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Exploring the Perceptions and Usage of Learning Management Systems at EFLU: A Multi-Dimensional Analysis

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ABSTRACT

This study examines the perceptions and usage of Learning Management Systems (LMS) in a language university through a multidimensional lens, focusing on awareness, accessibility, usability, interactivity, and barriers to adoption. Drawing insights from the B.Ed. students, the findings highlight the pedagogical value of LMS platforms while also identifying key challenges such as limited digital preparedness and infrastructure gaps. The study underscores the need for targeted training, inclusive design, and sustained institutional support to improve LMS integration. These insights make a meaningful contribution to the advancement of digital learning environments in language-based higher education, fostering more inclusive, engaging, and effective academic experiences.

Keywords: Learning Management Systems (LMS), Perception, Higher Education, E-Learning

Several learning management systems (LMS) have been used by several Higher Educational Institutions (HEIs), resulting in technological changes in teaching and learning (Al-Mamary, 2022; Graham *et al.* 2023; Alenezi, 2023). Digital solutions that aid in strategic planning, problem-solving, and practice enhancements, as well as the creation of new information for

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future generations, have been expanding quickly at universities (Miah et al., 2020). The rapid advancement of digital technologies has profoundly transformed the landscape of higher education, particularly in how learning content is delivered, accessed, and managed. Among these innovations, Learning Management Systems (LMS) have emerged as powerful tools that enable institutions to facilitate online learning, streamline course administration, and enhance student engagement (Thangavel, 2024). Promoting inclusive and equitable education for everyone is one of the core tenets of the goals for sustainable development, and technology is crucial to achieving this. Digital inclusion in teaching and learning is hampered by a number of problems, according to the practice (Ndibalema, 2025). At the undergraduate level, where students are still developing academic habits and adapting to autonomous learning, LMS platforms can play a pivotal role in shaping their learning experiences. These students rely heavily on structured guidance, user-friendly tools, and timely access to academic resources, all of which LMS platforms are designed to provide (Thangavel, 2024 & Rahman *et al.* 2019). However, the effectiveness of LMS usage among undergraduate students depends on various factors, including their awareness of the platform, ease of navigation, perceived usefulness, and the availability of institutional support (Husin *et al.* 2024). While the technical infrastructure may be in place, students' actual experiences and perceptions often vary widely. Some may find LMS systems accessible and enriching, while others may encounter barriers such as a lack of training, low digital literacy, or insufficient support from faculty. These variations can significantly influence how effectively LMS platforms are utilized in practice (Suhaim, 2017). In recent years, especially during and after the COVID-19 pandemic, there has been an increased dependency on LMS platforms to ensure academic continuity (Brenden, 2023). In higher education, Undergraduate students, like those elsewhere, had to rapidly adapt to digital classrooms, assignments, and examinations. This sudden shift highlighted both the strengths and limitations of existing LMS practices, particularly in terms of accessibility, interactivity, and learning outcomes. Hence, understanding student perceptions is now more crucial than ever for guiding future improvements (Almusharraf, 2024).

Learning Management System (LMS)

The Learning Management System is an online application that gives students a platform for collaboration and study. Examples of learning management systems include Sakai, Moodle, Google Classroom, Canvas, and Blackboard. By establishing an online learning environment, an LMS may make life simpler for both instructors and students. The simplicity of use for instructors and students is one of its most significant strengths (Green *et al.* 2006). Students can access course papers and additional course content at their leisure outside of class via the LMS platform. According to Bouhink (2006) and Liaw (2008), Blackboard is the premier LMS, allowing students to access course papers and extra material at their leisure outside of class. This study aims to examine existing student perspectives and actions related to frequently used

educational technology. Because they reflect a variety of technologies utilized in contemporary university classrooms, from the well-known (PowerPoint) to more recent breakthroughs (Google Meet), these technologies were chosen for the research. The study's contribution is a deeper comprehension of how students perceive these tools and how students use them.

Research Question

1. What are the perceptions of B.Ed. Students at EFLU regarding the awareness, accessibility, effectiveness, and interactivity of LMS in enhancing their learning?

Objectives of the study

1. To examine the level of awareness, usability, and accessibility of LMS among B.Ed. students at EFLU.
2. To evaluate the B.Ed. students at EFLU perceive the effectiveness, interactivity, and overall learning support of LMS platforms.
3. To identify key barriers faced by B.Ed. students at EFLU in LMS usage and suggest strategies for enhancing their digital learning experience.

Assumptions

1. B.Ed. students at EFLU are generally aware of LMS, with varied levels of usage proficiency.
2. B.Ed. students at EFLU perceive LMS as beneficial, with its effectiveness, usability, and the availability of technical support.

Methodology

This study employed a quantitative research design to explore the perceptions and usage of Learning Management Systems (LMS) among B.Ed. students at the English and Foreign Languages University (EFLU), Hyderabad. A survey method was utilized to gather data systematically. A closed-ended questionnaire was developed by the researcher, drawing from key dimensions identified in the literature and refined with input from educational technology experts to ensure face and content validity. The questionnaire comprised 40 items distributed across eight dimensions: awareness, effectiveness, understanding and ease, barriers, system usability, student accessibility, interactivity, and benefits. It also included basic demographic details such as gender, age, educational level, and prior experience with digital platforms. Responses were recorded using a five-point Likert scale ranging from 1 to 5, where 1 denoted 'Strongly Disagree', 3 represented 'Neutral', and 5 indicated 'Strongly Agree', allowing for a detailed assessment of students' attitudes and experiences with LMS. The questionnaire was

administered in an offline format to a sample of 27 students at EFLU. This sampling approach enabled the collection of data reflecting a broad spectrum of user experiences. Data analysis was conducted using descriptive statistics, such as frequency, percentage, to summarize the findings. Additionally, the study treated the eight LMS dimensions as dependent variables, while independent variables included demographic and experiential factors like age, gender, academic level, and digital experience. This helped in understanding how different factors influence LMS perception and usage. To ensure reliability, Cronbach's Alpha was calculated as 0.84 to measure the internal consistency of the questionnaire. All ethical guidelines were strictly followed. Informed consent was obtained from all participants, confidentiality was maintained, and participation was voluntary. The study received institutional ethical clearance, ensuring adherence to research integrity. The findings of this study aim to offer meaningful insights into the current status of LMS integration in a language university context. The outcomes are expected to inform institutional strategies, contributing to more effective, inclusive, and user-centered LMS implementation in higher education.

Data Collection

To conduct the study, the researcher used a self-developed questionnaire to explore the perceptions, usage, and challenges related to Learning Management Systems (LMS) among undergraduate students at the English and Foreign Languages University (EFLU). The data were collected from the Hyderabad campus, where only 27 first-year B.Ed. Students from the 2024-26 academic session were available and participated in the study. Out of a total of 50 enrolled students in the course, these participants were selected through purposive sampling based on their availability and relevance to the study. The data collection process was conducted during regular academic hours, ensuring voluntary participation, clarity, and confidentiality throughout. The collected responses were analyzed using basic statistical tools, including percentage distributions and visual representations such as pie charts. This helped to interpret student feedback across key LMS-related dimensions, including awareness, accessibility, usability, interactivity, and effectiveness.

Data Representation

The study aimed to explore the multi-dimensional perceptions and usage patterns of Learning Management Systems (LMS) among B.Ed. students at the English and Foreign Languages University (EFLU). The responses were analyzed across key thematic dimensions such as Awareness, Effectiveness, Ease of Use, Barriers, Usability, Accessibility, Interactivity, and Benefits. The results reflect a high level of awareness, with 88.89% of students reporting familiarity with the term "LMS" and 81.48% actively recommending its use for academic purposes. A majority (88.89%) also affirmed the crucial role LMS played during the COVID-19 pandemic in achieving their educational goals. Regarding effectiveness, 74.07% agreed that

Table 1: Representation of the LMS Perceptions and Usage Among B.Ed. Students at EFLU

Sl. No.	DIMENSION	STATEMENTS	SA+A	N	DA+SDA	SA+A%	N%	DA+SDA%	DIMENSION %	
									AGREE	DIS AGREE
1	Awareness of LMS	I am familiar with the term "Learning Management System" (LMS).	24	2	1	88.89	7.41	3.70	75.93	4.94
2		I often use LMS for educational purposes.	16	8	3	59.26	29.63	11.11		
3		I am aware of the communication tools (e.g., announcements, messaging) within the LMS	20	7	0	74.07	25.93	0.00		
4		I am feeling comfortable while using various features (User Interface, Accessibility, Engagement, Privacy and Security) of the LMS	17	8	2	62.96	29.63	7.41		
5		I use LMS, and suggest others to use the same for academic purposes.	22	4	1	81.48	14.81	3.70		
6		LMS played a vital role in achieving my educational objectives during the COVID-19 pandemic.	24	2	1	88.89	7.41	3.70		
7	Effectiveness of LMS	I can perform more creative and innovative activities/tasks with the help of a LMS.	20	7	0	74.07	25.93	0.00	66.67	5.19
8		LMS helped me stay organized and manage my course materials more effectively.	18	8	1	66.67	29.63	3.70		
9		The use of LMS encourages/ enables me to be more confident to participate more effectively in the class	14	10	3	51.85	37.04	11.11		
10		The practice of an LMS enables me to communicate my ideas and views effectively with teachers and peers.	16	10	1	59.26	37.04	3.70		
11		I complete my work well on time by using LMS.	22	3	2	81.48	11.11	7.41		
									28.15	
									19.14	

12	Understanding and Ease	The usage of an LMS assists me in the preparation of learning activities.	18	9	0	66.67	33.33	0.00	71.30	23.15	5.56
13		LMS provides me with an easy and understandable learning platform	19	6	2	70.37	22.22	7.41			
14		I wish to learn more about the LMS's functions and features.	24	3	0	88.89	11.11	0.00			
15		I understand the basic functionalities (Content Delivery, Assignment and Assessment, Discussion Forums, Grade book, Progress tracking,) of my university's LMS.	16	7	4	59.26	25.93	14.81			
16	Barriers	I believe that using LMS has been a challenging experience for me during the pandemic.	9	7	11	33.33	25.93	40.74	37.04	25.19	37.78
17		I believe it is hard to implement LMS on a mobile device.	12	5	10	44.44	18.52	37.04			
18		I am confined to utilizing LMS with limited computer and internet facilities in my university.	9	8	10	33.33	29.63	37.04			
19		I believe that while using LMS there is a lack of security and privacy of academic data.	10	8	9	37.04	29.63	33.33			
20		Although my University encouraged the use of LMS, due to lack of training and technical support, its usage is limited.	10	6	11	37.04	22.22	40.74			
21	System Usability (SUS)	The use of LMS is beneficial for my educational goals.	25	2	0	92.59	7.41	0.00	53.70	25.00	21.30
22		I think most LMS's are easy to use.	16	7	4	59.26	25.93	14.81			
23		I find the various functions in LMS are not well-integrated	6	14	7	22.22	51.85	25.93			
24		I faced numerous difficulties while using LMS.	11	4	12	40.74	14.81	44.44			

25	Student's Accessibility	My university's LMS's 24/7 accessibility is ideal for my learning needs.	6	10	11	22.22	37.04	40.74	58.02	16.67
26		I know how to access and log in to the LMS.	17	9	1	62.96	33.33	3.70		
27		I can access the course materials or assignments through an LMS conveniently.	22	5	0	81.48	18.52	0.00		
28		I received training and guidance from the university to access the features and tools of the LMS during the pandemic.	9	7	11	33.33	25.93	40.74		
29		The course materials and documents provided by the teachers in accessible formats (e.g. PDFs with proper tagging).	22	3	2	81.48	11.11	7.41		
30		I find the LMS is accessible and functional on mobile devices, such as Smartphone's and tablets.	18	7	2	66.67	25.93	7.41		
31	Interactivity	LMS provides interactive multimedia content (videos, animations, simulations) that enhances my understanding of course materials.	24	3	0	88.89	11.11	0.00	54.07	26.67
32		The LMS discussion board is very useful for feedback and solving queries.	22	4	1	81.48	14.81	3.70		
33		LMSs are more engaging than other online educational platforms like YouTube, Telegram, Quora, and Reddit.	8	11	8	29.63	40.74	29.63		
34		I rate the user-friendliness of the LMS interface	17	7	3	62.96	25.93	11.11		
35		I believe LMS system makes the learning experience inconvenient.	2	1	24	7.41	3.70	88.89		
36	Benefits of Using LMS	The use of an LMS helps me to improve my technical abilities.	22	5	0	81.48	18.52	0.00	78.52	15.56
37		I believe LMS is more effective and comfortable than learning in conventional classrooms	13	7	7	48.15	25.93	25.93		
38		LMS allows for flexible learning, which enables me to study at my own pace and convenience.	26	1	0	96.30	3.70	0.00		
39		I believe LMS assists me in acquiring relevant knowledge and information for learning.	23	4	0	85.19	14.81	0.00		
40		I believe LMS provides prompt feedback on assignments and assessments, aiding in my learning process.	22	4	1	81.48	14.81	3.70		

Sources: *SPSS Analysis and MS-Excel.*

LMS supports creative and innovative learning tasks, while 66.67% stated it helps them stay organized. However, only 51.85% felt that LMS enhances classroom participation, suggesting varied levels of engagement. In the area of ease of use and understanding, 70.37% found the LMS platform easy and understandable, and 88.89% showed interest in learning more about its features. Nevertheless, barriers were evident: 40.74% of students encountered challenges in using LMS during the pandemic, and 37.04% highlighted infrastructural constraints like limited internet and computer access. The lack of training and technical support also emerged as a concern for 40.74% of respondents. With regard to system usability, 92.59% believed that LMS positively contributes to their educational goals, yet 44.44% admitted facing frequent difficulties during its usage. Accessibility was another significant factor - 81.48% of students agreed that course materials were conveniently accessible through LMS, although only 33.33% received adequate training and guidance during the pandemic. In terms of interactivity, 88.89% appreciated the inclusion of multimedia content, and 81.48% found the discussion forums helpful; however, only 29.63% found LMS more engaging than platforms like YouTube or Telegram.

Finally, when evaluating the benefits of LMS, 96.30% acknowledged its flexibility in allowing self-paced learning, 85.19% believed it helped them acquire relevant knowledge, and 81.48% reported improved technical skills. Overall, the findings suggest that while EFLU's B.Ed. students hold largely positive perceptions about LMS in terms of awareness, usability, and educational support; certain challenges, particularly related to accessibility, training, and engagement, still need to be addressed for more inclusive and effective implementation.

Dimension-wise Analysis

Dimension: 1 Awareness of LMS

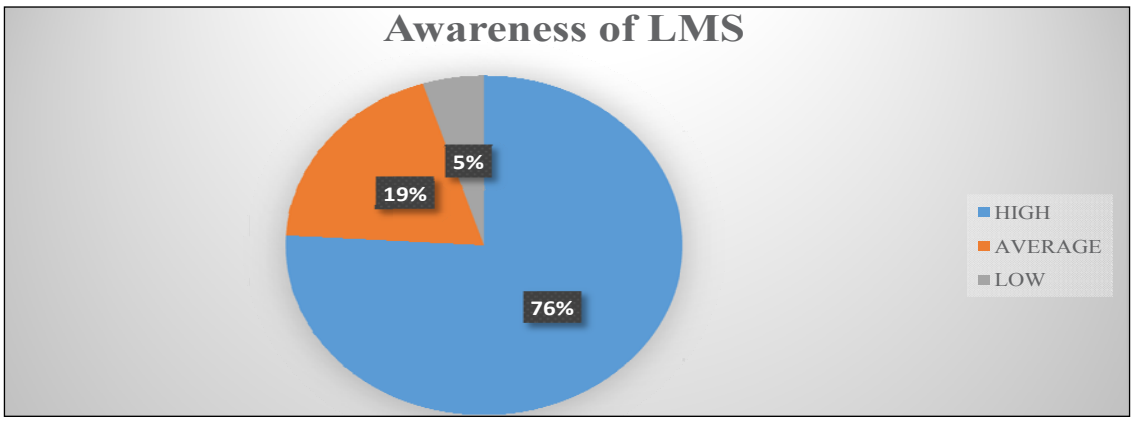

Fig. 1: Representation of the Awareness Levels of LMS Among B.Ed. Students at EFLU

The pie chart in Figure No. 1 presents the distribution of LMS awareness among B.Ed. students at EFLU. A substantial 76% of students reported a high level of awareness, indicating strong familiarity with the concept, features, and educational significance of Learning Management Systems. Meanwhile, 19% reported an average level of awareness, which may suggest a basic understanding without extensive usage or exposure. A small proportion, 5%, reflected low awareness, pointing to the need for foundational orientation and digital literacy support. These insights emphasize the general readiness of students to engage with LMS platforms, while also identifying a minor gap that institutions can address through targeted educational digital programs.

Dimension: 2 Effectiveness of LMS

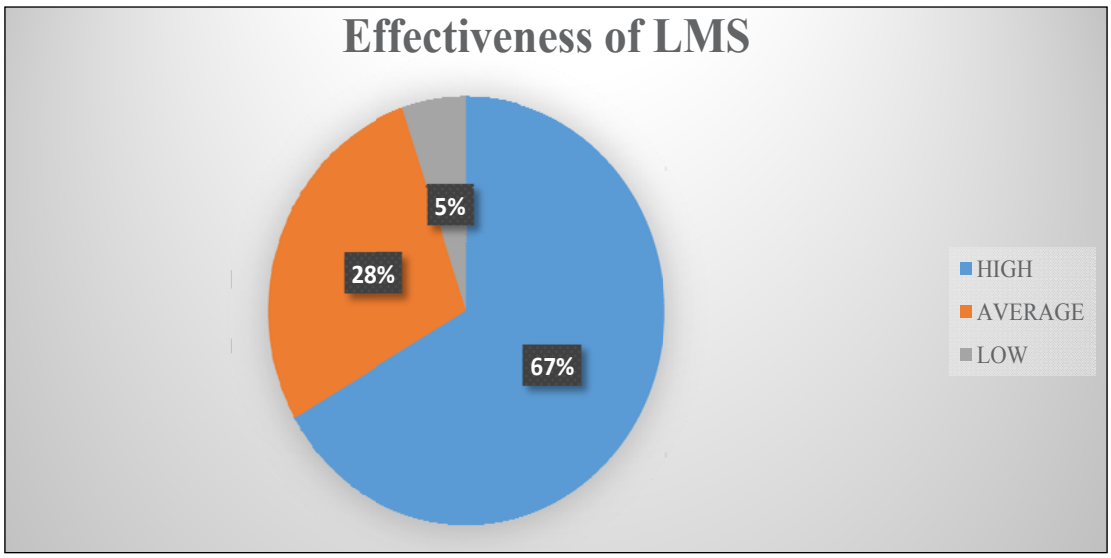

Fig. 2: Representation of LMS Effectiveness Among B.Ed. Students at EFLU

As illustrated in Fig. 2, the pie diagram shows, a majority of B.Ed. students (67%) reported a high level of effectiveness in using the Learning Management System (LMS), indicating that the platform positively supports their learning outcomes, task completion, and academic organization. However, 28% of students rated LMS effectiveness as average, while 5% perceived it as low. This combined 33% signals that for some students, LMS tools may not fully meet their expectations, possibly due to limited interactivity, delayed feedback, technical glitches, or insufficient content quality. These findings suggest that while LMS is largely effective, there remains room for enhancement, particularly in improving content delivery, system responsiveness, and learner engagement strategies.

Dimension: 3 Understanding and Ease

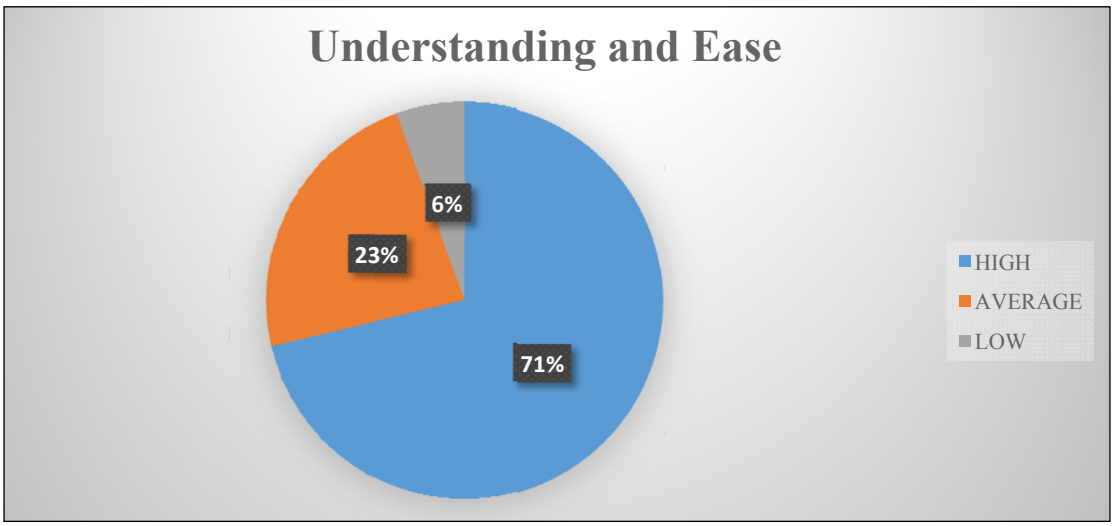

Fig. 3: Representation of the Understanding and Ease of LMS Among B.Ed. Students at EFLU

As shown in Fig. 3, the pie diagram shows, a significant 71% of B.Ed. students reported a high level of understanding and ease in using the Learning Management System (LMS), indicating that most students find the platform intuitive, accessible, and supportive of independent navigation and learning. However, 23% reported an average experience, and 6% experienced low ease of use, pointing to usability issues for a smaller but notable group. These difficulties may stem from limited exposure to digital tools, complex interface design, or a lack of guided instruction. To close this gap, institutions can invest in targeted training, simplified user interfaces, and ongoing technical assistance to ensure all students are equally empowered to use LMS tools with confidence and clarity.

Dimension: 4 Barriers

As illustrated in Fig. 4, the pie diagram shows, the student responses regarding barriers to LMS usage are notably distributed, with 37% reporting high barriers, 25% experiencing average barriers, and 38% reporting low barriers. This near-equal distribution highlights a divided digital experience among students. For over 60% of respondents, challenges such as unstable internet connectivity, lack of access to digital devices, limited technical support, and insufficient training created varying degrees of obstruction in fully utilizing LMS platforms. The data reflects a significant digital divide, where some students navigate the LMS with ease while others are hindered by infrastructural and support-related limitations. Addressing these issues through targeted infrastructure improvements, enhanced digital literacy programs,

and accessible technical assistance is essential for fostering equity and enabling consistent engagement in digital learning environments.

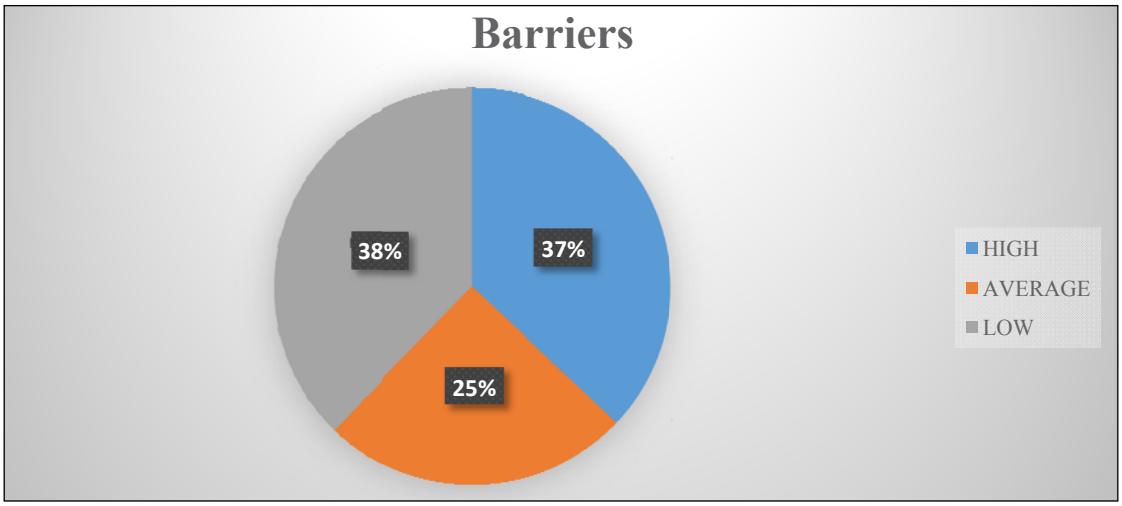

Fig. 4: Representation of Barriers of LMS Among B.Ed. Students at EFLU

Dimension: 5 System Usability System (SUS)

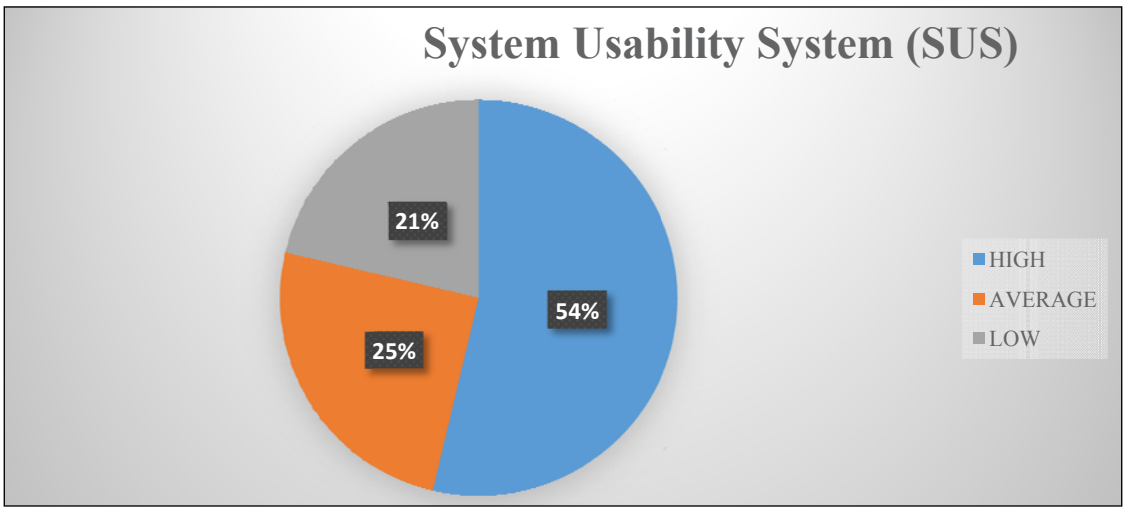

Fig. 5: Representation of the System Usability System (SUS) of LMS Among B.Ed. Students at EFLU

As Fig. 5, in the pie diagram, 54% of B.Ed. students rated the system usability of the Learning Management System (LMS) as high, indicating that over half found the LMS platform to be

user-friendly, functional, and supportive of their academic needs. However, a significant 46% of students 25% with average, and 21% with low usability experiences, highlight challenges in areas such as interface design, system integration, navigation, and overall ease of use. This data suggests that while the majority of students can operate the LMS effectively, there remains a considerable portion encountering usability-related obstacles that could hinder learning efficiency and satisfaction. Enhancing user experience through more intuitive design, streamlined features, and responsive technical support could further improve system usability and student engagement.

Dimension: 6 Student's Accessibility

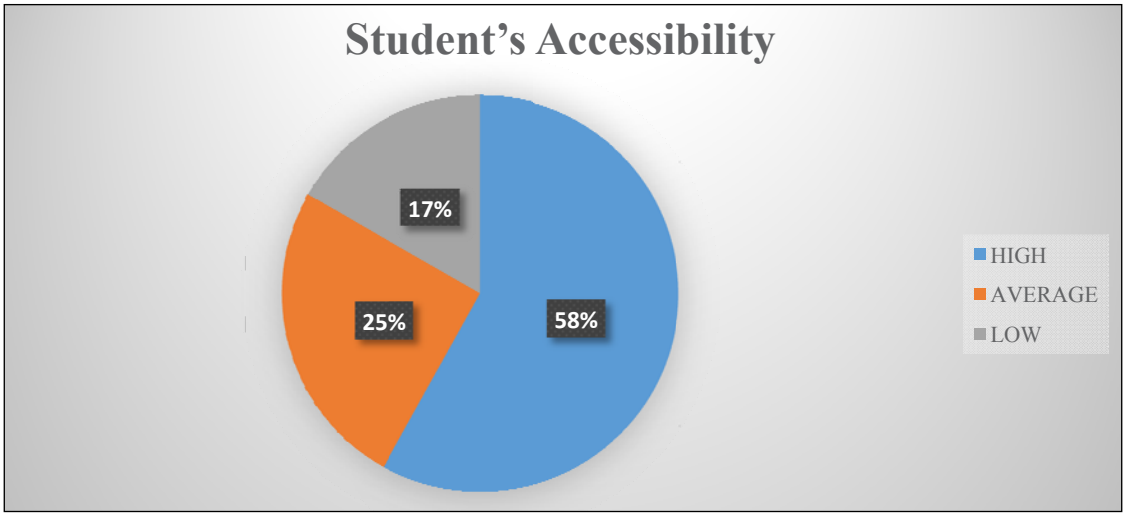

Fig. 6: Representing Students' Accessibility to LMS Among B.Ed. Students at EFLU

As presented in Fig. 6, the pie diagram illustrates the level of accessibility of B.Ed. students have to use Learning Management Systems (LMS) at EFLU. A majority, 58%, reported high accessibility, indicating that they are able to easily log in, navigate, and access course materials through the LMS platform. However, 25% of students indicated only average accessibility, while 17% reported low accessibility, suggesting notable challenges still exist for a significant portion of learners. These difficulties may be attributed to issues such as inconsistent internet connectivity, limited access to devices, lack of mobile compatibility, or inadequate technical support. The findings highlight the importance of addressing digital equity through improved infrastructure, mobile-friendly design, and offline or low-bandwidth LMS features to ensure inclusive and uninterrupted access for all students.

Dimension: 7 Interactivity

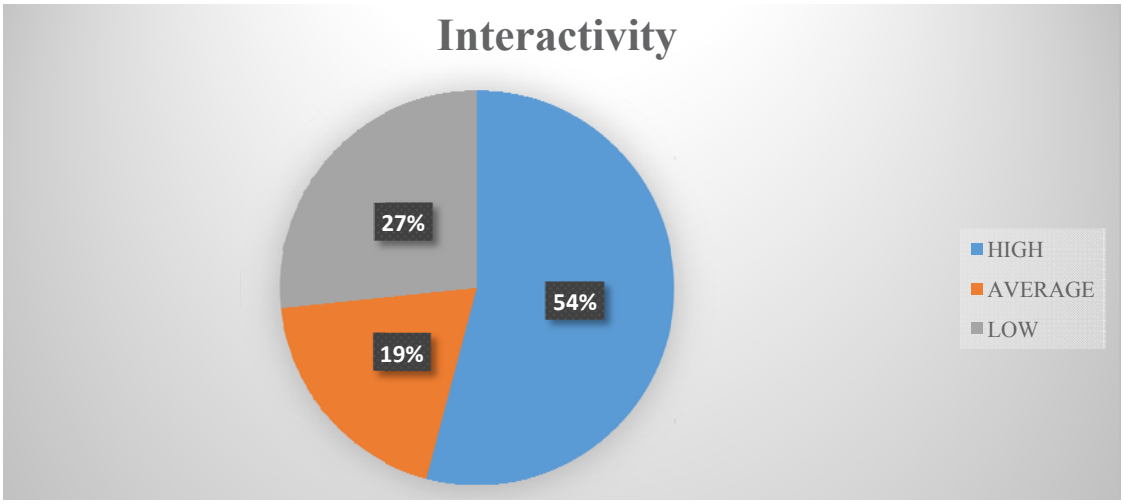

Fig. 7: Representation of LMS Interactivity as Perceived by B.Ed. Students at EFLU

As presented in Fig. 7, the pie diagram reflects student perceptions of the interactivity of Learning Management Systems (LMS). As depicted, 54% of B.Ed. students reported a high level of interactivity, indicating that LMS platforms provide useful features such as multimedia content, discussion boards, and interactive elements that support active learning. However, **19%** expressed only an **average** level of engagement, while a notable **27%** rated interactivity as **low**. This suggests that for a considerable segment of learners, current LMS tools may fall short when compared to more dynamic platforms like YouTube, Telegram, or other educational apps. These findings point to a critical need for improving interactive functionalities within LMS, such as real-time feedback, collaborative forums, simulations, and gamified learning to better engage digital-native learners and foster a more participatory educational environment.

Dimension: 8 Benefits of Using LMS

In the pie diagram, Fig. 8, illustrates the perception of B.Ed. students at EFLU regarding the benefits of using Learning Management Systems (LMS). As shown, a substantial 78% of students reported a high level of perceived benefit, indicating strong appreciation for features such as flexibility, self-paced learning, technical skill enhancement, and access to relevant educational resources. An additional 16% of students indicated an average perception, suggesting they recognized some advantages but may have experienced limitations in engagement or access. Notably, only 6% reported a low perception of benefits, which reinforces the overall positive reception of LMS within the teacher education context. This distribution underscores the

significant role of LMS in supporting academic and professional development, despite some remaining areas for improvement.

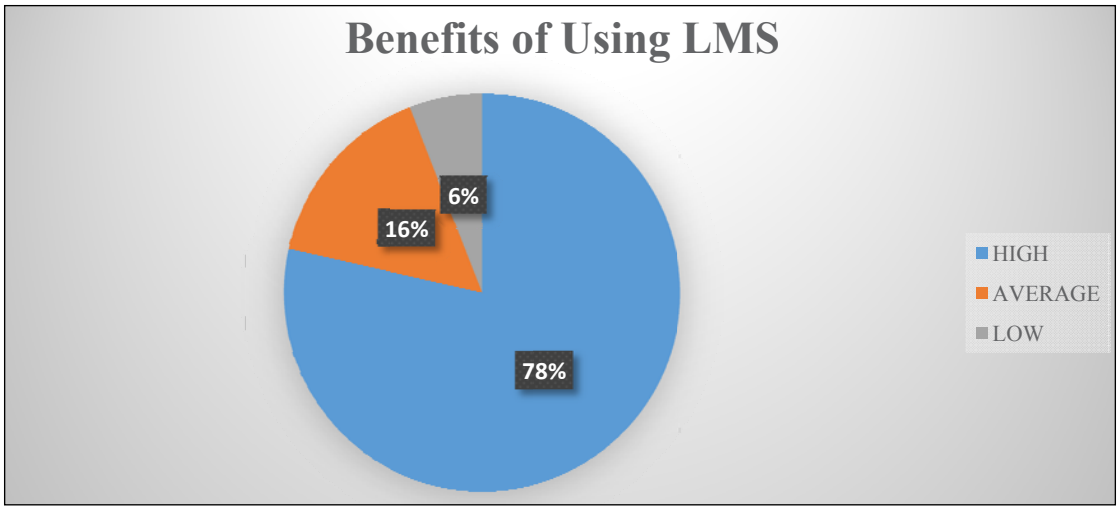

Fig. 8: Representation of Perceived Benefits of LMS Among B.Ed. Students at EFLU

RESULTS AND DISCUSSION

The analysis of B.Ed. students' perceptions and usage of the Learning Management System (LMS) at EFLU offer rich and detailed insights across eight key dimensions. Under **Awareness**, 88.89% of B.Ed. students reported being familiar with LMS, likely due to their increased exposure during the COVID-19 pandemic, institutional use of Moodle and Google Classroom, and prior experience with digital tools; however, the remaining 11.11% may come from the remote areas and less digitally literate or under-resourced backgrounds, lacking access to proper training or devices. Regarding Effectiveness, 74.07% believed LMS helped in creative tasks, and 81.48% felt it supported timely task completion. This suggests LMS promoted independent learning and time management, yet only 51.85% students felt it improved class participation, possibly due to limited interactive elements or passive engagement formats. In Understanding and Ease, 88.89% students showed interest in their digital learning more, and 70.37% found the platform understandable, which reflects student motivation and basic digital fluency; however, only 59.26% Students fully understood all LMS functions, likely due to insufficient user training or lack of structured guidance. The Barriers dimension shows that 40.74% of B.Ed. students faced major challenges with LMS during the pandemic, mainly due to a lack of infrastructure, poor internet access, or technical support; while 33.33% disagreed, suggesting they may have had better access or support systems in their place and from the university and the instructors. For System Usability, although 92.59% B.Ed. students

agreed that LMS contributed positively to educational goals due to its centralized, accessible features, because they may be more competence in digital use, only 59.26% found it easy to use, and 44.44% reported difficulties, indicating that the platforms may still lack intuitive design and consistent navigation because of they were facing difficulty at the time of using the technical system. Under Accessibility, 81.48% could conveniently access course materials, and 62.96% knew how to log in, indicating baseline digital access; however, 40.74% disagreed that LMS was accessible 24/7 or mobile-friendly, and only 33.33% received proper training, exposing infrastructural and institutional gaps. In the Interactivity dimension, 88.89% admired multimedia content, and 81.48% found discussion boards helpful, but only 29.63% rated LMS more engaging than other educational platforms like YouTube or Telegram, highlighting a lack of real-time collaboration and modern engagement tools. Finally, in the Benefits dimension, 96.30% appreciated flexible learning, 85.19% credited LMS with knowledge enhancement, and 81.48% believed it improved technical skills, showcasing its utility in promoting digital competence; however, only 48.15% viewed LMS as better than traditional classrooms, likely due to the absence of human interaction, spontaneous dialogue, and peer support. In light of the findings, the B.Ed. students at EFLU express a highly favorable perception of Learning Management Systems (LMS), appreciating their flexibility, accessibility, and valuable role in supporting both academic engagement and technical skill development. Their responses clearly reflect a strong willingness to adopt digital learning as an essential part of their teacher education journey. While they also identify areas needing attention, such as improved interactivity, structured training, and sustained institutional support, their outlook remains constructive and optimistic. This suggests significant potential for LMS to be successfully integrated into teacher education programs, provided the systems remain learner-centric and responsive to evolving educational needs.

CONCLUSION

The study of B.Ed. students at the English and Foreign Languages University (EFLU) reveal a largely positive and forward-looking perception of Learning Management Systems (LMS). Across eight key dimensions, i.e., Awareness, Effectiveness, Understanding and Ease of use, Barriers, System Usability, Accessibility, Interactivity, and Benefits, the findings indicate that LMS platforms are seen as valuable tools for enhancing academic engagement, supporting flexible and self-paced learning, and building digital competencies essential for future educators. A significant majority of students demonstrated familiarity with LMS and acknowledged its effectiveness in organizing course materials, managing tasks, and improving technical skills. The high appreciation for flexible access and multimedia resources further reinforces LMS's relevance in contemporary teacher education. At the same time, the data also points to critical areas that require attention. A portion of students continues to face challenges related to limited digital infrastructure, lack of training, usability issues, and

insufficient interactivity. These barriers suggest the need for targeted institutional support, inclusive training programs, and improvements in LMS design to ensure accessibility and engagement for all learners. While students are open and willing to adopt digital learning platforms, their experiences underscore that effective integration depends on a learner-centered approach, one that balances technology with pedagogical sensitivity.

In essence, the perceptions gathered through this study affirm the potential of LMS to be an integral component of teacher education. With thoughtful implementation, responsive design, and sustained support, LMS platforms can bridge digital gaps and empower pre-service teachers with the tools and confidence needed to thrive in 21st-century classrooms.

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