# Examining the Usefulness and Ease of Learning Management Systems: A Mixed Methods Study of Student Perspectives

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**Abstract**
Learning Management Systems (LMS) are fundamental to contemporary education, serving as platforms that help students organise and enhance their academic pursuits. This mixed methods research involved surveying 528 undergraduates to assess if LMS platforms align with their educational objectives and to explore the relationship between student-focused instructional strategies and LMS effectiveness. Results indicate that the majority of students view the LMS as an important asset for supporting their academic performance. These findings affirm the LMS's role in facilitating student achievement and provide actionable insights for universities seeking to implement effective digital solutions. Additionally, the outcomes offer valuable considerations for higher education institutions choosing suitable LMS platforms for their student populations and for designers developing comprehensive assessment features.
**Keywords:** Higher Education, Learning Management System, Student Perceptions

**Introduction**
A Learning Management System (LMS) is an integral digital tool utilised by numerous academic institutions to oversee the educational activities of their students. Typically presented as a web-based platform or dashboard, an LMS equips educators with advanced features to efficiently structure course material, manage assessments, automate administrative processes, document instructional sessions, and facilitate various aspects of the teaching and learning lifecycle (Edly, 2024; Hurix Digital, 2025; Zetterlind & Keller, n.d.). Contemporary scholarship, including works by Ahmed et al. (2022) and Turnbull et al. (2021) and recent analyses, characterises the LMS as an essential technological framework for the development, dissemination, supervision, and administration of a wide array of educational and training content (Riseapps, 2025; Edly, 2024; Zetterlind & Keller, n.d.). Within the

context of higher education, a robust and adaptive LMS is considered fundamental for effective governance and delivery of pedagogical, learning, and evaluative activities (Edly, 2024; Zetterlind & Keller, n.d.).

Effective learning is no longer confined to scheduled class periods; continuous engagement through collaborative tasks, peer-to-peer interactions, and group projects significantly enhances the educational process (Hurix Digital, 2025). An LMS streamlines the management and distribution of instructional resources, administration of assignments, displaying of academic results, facilitation of assessments, and fostering of communication among students and instructors (Edly, 2024; Zetterlind & Keller, n.d.). This digital environment supports learners in adopting more versatile and effective approaches to study, moving beyond traditional, single-mode instruction (Riseapps, 2025; Zetterlind & Keller, n.d.). The interactive capabilities of these systems such as multimedia integration, live discussions, and collaborative forums, enrich the learning experience (Edly, 2024; Hurix Digital, 2025). Furthermore, LMS platforms allow for comprehensive tracking of student engagement and facilitate analytical reporting on academic achievements (Edly, 2024). Provided they have internet access, students can utilise these tools from virtually anywhere (Edly, 2024; Riseapps, 2025).

A wide array of learning management systems is utilised in higher education, with examples including Sakai, Moodle, Blackboard, and Canvas (Zetterlind & Keller, n.d.). Additionally, modern digital platforms such as Google Classroom, EdX, Udemy, and Coursera are increasingly adopted to support sustainable and specialised forms of education (Edly, 2024; Zetterlind & Keller, n.d.). A LMS software can be generally categorised as either interactive or computer-managed systems; a critical attribute remains the perpetual availability and accessibility of educational resources for students (Hurix Digital, 2025; Edly, 2024). These platforms also optimise assessment processes by managing test creation, quiz administration, and grade entry (Zetterlind & Keller, n.d.; Riseapps, 2025).

Furthermore, LMS platforms enable instructors to directly link learning activities and evaluations to predefined course outcomes and appropriate Bloom's taxonomy levels. They also offer mechanisms for soliciting and analysing feedback from relevant stakeholders, which is vital for iterative curriculum and instructional improvements (Zetterlind & Keller, n.d.). Accordingly, this research seeks to investigate students' perspectives on the perceived usefulness and user-friendliness of LMS platforms. The main goal is to bridge the gap between the growing body of student-centred instructional research and the technological design of LMSs, finally assessing whether students feel these systems meet their academic needs.

**Literature Review**
When universities undertake the selection of a Learning Management System (LMS), they must consider the interests and requirements of a diverse group of stakeholders, including administrators, faculty, support personnel, and the entire student body. College and university populations typically comprise a broad spectrum of learners, for example, undergraduates, postgraduates, working professionals, and other trainees. Institutions may also utilise the LMS for compliance-related staff training or to support professional development activities for faculty. Two primary considerations often guide higher education

institutions in choosing an LMS: the system's ability to foster student engagement and the flexibility it provides for faculty to organise instructional content (Hurix Digital, 2025; Ifenthaler & OECD, 2022; Pappas, 2025).

In past research, student involvement in LMS selection has varied, with some studies engaging small student samples directly, while others rely on feedback regarding user satisfaction. In such models, students may participate in technology committees or provide input on specific system features and user experience. It is important for students to have opportunities to voice their preferences and select the digital learning resources they employ. Effective design of educational technologies like LMS requires inclusive consideration of all end users in the development process. However, research focusing on students' agency in LMS design remains limited, with most studies concentrating on satisfaction rather than on active participation in co-design. This study adds to a growing body of literature that regards students as collaborators in shaping the digital tools they use for learning (Ensaantech, 2025; Pukunui, 2025).

Moodle, an open-source LMS, enables faculty to build custom course websites, reflecting the typical acquisition and deployment process where institutions manage and sustain these systems. In Malaysia, both institution-wide and customised LMS solutions are implemented to support educational communication and organise all course materials. Universities often design institutional LMS platforms to facilitate online interaction between students and faculty, and to manage courses, subjects, assessments, and relevant learning content (Hurix Digital, 2025; Paradiso Solutions, 2025).

Modern LMS-supported education in universities is grounded in constructivist learning theory and growth mindset principles, emphasising student-centred and flexible approaches. Constructivist perspectives, integral to contemporary pedagogy, stress that learners construct understanding through experiential activities and systematic recall practices. The growth mindset concept, meanwhile, highlights the potential for learners to acquire new knowledge and overcome challenges rather than viewing intelligence as static. Accordingly, educational practices have shifted from traditional lecture-based models to learner-oriented methods rooted in cognitive science research (Ifenthaler & OECD, 2022; Pukunui, 2025).

Self-regulated learning is a process in which students independently manage their thoughts, motivations, and behaviours towards academic goals, with or without external support is another key area supported by LMS platforms. Through self-directed use of LMS resources, students can take control of their educational experience, accessing materials at their own pace and convenience. Peer interaction, widely recognised as vital to successful learning, is facilitated through synchronous and asynchronous LMS features that enable collaborative reflection and discussion. While most instructors express satisfaction with their institution's LMS, studies have found that many do not fully utilise available features, limiting the potential impact on their teaching (Pappas, 2025; Hurix Digital, 2025).

Recent scholarly work has examined the influence of LMS use on educational outcomes. Frequent use of LMS platforms has been associated with higher student engagement and improved academic performance. For instance, research by Avci and Ergun (2019), as well as

Jayasekaran et al. (2023), demonstrated a positive link between LMS usage frequency and both student engagement and achievement. The underlying premise is that broader access to course materials positively impacts academic success (Ensaantech, 2025; Hurix Digital, 2025).

Further investigation reveals that mastery of the LMS and instructional modelling by knowledgeable faculty both contribute to student outcomes. Motivation levels also appear to be tied to how extensively students use the platform. These findings suggest the learner-instructor dynamic, facilitated through the LMS, extends beyond interpersonal connections and impacts academic achievement both directly and indirectly (Paradiso Solutions, 2025; Ifenthaler & OECD, 2022).

To maximise effectiveness, an LMS should provide essential features that students find most useful in their academic pursuits. Tailoring LMS functions to align with student needs and preferences enhances process comprehensiveness. Ideally, the relationship between students and instructors while still hierarchical should be collaborative, allowing learners to help define how resources are used and interpreted. This research aims to evaluate whether students perceive the LMS as effective in meeting their academic objectives and to bridge the gap between findings on student-focused instructional design and the features of current LMS platforms (Hurix Digital, 2025; Ifenthaler & OECD, 2022).

However, research has found that current LMS designs do not always meet the varied needs of broader user populations. For example, Almaiah and Al-Khasawneh (2020) report that some students and faculty lack the technological skills assumed by the LMS interface. Other studies have highlighted a mismatch between platform optimization for computers and the reality that many students access LMS tools through smartphones. The COVID-19 pandemic prompted further evaluation of factors affecting student perceptions of LMS use (Ifenthaler & OECD, 2022; Pappas, 2025).

Recent studies also indicate students' preferences for interactive and technologically enhanced learning activities, such as live audience response systems. Notably, while students expressed a desire for more adaptive pedagogic strategies, they frequently referred to external technologies rather than built-in LMS components. Experts have emphasised that excellence in online education depends primarily on academic strategy and instructional design, rather than on information technology support alone (OECD, 2022; Hurix Digital, 2025).

In summary, the literature underlines that the primary drivers of high-quality online learning are academic planning and thoughtfully designed instruction and not just technical infrastructures. Students, for their part, express the need for active engagement and individually tailored, adaptive learning environments within LMS platforms. Thus, this research specifically sought to capture undergraduates' views regarding the design of their institutional LMS, examining whether the system's structure facilitated effective learning and supported student-centered pedagogical approaches.

## Methodology

This study utilised a mixed methods approach to explore undergraduate students' perceptions regarding the utility and usability of a Learning Management System (LMS). The research aimed to address the disconnect between the expanding scholarship on student-focused instructional methods and the current designs of LMS platforms, specifically investigating whether students believe that the LMS supports their educational objectives (Ensaantech, 2025; Hurix Digital, 2025).

A total of 528 undergraduate participants and spanning all three academic years, were recruited using random sampling from across the university. This sampling strategy enhanced the representativeness of the study, ensuring a comprehensive cross-section of undergraduates at varying stages in their academic journey, thus supporting the study's reliability and external validity. These students actively utilised the LMS within their coursework (Ifenthaler & OECD, 2022).

Data for the quantitative phase were collected via Google Forms, a widely accessible online survey tool. The instrument comprised three sections: Section I: Demographic information; Section II Closed-ended Likert-type items, requesting students to rate statements about their LMS usage on a 4-point scale. The Likert scale remains a widely recognised method for measuring attitudes and attributes in educational and social sciences (Sharma, 2021). The third section of the survey presented four open-ended items that encouraged participants to provide nuanced qualitative responses, describing their experiences, difficulties, and recommendations regarding the LMS. This qualitative component enabled richer insight through thematic analysis, complementing the numerical survey results (Sharma, 2021; Ensaantech, 2025).

Within the survey, students were invited to suggest alternative ways of navigating the LMS and evaluate the significance of various platform features using a weighted approach. Before beginning the questionnaire, each participant reviewed and provided informed consent, being fully briefed on the purpose and privacy practices related to the research.

The survey method was selected to efficiently capture a wide range of attitudes, behaviours, and intentions among the student population. As an established tool in social science inquiry, the survey enables the systematic collection and analysis of perceptions and trends (Hurix Digital, 2025; Ifenthaler & OECD, 2022). The questionnaire's development was informed by a literature review focused on multimodal language education, ensuring alignment with current trends and research priorities. To strengthen content validity, draft versions of the survey were evaluated by language education professionals, who provided feedback leading to revisions (Pappas, 2025; Ifenthaler & OECD, 2022).

The survey included 16 closed-ended items using a Likert scale where respondents could indicate their degree of agreement or satisfaction (Excellent, Satisfactory, Needs Improvement, Unsatisfactory). Access to the survey was provided via a distributed Google Form link. Completion was estimated to require approximately 20 minutes, and respondents were given the rights to maintain autonomy to skip any question as they wished (Sharma, 2021; Hurix Digital, 2025). Participants reflected on their use of the LMS and the extent to

which it enabled meaningful engagement with course activities (Ensaantech, 2025; Pukunui, 2025).

**Results And Discussion**
This section of the research report presents the findings, addressing three primary research questions concerning student attitudes and opinions on LMS design. Data were mainly gathered through this survey method (Abdulai & Korsah, 2024; Setiasih et al., 2024; Ra & Kim, 2021). A concise summary and evaluation of information gathered from LMS participants is provided, with particular focus on their perspectives concerning the system's user-friendliness and overall effectiveness.

Question 1 collected demographic data by gender: among the 528 respondents, 226 identified as female and 302 as male. The insights obtained are expected to inform university administrative decisions on the selection and implementation of digital learning platforms to improve service quality and educational strategy. LMS users received a 20-item survey via a Google Form link.

For Question 2 regarding the year of study, the given statistics indicate that the majority of participants are evenly distributed, with 50.8% each in the First, Second, and Third years. Responses to Question 3 revealed that the majority of students identified their LMS proficiency as either Intermediate (48.9%) or Advanced (47.5%). This suggests that most participants are not only familiar with the LMS but are also capable of using its features effectively. Only a small percentage fell outside these categories, indicating widespread competence and familiarity among those surveyed.

Question 4 shows that nearly all students (99.8%) reported using the LMS in their learning. This extremely high percentage demonstrates widespread adoption and reliance on the LMS among participants, confirming its central role in their educational experience.

The responses to Question 5 demonstrate that students made extensive use of the LMS for a range of key academic activities. Most participants reported using it to upload coursework (97.9%), complete tests (97.7%), access course materials (97.3%), and track their attendance (93.4%). Additionally, significant numbers watched videos (86.4%), read announcements (70.5%), gave feedback (70.6%), completed surveys (65.2%), accessed to books/resources (60.2%), and participated in forums (59.1%). Viewing grades or marks (44.5%) is the least utilised feature. These results show a high level of engagement with numerous LMS functionalities, emphasizing its central role in supporting student learning.

In Question 6, most students expressed positive satisfaction with the LMS's tools. Specifically, 48.3% reported being satisfied and 41.1% were very satisfied, representing a strong majority who appreciate the available features and their effectiveness in supporting learning. This highlights the overall success of the LMS in meeting user needs.

Results from Question 7 show that 91.5% of the students perceived the LMS as easy to use, frequently crediting clear instructions and helpful video tutorials for this positive experience. Some students appreciated the LMS's intuitive interface and its capacity to combine with other educational tools or social media platforms (51.5%). Additionally, 53.2% believed it

enhances communication and involvement in the classroom, and 50.8% find it customisable. However, only 38.6% consider the LMS fun to use. Overall, students hold a favourable view of the LMS's features and capabilities, especially regarding usability and classroom engagement.

The following Question 8 demonstrates that most students found the system's stability to be satisfactory (51.9%), with a smaller proportion rating it as excellent (27.7%). About one-fifth (20.3%) believe it needs improvement. Overall, this feedback suggests general satisfaction with the LMS's reliability, though some users note room for further enhancement in system performance.

The next Question 9 reveals that students generally trust the LMS tool to reliably perform their academic tasks. A majority reported satisfaction with its reliability (56.3%), while 32% rated it as excellent. Only 11.6% felt that reliability requires improvement. This overall positive perception reinforces confidence in the system's ability to support learning activities. Question 10 shows that most students rated the tool's speed as satisfactory (49.4%), with fewer respondents considering it excellent (23.3%) or in need of improvement (26.5%). This indicates that, while some believe there is room for faster performance, the majority are content with the LMS's current speed when carrying out their tasks.

The next Question 11 shows that student feedback about LMS usability is overwhelmingly positive. Most students reported being satisfied (53.4%) or rated the tool as excellent (39.4%), while only a small portion (7.2%) believe usability needs improvement. This confirms that the majority find the LMS easy to use and are very happy with its interface and functionality.

Question 12 shows that most students perceived the LMS's user interface positively, with 51.7% rating it as satisfactory and 36.7% as excellent. Only a small percentage (11.4%) feel it needs improvement. This feedback suggests that the majority of users find the LMS appearance acceptable and visually appealing for their learning needs.

The next Question 13 shows that most students found course navigation in the LMS to be satisfactory (51.9%) or excellent (36.6%), while only a small proportion (11.6%) feel it needs improvement. This data indicates that students generally do not encounter difficulty when locating or accessing course materials, reflecting effective navigation features in the platform. The findings from Question 14 indicate that a significant proportion of students reported the LMS was accessible and efficient for completing various coursework tasks, including assessments, assignments, and participation in discussion forums.

Specifically, 48.7% selected Satisfactory and 41.3% chose Excellent, while only 10% felt that access and completion of coursework need improvement. This shows strong user confidence in the platform's accessibility and functionality.

Additionally, Question 15 indicates that most students found it easy to access and use communication tools including the syllabus, announcements, calendar, and personal notifications within the LMS. The majority selected Satisfactory (54%), with smaller percentages rating these tools as Excellent (32.6%) or needing improvement (12.7%). This

demonstrates broad agreement on the user-friendliness and ease of use of LMS communication features.

Question 16 demonstrates that a large majority of students are satisfied with the LMS's functionality: 57.6% reported being satisfied and 34.3% rated it as excellent. Only a small proportion (8.1%) indicated that improvement is needed. These results confirm that students are generally happy with the LMS and believe it effectively supports their learning requirements.

The overall findings of the quantitative study reveal that most students believe the LMS's design effectively supports their learning needs. Students from varying learning levels and degree programmes share similar requirements regarding LMS features and navigation strategies. The LMS plays a crucial role in creating a meaningful learning experience and consistently meets students' demands. These insights suggest that colleges and universities can use these findings to inform their choices and support for LMS systems. To foster more efficient and student-centred environments, higher education institutions are encouraged to provide additional structured support and professional development for instructors who serve as direct facilitators of learning. The next section presents the four open-ended questions findings.

Question 17 presented a summarised, organised list of the key features and feedback regarding the ease of use, access, navigation, and functionality related to notes, assignments, and study materials.

**(i) Ease of Use and Accessibility**
- Easy to use, navigate, and access.
- User-friendly interface.
- Simple, neat, and clean layout.
- Fast loading with no lag.
- Mobile and web-friendly.
- Auto-login feature.
- Easy login and access to class notes.
- Allows easy submission of assignments with reminders.
- Can tick off completed tasks and track progress.

**(ii) Notes and Study Materials**
- Easy to download notes and lecture materials, often organised by weeks.
- Notes arranged systematically and easy to find.
- Ability to download all documents and materials in one place.
- Materials available in various formats including documents and videos.
- Archive notes and notes by week.

**(iii) Assignments and Submission**
- Easy to submit assignments with confirmation on submission status.
- Dashboard and calendar reminders for assignment deadlines, quizzes, and tests.
- Ability to monitor assignment due dates and progress.
- Assignment submission interface is straightforward and well-organised.

**(iv) Interactive Features and Support**
- Attendance can be filled easily online.

- Quizzes and forums integrated into the platform.
- Dashboard provides shortcuts, reminders, and event lists.
- Ability to contact lecturers and participate in open forums.
- Notifications and announcements keep students updated.

**(v) Additional Functionalities**

- Upload multiple files.
- Ability to customise page and interface layout.
- Reliable with rare crashes.
- Progress completion indicators available.
- Systematic arrangement of subjects and weeks.
- Combination of study materials, tests, and assignments on one platform.
- Option to sign attendance by self.

These themes demonstrate how students perceived LMS platforms as facilitating effective, organised, and accessible learning environments, which strongly supports their usability and usefulness in academic settings

A summary of Question 18: common issues and drawbacks frequently reported by students using Learning Management Systems (LMS), organised by theme.

- Slow Loading and Lag: Frequent complaints about slow page loading, lagging, and hanging, especially during peak usage times, exams, or when many students access the site at once.
- Recurrent Logins: Users must log in repeatedly or are asked to re-authenticate, even after already logging in.
- System Interruptions and Crashes: The platform sometimes becomes unresponsive, crashes, or experiences downtime, most problematic during quizzes, exams, or assignment submissions.
- File Upload Limitations: Submissions are restricted by a low file size limit (such as 10MB or 50MB), making it difficult to upload large assignments.
- Lack of Notifications: The system fails to provide adequate alerts for deadlines, attendance, or new announcements, causing students to miss important updates.
- Unreliable Dashboard and Task Updates: After submitting assignments, reminders or due dates may not disappear or update correctly, resulting in confusion about task completion.
- Cluttered/Confusing Interface: The interface is described as crowded, complex, or not customisable, making navigation and finding materials or documents harder for some users.
- Separation of Course Platforms: Subjects are sometimes split across different platforms (for example: language, engineering), causing inconvenience and confusion.
- Mobile Device Incompatibility: The mobile version occasionally lacks features or displays differently, making assignment submission or material access more challenging compared to desktop.
- No Auto-Save or Submission Feedback: Lack of clear indicators for successful submissions or auto-view after uploading assignments.
- System Does Not Scale Well: Performance and stability decline dramatically under heavy traffic or during critical periods (like examinations).
- Repetitive or Unnecessary Steps: Too many clicks or confirmation buttons required for basic actions, and frequent mandatory password changes.

- Limited Customisation: Users cannot rearrange or personalise dashboard elements to suit their preferences.
- Difficulty Locating Materials: Difficulty in searching or finding subject files, especially when arrangements vary by lecturer or there are too many folders.

These recurring challenges indicate areas for improvement in system reliability, user experience design, and integration across platforms in order to enhance student satisfaction and learning outcomes.

The next Question 19 presented the common themes from the responses about LMS cover usability, system features, areas for improvement, and user experience. Many users mention both strengths and challenges, plus recurring suggestions and questions.

**(i) Usability and Accessibility**
- Many users find the tool easy to use and suitable as a student platform, highlighting its dashboard, assignment submission, carry mark checking, and basic navigation.
- Issues such as lag, system crashes during peak times or examinations, and a desire for a smoother, more stable interface are recurring concerns.
- Several users note unfamiliarity with certain features like forums or advanced tools, often because lecturers do not use them.

**(ii) System Features Requested or Praised**
- Frequent mentions include notifications (especially for deadlines, announcements, and pending work), calendar sync with personal devices, and carrying marks visibility.
- Users want easier assignment and quiz management, features like customisable tabs or dashboards, and an improved attendance system.
- Some ask for central access to course resources, notes, eBooks, and past year questions. Many appreciate seeing grades and completed work.

**(iii) Collaboration, Interaction, and Communication**
- Users would like more interactivity with lecturers and peers, such as forums or social-media-like features, plus direct messaging or group work tools.
- Personalised or more prominent notifications for attendance, submissions, and quizzes are desired for better communication.

**(iv) Enhancement and Customization**
- Requests include customising the interface (colours, backgrounds), making the system more user-friendly and modern, and faster loading times.
- Suggestions appear for integration with Microsoft Office, search functions, and in-app features for smartphones (including apps for notifications).

**(v) Resources and Learning Support**
- Users call for more centralised access to lecture notes, video materials, assignment references, and resource books.
- Some ask for guidelines, tutorials, or more help for beginners on how to use all features efficiently.

**(vi) Miscellaneous and General Sentiment**
- Some responses mention no need for change or learning, expressing satisfaction.
- Others express uncertainty or are unaware of existing features.

In summary, students value the tool core functionality but desire more streamlined, customisable, and interactive experiences, with particular emphasis on notifications, resource access, and system stability.

The last Question 20 continues to highlight a few main themes regarding the LMS platform:

**(i) System Performance and Stability**
- Quicker loading times, preventing lag, eliminating system crashes, and handling high user traffic, especially during examinations or quiz periods, remain the most commonly requested improvements.
- Suggestions also include increasing server capacity, ensuring stable service, and improving page-to-page navigation speed.

**(ii) Notifications and Reminders**
- Many responses request more reliable, visible, and customizable notification systems, including pop-up and sound alerts for deadlines, announcements, submissions, and attendance reminders, as well as integration with email or device calendars.
- Users want notifications to be available through mobile apps and even as desktop pop-ups.

**(iii) User Interface and Experience**
- Requests include more attractive and modern visuals (themes, colours, wallpapers, and dark mode), clearer layouts, larger file upload limits, and easier navigation between weeks and subjects.
- Students would like the ability to customise their dashboards and interfaces and make the site more engaging and user-friendly.

**(iv) Mobile App and Accessibility**
- There is strong demand for a dedicated mobile app, easier access across devices, and improved mobile responsiveness. Many users believe an app would help them avoid missing notifications and assignments.

**(v) Communication and Interactivity**
- Users mentioned wanting direct messaging or chat functions with lecturers, a more social-media-like environment, and integrated video conferencing tools.
- There are suggestions to unify or consolidate tabs, classes, and subject lists for easier access, and to enable more functions in one platform.

**(vi) Resource Management and Submission**
- Students want easier ways to submit multiple or larger files, clearer status indicators for completed work, and streamlined assignment management.
- Centralised access to resources (notes, lecture materials, e-library) is seen as valuable.

**(vii) Other Suggestions**
- Some students suggest motivational and gamified elements, such as reward points or interactive quizzes and games.
- There are mentions of automatic login, combining subject sections, cloud storage, and auto-saving responses to prevent data loss.

Overall, the most consistent request is for improved speed and technical reliability, closely followed by robust, real-time notifications, mobile accessibility, and a more customisable, visually engaging learning environment.

**Conclusion**

Learning management systems (LMSs) are becoming increasingly central in academic settings,

particularly across Malaysian universities where multiple LMSs are in use for academic activities. Properly implemented, LMSs can transform formal education by making learning more student-centred, optimising course delivery, and fostering creativity and innovation. Interactive LMS-based learning cultivates shared academic experiences and encourages creative collaboration within the academic community.

To promote sustainable and impactful participation in higher education, institutions should consider optimising investments in LMS infrastructure. Continued research funding is important to expand the evidence base and support remote learning as a viable, sustainable educational model. While this study provides valuable statistical insights, its limitations include being confined to a single university and not exploring educators' perspectives. Future inquiries should broaden participant diversity and investigate additional factors, including instructor attitudes and motivations, to further enhance the understanding and effectiveness of LMS adoption in higher education settings.

This research makes a significant theoretical and contextual contribution by bridging the gap between student-focused instructional design principles and the technological features of LMS. While existing literature has extensively discussed the pedagogical frameworks such as constructivism and growth mindset in higher education, this study uniquely integrates these educational theories with empirical assessments of LMS usability and student perceptions. Contextually, the findings provide actionable insights for Malaysian universities and similar higher education institutions by highlighting how LMS platforms can be optimized to better align with diverse student needs, improve engagement, and support self-regulated learning. Beyond its immediate geographic relevance, this research enriches the broader discourse on digital education by emphasizing students as active collaborators rather than passive users in LMS design and selection. Consequently, it informs future development of LMS platforms that are not only technologically robust but also pedagogically sound, adaptive, and inclusive, thereby advancing both theory and practice in educational technology.

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