infrastructure.

The results demonstrate that many participants believe that using the LMS can improve their academic performance. This is consistent with the findings of Alecu et al. (2011), O'Leary and Ramsden (2002), Binti et al. (2016), Oguguo et al. (2021),

and Mohammed (2021), which highlight the potential of LMS usage in enhancing academic performance. Participants identified the cost of accessing the LMS, poor internet connectivity, and erratic power supply as barriers to its use. These findings are supported by the research of Selim (2007) and Sahu (2020). However, the general unreliable power supply in the country could also contribute to these results.

VIII. CONCLUSION AND RECOMMENDATIONS

The study concluded that most students' perception of using Learning Management Systems (LMS) for academic purposes was above average. The highest level of acceptance was observed in using the LMS for interaction among participants, which extends beyond academic purposes. However, students face major challenges such as the cost of access, power outages, and inadequate internet services when using the LMS.

These findings are subject to limitations. The study was limited to a quantitative research approach using a descriptive survey to collect data, which is commonly used in technology acceptance research. Future research could expand the scope by including a larger and more diverse population, covering different types and locations of institutions in Nigeria with varying demographics. Another direction for future research could be to explore strategies for promoting and motivating students to use e-learning systems with support from universities. Additionally, investigating the significant factors that influence students' adoption of LMS could provide valuable insights.

Based on these findings, the following recommendations are proposed:

- 1. Encourage students and lecturers to enhance their computer literacy skills to improve LMS use.
- 2. Improve the functionality of LMS platforms in universities to facilitate blended learning.
- 3. Nigerian universities should integrate LMS use into their teaching and learning strategies consistently.
- 4. Governments and curriculum developers should include LMS use in tertiary institution curricula as a mode of instructional delivery.

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