

PERSPECTIVE

The reality of e-Learning: Success and failure of learning management system

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Abstract: A learning management system (LMS) is a digital learning platform for developing, delivering, and managing courses, learning resources, activities, and assessments (to name but a few). Traditional classroom-based, online, blended, and distance learning are all possible learning methods that could be executed in LMSs. Learning management systems and associated tools have brought significant benefits to higher education institutions worldwide, including improved content deliverability, accessibility, and retrievability. This is also valid in the case of Kathmandu University School of Education (KUSOED), Nepal. In 2011, KUSOED launched LMS and continued online and blended learning practices. The LMS follows a social constructivist approach to education, allowing educational stakeholders (parents, students, leaders, facilitators) to engage in learning activities to scaffold the learning experiences. However, the perception of LMS as only a management system for storing data limits the implications of fostering learning through a technology-integrated education model. This article aims to discuss the success and failure aspects of LMS in the context of the KUSOED. The discussion will cover various perspectives on LMS as an emerging learning technology and draw conclusions based on our experiences at KUSOED. For the success aspects of LMS, we discovered four factors: sign-in, resources and learning management, content management, and integration. Nevertheless, for the failure aspects, we found content creation and sharing, communicative features, course structures, learning engagement, and assessment. Overall, this research has implications for educational institutions, instructors, developers, and system providers. These stakeholders can make more informed decisions about implementing and using these systems to their fullest potential in learning.

Keywords: learning management system, online learning, blended learning, distance learning, success and failure

1 Introduction

LMSs are now used more frequently by educational institutions worldwide due to the rising demand for e-learning technologies in recent years (Dahal et al., 2020). LMS is viewed to enhance the management of various educational tasks and as a platform for teaching students based on the "anywhere, anytime" principle (Eom & Ashill, 2018). Additionally, LMS features support improved collaboration and communication between teachers and learners and between teachers and teachers (Dahal et al., 2022a) for any form of online presence. However, based on our experiences, LMS has some limitations in design, pedagogy, usability, reliability, and interactivity, as well as the potential to curtail social and informal learning opportunities. Implementing these online environments has also been significantly hampered by student participation in LMS activities (Dahal, 2019).

Moreover, for students to engage, contribute to the content and learning, and fully engage in learning activities, they must also be given high levels of responsibility. We experienced different versions of the LMSs, and its design was developed based on specific learning principles. Even the design of many LMSs restricts the learner's role to receive information rather than creating and sharing it, which explains why interactive features and tools related to administration are used much more frequently than learner-focused features (Alhazmi et al., 2021; Papadakis et al., 2023a). Improvements in pedagogy and technology are required to address these problems, and LMS should include better tools for creating rich learner-centric experiences, intuitive user experiences, etc. The ultimate purpose of LMS should be to create rich learning experiences for students to construct knowledge and skills. Features such as personalized learning platforms, self-assessment systems (Quiz, Q&A, Chatbot, etc.), problem-solving sections, creation platforms, AI-integrated systems, etc., are the requisite and updated features that make learning

more authentic and provide a constructivist experience. The usability of these LMS systems in education also depends upon companies or the team involved in the development process, content creation, UI/UX design, industry and educational context research, etc (Papadakis et al., 2023b). Many companies and developers develop and deploy the platforms without researching or having the depth of knowledge and skills of how these platforms work well in educational institutions. Here, we claim that there must be a team of people from information technology backgrounds or having excellent technical skills and people from educational sectors. The partnership of these people in building LMS systems can maximize the capabilities of these systems to enhance social/constructivist learning experiences. Here, technology integration and TPACK methodology of teaching can take place.

Next, LMS does a great job of supporting learning administration but has a few limitations regarding the knowledge and skills of management and faculty members using it. This article aims to pinpoint the LMS success and failure factors and investigate this problem from a practical perspective based on our 10-plus years of experience integrating LMS in teaching and learning for online and distance learning in higher education at KUSOED. The ability of LMS to innovate teaching and enhance student learning needs to be better understood by educational institutions (Dahal et al., 2022b). We are also in line with a critical assessment of current LMS practices that should be facilitated by knowledge of the success and failure factors of LMSs, which will also encourage further innovative development and more successful implementation (Papadakis et al., 2023c). We have experienced that LMS systems such as MOODLE, Google Classrooms, etc., are great but limited to various features in the present context of technology development. However, they are upgrading the features to maximize students' learning experiences by enabling and adding tools for assessment, engagement, discussions, resource materials, etc. We experienced that the accessibility of multiple options can enhance and hinder students' learning depending on how facilitators and institutions use it. For instance, at KUSOED, we strive to utilize the MOODLE LMS system to its full potential. However, the limited use of available tools within the system and a need for more proficiency among facilitators in handling these tools pose a challenge. Furthermore, the absence of research by facilitators into the various features of the LMS restricts its use to merely storing resources, conducting classes, and assessing students from the teachers' perspective.

2 Methodology

Based on our 10+ years experiences of integrating LMS in teaching and learning at KUSOED for online and distance settings, this study aims to identify the factors to the success and failure of the learning management system (Alhazmi et al., 2021; Almaiah et al., 2020; Atim et al., 2021). In this article, we tried to answer the research question: What factors affect the success and failure of the LMS in educational institutions? Likewise, the first and second authors thoroughly re/researched for articles (Alhazmi et al., 2021; Pour et al., 2022; Jaoua et al., 2022; McPherson & Nunesm, 2008) that researched LMS, its potential, and learners' experiences with it. With the help of thematic analysis (Lochmiller, 2021), we found common themes that emerged from the chosen articles (Alhazmi et al., 2021; Pour et al., 2022; Jaoua et al., 2022; McPherson & Nunesm, 2008) by using different keywords related to success and failure factors in the LMS aligned with our own experiences (Alhazmi et al., 2021; Pour et al., 2022; Jaoua et al., 2022; McPherson & Nunesm, 2008) in ERIC database in year 2022. Based on factors including content, communication, pedagogy, assessment, and learning outcomes, we divided the data into themes of success and failure. Since the release of the most well-known LMS, Moodle, in 2002, peer-reviewed articles, reflective articles, and related reports in the literature were searched. This research aims to offer information that will aid educational institutions in better evaluating and planning the implementation of LMS and in spotting opportunities for teaching and learning innovation. Despite the common elements and resources in different LMSs, evidence suggests these systems may need to meet expectations to energize student learning and engagement. Table 1 shows the methodological roadmap of the article.

Subscribing thematic analysis (Dahal, 2023), this research supported educational institutions in better evaluating and planning the implementation of LMS and in spotting opportunities for teaching and learning innovation.

3 Themes emerged

The following themes emerged based on the authors' experiences and literature. So, the themes were divided into three primary sections, focusing on commercial and non-commercial

Table 1 Methodological roadmap

Method	Description
Experiences	The authors have over ten years of experience integrating Learning Management Systems (LMS) in teaching and learning at KUSOED for online and distance settings.
Literature Review	The authors searched for articles researching LMS, its potential, and learners' experiences. The articles were chosen based on different keywords related to success and failure factors in the LMS aligned with their own experiences.
Thematic Analysis	The authors used thematic analysis to identify common themes from the chosen articles and authors' experiences.
Database Search	The authors searched the ERIC database in the year 2022.
Data Categorization	The authors divided the data into themes of success and failure, including content, communication, pedagogy, assessment, and learning outcomes.

LMS features and tools and LMS's success and failure aspects. These sections were identified based on pertinent discussions in literature and authors' experiences based on the guiding research question—what factors affect the success and failure of the LMS in educational institutions?

4 LMS tools and features

The tools and features of various open-source and commercial LMSs may vary marginally, but most essential features are standardized. An LMS requires tools for students, educators, and administrators, categorized as content management, learning management, and assessment management. The features of a learning management system can be broken down into categories such as presenting content knowledge, course management data, information search, and discussion facilitation. Various LMS features and tools are available across various systems, with many being comparable between open-source and proprietary implementations. Standard LMS capabilities include the management of events, documents, forums, learning paths, and assessments. In addition to these features and functions, others are regularly updated to simplify teacher administration and improve student learning environments. An LMS contains tools and features for course management, user management, content management tools, communication and collaboration tools and features, assessment and feedback tools and features, gamification and personalization tools and features, certification and compliance tools and features, *etc.*

4.1 LMS success factors

The following discussions explore the factors that make an LMS successful based on the literature and our experience. These factors are sign-in, learning and resource management, content management, and integration. Each factor is explained in more detail below.

4.1.1 Sign-in

LMSs provide a centralized location for all academic resources and activities, making it easier for instructors and students to access and manage them. This eliminates the need for multiple logins and interfaces, saving time and increasing convenience. Additionally, LMSs offer a secure environment for communication and data sharing, ensuring that sensitive information is protected. Integrating various academic features into one platform creates a more streamlined and efficient learning experience for everyone involved.

4.1.2 Learning and resource management

Instructors can control course content, syllabus, presentations, and announcements. They can also make groups, assign roles, track student activities, and organize results. Moreover, the LMS makes updating course materials such as notes, activities, question banks, and assignments easy. This makes it easier for new instructors to take over courses. New instructors can control the content, assign students, administer quizzes and exams, and monitor student progress on activities and assignments if they have the proper access permissions. Depending upon the nature of LMS, most of the LMS provide platforms to store resources that are applicable and accessible to students. The seamless integration of these tools helps instructors categorize resources in different folders and sections, keep links in the additional resources section, document forums, *etc.* The Cloud support in LMS is beneficial for instructors and students to access and organize data, which saves time and money when buying hardware systems to store data. For example, Google Classroom supports the Google Drive cloud system, where the instructors can manage resources and link them to the classroom. In Google Drive, various learning activities can be

done, such as assignments in Google Docs, presentation preparation in Google Slides, surveys and assessments in Google Forms, portfolio management and sharing in Google Sites, note-taking and management in Google Keep, communication through Google Gmail, *etc.* These platforms' sharing and real-time feedback mechanisms are great for creating, managing, and deploying various learning resources to enhance learning.

4.1.3 Content management

Learning management systems provide a centralized platform for instructors to upload and manage course materials such as syllabi, assignments, and readings. Students can access these materials through the LMS, regardless of their location or time of day. LMS features allow students to download these resources in various formats, such as PDF, Word, or PowerPoint, which suit their learning preferences. LMSs have revolutionized how educational content and materials are managed, shared, and delivered by offering instructors and students interactive and flexible features or platforms. These make it easier for instructors to upload and download content or course materials and allow the presentation of materials and content in various formats and ways to support students' diverse learning styles. Content management is convenient in such platforms, and interactive features help students access the course materials at a distance. For example, MOODLE is an open-source LMS and provides customizable features and platforms to manage resources in different folders by adding labels and colours, glossaries, databases, files, books, lessons, assignments, URLs, and forum discussions. These help instructors organize content per the needs of his/her classroom and the objectives of the course or lesson. Moreover, students can easily access them according to their needs and interests.

4.1.4 Integration

Integration with other information systems is one of the advantages of using a learning management system. For example, LMS can be integrated with student information systems (SIS) to automatically update student records and grades or with library systems to provide easy access to course readings and other resources. This integration can streamline administrative tasks and make it easier for students to manage their academic responsibilities.

4.1.5 Effective communication tools

Learning engagement is directly linked and proportional to the quality and quantity of communication between students and teachers or students and machines (LMS platforms). In the present context, the interaction between humans and machines (e.g., chatbots) is also considered a medium to share ideas and enhance learning. So, LMS should be compatible with and have the tools for effective communication. For example, the MOODLE platform has features such as Google Meet, Forum Discussions, and other collaborative spaces. These features support students in sharing their thoughts and ideas, asking questions for doubt clearance and learning enhancement, putting critical observation to deny or support the discussions, and so on. Video conferencing and meetings effectively provide real-time online communication, feedback, and assessment. The chatrooms, message boards, email functions, ChatBot, and forum discussions facilitate interactions and enhance collaboration and a sense of community.

4.1.6 Assessment and feedback tools

One of the significant differences between LMS or technology-integrated learning and face-to-face learning is the ability to use various assessment tools for assessing students' diverse learning performance. LMS can integrate various methods of assessing students that guide them for learning improvement. LMS can consist of comprehensive feedback and assessment mechanisms and tools that allow for creating, administering, and grading various tasks and assignments. Providing timely and constructive feedback can be possible due to technology, which is vital for educational progress. Based on our experience with MOODLE and Google Classroom LMSs, instructors can create various assignments and tasks for students and provide feedback to students in ways (e.g., annotation, text-based, image-based, grades, *etc.*). The range of assessment functionality can help improve students' and teachers' teaching and learning practices. Quizzes and tests, peer assessment tools, assignment creation and submission, Rubrics, and Scoring are some functionalities and tools in LMS that make learning successful and constructive. These also support teachers in making better changes in methods and styles for improvement.

4.2 LMS failure factors

Although Learning Management Systems (LMS) are widely used and popular, recent studies and experiences have shown that they could be more effective at promoting effective and

constructive learning. The criticism is that LMSs need to meet the expectations of achieving learning goals, and some issues hinder the authentic learning experiences of students. Instead, they are more focused on managing the administrative aspects of education. The structure of LMS is centred around the teacher, which limits student interaction and engagement. Several factors have been identified as contributing to this problem, including issues with content creation and sharing, limited communicative features, a teacher-centred approach, disengaged learners, and inflexible assessment features.

4.2.1 Content creation and sharing

LMS's content creation and sharing features could be more flexible, with limited roles for teachers and students. In some LMSs, teachers can only upload course materials, while students can only download them. Although additional information can be added through direct input or hyperlinks to external resources, the primary purpose of LMS is to store electronic documents. LMS should be more dynamic, allowing teachers to create interactive content that aligns with different levels of learning outcomes. This can be done using other interactive APIs and database systems with great content and resource materials. Third-party applications and add-ons can be beneficial in mitigating the challenges of content creation and sharing. For example, LMS can use ChatGPT's API to create content and automate LMS tasks. Moreover, students should be more involved in the course's development and provide feedback on course content and activities. To enrich the content and encourage students to contribute more knowledge, wikis and blogs can be modelled with the supervision of instructors.

4.2.2 Communicative feature design

Research and experiences suggest that LMS's collaborative and interactive features could be utilized more effectively due to the centralized structure of LMS, which limits the roles of students and decreases interactivity. To address this issue, LMS should be designed to provide better communication tools among students, such as chat and group tools that support text, audio, and video. By doing so, students are more likely to engage with the LMS, which can help shift the LMS usage model to be more student-centered. This could also lead to increased acceptance and engagement with learning management systems.

4.2.3 Teacher-centered structure

The advent of LMSs allows institutions to adopt more learner-centered approaches to pedagogy. However, there is limited evidence that LMSs alone enhance pedagogy. It is crucial to note that the LMSs should be seen as tools to enhance pedagogical practices rather than replace them. Transferring traditional teaching and learning processes to an LMS environment does not necessarily improve learning outcomes. Faculty members should be trained to incorporate new pedagogical strategies that leverage the interactivity and collaboration features of LMSs. By fostering active learning and encouraging students to interact with one another, LMSs have the potential to create more engaging and dynamic learning experiences. This shift toward a learner-centred approach is a positive step in improving pedagogical practices, and LMSs can play a role in enabling this transition. However, it is ultimately up to faculty members to design and implement effective pedagogical practices that leverage the capabilities of LMSs to enhance student learning.

4.2.4 Learner disengagement

Student engagement is a crucial factor in measuring the effectiveness of any learning environment, including LMS. While LMS can potentially increase student participation and engagement, the current design and implementation of these systems may only sometimes promote student motivation for learning. One challenge associated with LMS is the need for more interactivity and engagement in the learning process. Moreover, instructors' limited use of LMS may also hinder student engagement, as students are less likely to engage with a system not actively used by their instructors. To promote student motivation and engagement, LMS should be designed to facilitate active learning, providing opportunities for students to collaborate and engage in interactive activities, feedback, and assessment. Instructors should also be trained in using LMS effectively and encouraged to integrate it into their teaching practices. Additionally, LMS can be supplemented with other educational technologies that promote engagement and motivation, such as gamification and social learning platforms.

4.2.5 Assessment

Assessment is a critical part of the learning process, and LMS tools should be designed to facilitate effective assessment practices. However, as you mentioned, current LMS assessment

tools often need to be more flexible in their ability to align with specific learning outcomes and cognitive levels. In addition, there is a concern that LMS assessment tools may prioritize the measurement of lower-level cognitive skills, such as recall and recognition, at the expense of higher-level cognitive skills, such as analysis and evaluation. To address these issues, LMS designers and educators must work together to develop more effective and adaptable assessment tools that align with desired learning outcomes and promote the development of higher-level cognitive skills.

5 Discussion

The successful LMS features identified by the thorough analysis based on the first and second authors' experiences were sign-in, learning and resource management, content management, communication tools, assessment and feedback mechanism, and integration. The creation and sharing of content, the design of communicative features, teacher-centred structures, learner disengagement, and assessment were the five failure aspects that were grouped into five themes. This study found that learning content management and single sign-in were the most frequently acknowledged LMS success factors. Nevertheless, there was strong disapproval of the LMSs' communication capabilities and assessment tools. Moreover, unlike social media and Web 2.0 technologies, LMSs primarily support teacher-centred learning, restricting social and informal learning opportunities. Due to the limited content sharing and student-student interaction features, learner disengagement was also identified as a highly significant failure factor. Tracking learning and managing groups were critical success factors (Magd et al., 2022; McPherson & Nunes, 2008; Priatna et al., 2020; Rizana et al., 2020; Rodrigues et al., 2012) because they allowed for better insight into learning activities and encouraged student interest through collaborative learning in online groups. Teachers and students were uninterested in using the system because of the confusing user interfaces and poor design principles. Updated text, audio, and video features could be incorporated into LMSs to improve communication and student engagement. The creation of mobile LMSs would increase accessibility and allow for flexible learning. LMSs need to be developed further as mobile-based educational applications keep proliferating.

A study by Johnson and Samora (2016) revealed that the user-friendly interface of an LMS can significantly affect its adaptability, accessibility, and effectiveness. LMSs, which integrate create interface and user-friendly systems where users can easily access the resources and navigate the significant learning activities, encourage consistent use of them, thereby maximizing the benefits of various features of these platforms in learning. The functionalities of LMSs in creating content and resource materials seamlessly, using interactive add-ons and third-party applications, accessing cloud-based systems (e.g., Google Drive), and using chats and discussion forums, etc. can enhance the authentic learning experience of students in both face-to-face and virtual learning model of education. Green and Bailey (2018) discussed that using appropriate and useful features maximizes constructive learning experience and is pivotal in creating an efficient learning environment. This can minimize the need for multiple platforms and reduce the potential confusion among users.

Nevertheless, the challenges and issues with LMSs must be improved to maintain their effectiveness. In our experience, LMSs, which differ from the expectations of learning improvement and continuous support, negatively affect the learning process. For example, in our cases, the learning management system is also used for teacher-centric activities. However, resources and contents could be more effective for the learner-centered learning design. These support a more passive learning experience for students and fail to engage students in learning. The assessment platforms in many LMSs are limited to only lower cognitive levels (Quiz and MCQs). These hinder the development of higher cognitive abilities essential for authentic learning. So, these platforms must upgrade their functionality by adding diverse assessment methodologies and learning platforms that align with the broader learning objectives. Therefore, the development of LMSs must ensure the continuous improvement of learning and provide practical tools for modern and constructivist learning, fostering knowledge and the acquisition of various soft and hard skills appropriate for students of the 21st century.

6 Conclusion

LMS use and popularity in higher education institutions have increased significantly over time. Based on the researchers' experiences in the e-learning field, this article summarizes LMS's success and failure factors. While the failure factors are content creation and sharing,

communicative features, course structures, learning engagement, and assessment, the success factors are sign-in, learning and resource management, content management, and integration. Education organizations, teachers, LMS software providers, and the developer community must acknowledge the benefits and drawbacks of LMS to improve implementations and address the drawbacks. LMS communication and content-sharing features must be improved to increase student engagement and change the learning environment from teacher-centred to learner-centred. Mobile-friendly user interfaces are also required to support lifelong learning and anytime, anywhere learning. Understanding the LMS's success and failure factors can help advance theory and practice and improve LMS implementation.

Ethics declaration

Authors declared that the study was approved by the Kathmandu University School of Education, Hattiban, Lalitpur, Nepal.

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Conflicts of interests

The authors declared no potential conflicts of interest concerning this article's research, authorship, and/or publication.

Availability of data

The corresponding author will provide the information supporting the study's conclusions upon a reasonable request.

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