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THE ROLE OF LEARNING MANAGEMENT SYSTEMS (LMS) IN HIGHER EDUCATION: A POST-PANDEMIC ANALYSIS*

Researcher Valeh HAJIYEV

ADA University vhajiyev16936@ada.edu.az ORCID

Abstract

After the outbreak of the COVID-19 pandemic, educational institutions worldwide began rapidly adopting Learning Management Systems (LMS) to continue their operations. In the post-pandemic era, debates regarding the efficiency of these tools and their effects on areas like student interactivity, classroom engagement, critical thinking, and deep learning have increased as the reliance on LMS platforms like Blackboard, Canvas, and Moodle have changed the educational sphere forever. This paper critically examines the effect of LMS on the above-mentioned areas in the post-pandemic period, their weaknesses and strengths, and introduces factors beyond last-minute crisis measures. The paper addresses a critical gap in the literature by analyzing the function and effectiveness of LMS in the post-pandemic context, offering insights that past beyond emergency remote teaching. The purpose of this study is to critically examine the strengths and weaknesses of LMS platforms in higher education post-COVID-19, assess their impact on pedagogy and learner experience, and offer actionable recommendations for improvement. Utilizing a secondary literature review methodology, the study synthesizes pre-pandemic, pandemic, and post-pandemic findings to evaluate LMS in terms of administrative utility, instructional effectiveness, student interaction, and support for critical thinking. A comparative analysis of Blackboard, Canvas, and Moodle highlights shared benefits—such as flexible access, resource centralization, and communication tools—while also underscoring persistent issues like poor accessibility for learners with special needs, limited interactivity, and surface-level cognitive engagement.

Key takeaways include the recognition that LMS platforms, while valuable for content distribution and asynchronous communication, often reinforce a passive learning model unless actively countered by interactive and student-centered pedagogical strategies. The paper concludes that although challenges like digital equity, platform design limitations, and engagement gaps persist, the overall advantages of LMS systems—particularly in fostering flexibility and scalability—suggest their continued integration is both beneficial and necessary. However, future LMS design and usage must prioritize inclusivity, interactivity, and critical pedagogy to realize their full educational potential.

Keywords: Learning Management System (LMS), online learning, passive learning.

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Ø. Introduction

The rapid advancement of technology has revolutionized education like many other fields (Dhawan, 2020). One of the most impactful changes in education in many countries, has occurred in the COVID-19 period, with the increased dependency on Learning Management Systems (LMS) and their integration into educational institutions transitioning to online education (Adedoyin & Soykan, 2020; Al-Fraihat et al., 2020). Popular platforms like Blackboard, Moodle, and Canvas have expanded access to education by providing flexible, remote, and interactive learning environments (Le & Truong, 2021).

Despite several studies being conducted about the topic before and during the COVID-19 pandemic, there is a gap in the literature concerning the post-pandemic period. Therefore, the paper examines the strength and limitations of LMS, and its impact on higher education in the post COVID-19 pandemic period. *Online learning* is a mode of instruction where students interact with and process educational content through digital technologies (Hoi et al., 2021), whereas *Learning Management Systems (LMS)* are understood as online platforms used to organise and manage course content, automate grading, and support administrative processes in educational settings (Saqr et al., 2024).

The findings provide a guideline for educational policymakers, program coordinators, and administrators to assess and evaluate the platform's advantages and shortcomings and efficiently utilize it in higher education in the contemporary post-pandemic era.

In order to reach the set goal and answer the research question the study utilizes a secondary literature analysis method (desk study). First, the paper analyzes the previous literature regarding LMS's administrative and instructional effects, covering the periods both before and during the COVID-19 pandemic. Then, the study explores and critically evaluates the main tools of LMS aiming to identify the strengths and weaknesses of the platforms. Additionally, comparative analysis between LMS platforms, mainly Blackboard, Canvas, Moodle, is conducted. Finally, limitations of the study and future prospects of online learning are discussed and recommendations for improvement on engagement, interactivity, and critical thinking are proposed.

Critically examining LMS' advantages and drawbacks in higher education, particularly focusing of post-COVID-19 period, this paper states that even though, LMS systems have improved access to learning and administrative efficiency, their effects on student engagement and critical thinking still depend on inclusive design and pedagogical implementation.

1. Literature Review

With the increasing utilization of online learning platforms, technology has become an essential component of contemporary education. Such Learning Management Systems (LMS) as Blackboard, Moodle, and Canvas have been thoroughly studied for their effect on critical thinking, student engagement, and the quality of learning. Both the positive and negative aspects of these platforms are investigated in the literature by highlighting their impact on pedagogy, interaction and administration.

Most research on LMS has emphasized their effect on critical thinking and student-student and student-teacher interaction. Scholars agree that a passive approach given by LMS causes the memorization of the material rather than encouraging critical thinking (Swerzenski,



2021; Alhazmi et al. 2021). For instance, Swerzenski (2021) compares LMS to a banking model of education in which the material is passively received by students. Similar criticism can be observed by Alhazmi et al. (2021) due to these platforms creating a teacher-centered approach which hinders cognitive learning. Moreover, scholars claim one of the major issues in LMS online classrooms concerns student interaction: students have either limited interaction opportunities, or none at all. Both studies by Swerzenski (2021) and Alhazmi et al. (2021) highlight the importance of meaningful dialogue among the students, mentioning that LMS platforms restrict collaborative learning. Supporting these claims, Kerruish (2024) adds the importance of a non-instrumental society for fostering critical thinking. Kerruish (2024) mentions that critical thinking cannot merely be manually distributed through LMS and it requires an interactive and student-centered environment created by pedagogues. Altogether, these findings suggest that LMS are effective in distributing materials; nevertheless, the platform's impact on critical thinking depends on how the instructor utilizes it.

The advantages and downsides of LMS platforms can be analyzed from a more focused prism through the case of Blackboard. Research indicates that Blackboard enhances the quality of distant learning while acknowledging the necessity of addressing technical obstacles and the improving learner experience (Hamad, 2017; Alhumsi & Alshaye, 2021). The results reveal positive learning outcomes and satisfaction with Blackboard Collaborate in blended learning environments. Nevertheless, a number of limitations still exist. Challenges like poor internet access and a preference for traditional classroom lectures also emerged (Hamad, 2017; Alhumsi & Alshaye, 2021). This proves a nonexistent correlation between Blackboard adoption and its effective usage. In order to unlock the full capabilities of Blackboard as an online education tool, the need to solve the technical and usability problems are addressed. These include ensuring reliable internet connection and continuous maintenance (Hamad, 2017), enhancement of the Blackboard Learn system (Padohinog et al., 2022), and designing a more comprehensive interface (Alhumsi & Alshaye, 2021). Despite Blackboard possessing a strong potential to improve education in blended learning environments, these are outweighed by the need for improvement for Blackboard Learn as well as technological and interface problems.

Further insights into students' experiences through different LMS platforms are offered by comparative research. For instance, Canvas is studied by Oudat & Othman (2024), where both the strengths, such as versatility, user-friendly interface and encouragement of group learning, and limitations – issues regarding accessibility, particularly for dyslexic students due to the platform not containing tools with the required adaptability to fit their learning needs, are highlighted. Likewise, the study on Blackboard by Heirdsfield et al. (2011) gained similar results. The research found that despite students facing problems with navigation on the platform, centralization of Blackboard's communication and course content functions are beneficial. A similar study conducted by Truong (2019) focused on students using the online learning application Moodle to improve their language skills. The results show that in spite of the students mostly showcasing a favorable attitude towards the Moodle-based practice on learning speaking skills, design issues still prevail. A common pattern arises from this comparative analyses stating that LMS platforms usually fail to provide inclusive, engaging, and user-friendly learning environments, despite efficient organization and access to resources.



Comparison between educational and administrative functions of LMS, particularly Blackboard, is done by another strand of research. Studies demonstrate that these platforms excel in administrative performance such as scheduling, resource management, and communication; however, they fall short at facilitating deep learning (Alokluk, 2018; Alokluk & Al-Amri, 2019). In addition, it is argued that time spent on Blackboard is positively correlated with academic success. Nevertheless, this is not enough to conclude that the platform itself is the only cause (Darko, 2021). In general, though LMS helps with organization, instructors' method of its utilization determines the platform's impact on critical thinking.

Overall, the literature review demonstrates that in spite of LMS platforms' logistical advantages, they do not promote inclusive or interactive learning. Furthermore, their limitations occur as a result of technical problems, design flaws and accessibility issues. With the development of digital education, for the creation of more dynamic and equitable learning environments, future initiatives should prioritize educational innovations alongside technology.

2. Discussion and Conclusion

Higher education today faces benefits and drawbacks related to Learning Management Systems Learning (LMS), due to the increased dependence on digital technologies, especially in the post-COVID-19 period. Investigation of LMS systems such as Blackboard, Canvas, and Moodle unveil a complicated relationship between the quality of education and administrative effectiveness. The results of the research illustrate that LMS' effectiveness to enhance inclusivity, deep learning, and critical thinking is inconsistent and heavily depends on implementation, notwithstanding the platforms easing access and offering flexibility in education.

LMS platforms are considered highly successful from an administrative perspective. The quality of teaching and learning has increased owing to their features such as centralised grading, automatic feedback, announcements, and course material distribution. Without the necessity of personal interactions, instructors can supervise a higher quantity of learners, supply educational content instantly, and provide more transparent methods of communication. Yet, the relationship between administrative efficiency and pedagogical depth of LMS is a common topic of discussion.

Pedagogical usage of LMS platforms appears less effective in fostering critical thinking and interaction. The literature stresses the continuous challenges of incorporating these platforms into more advanced learning outcomes, lack of student interaction – an essential element of quality education, and the systems' instructional settings which have frequently been criticized for its passive nature. If pedagogues do not intentionally create courses which integrate a student-centered approach, and interaction, the intrinsic composition of LMS platforms may unintentionally lead to passive learning environments and encourage surface-level learning over cognitive development. Even though LMS tools such as Canvas Discussion Boards or Blackboard Collaborate offer potential, their effectiveness in resolving the indicated issue strongly depends on the instructors' utilization of the platforms. In most situations, students often report feeling discouraged and detached from fellow learners and tutors, especially when interactive elements are missing or neglected because the nature of the majority of LMS reinforce asynchronous communication, which, albeit flexible, diminishes the spontaneity and emotional connectivity of learning (Alhazmi et al., 2021; Heidsfield et al.,



2011). Additionally, research by Alhazmi et al. and Swerzenski also indicate that unless deliberate measures to promote collaborative and interactive learning are taken, LMS tend to imitate the conventional T-centered teaching approach where the learner is often isolated (Çavuş et al., 2021; Qazi et al., 2024; Binhammad et al., 2024). The vital contribution of teachers in managing the features of LMS and synchronizing particular educational targets are highlighted in these observations which aligns with the findings of Bustillos et al. (2019) who argues that due to the lack of social presence, LMS are not fulfilling the proposed instructional objectives.

Comparative analysis of the platforms also identifies notable variations in accessibility and user experience. For instance, Moodle has demonstrated capabilities in niche implications of education in cases such as language learning, improvements in academic results were linked to Blackboard's structural and organizational proficiency (Alokluk, 2018; Alokluk & Al-Amri, 2019), and collaborative functions, as well as interface design were advanced by Canvas. However, despite their strengths, Blackboard's interface issues, Moodle's design limitations, and Canvas lacking an inclusive approach for students with special needs, and overlooking diversity, which are common problems for the majority of LMS, reflect broader concerns about inclusivity and adaptability. For example, research implies that usability issues due to lack of adaptation options or inadequate design are frequently faced by students with disabilities, particularly those with visual or learning impairments (Oudat, 2024). In addition, in regions with weak technological infrastructure such as – remote rural areas, conflict zones, or regions struck by natural disasters – these advantages are constrained by certain technical limitations, including such as poor or no internet access and system compatibility issues which can serve as a barrier for the fulfilment of the platforms' potential (Hamad, 2017). While integrating LMS, the educational institutions, as implied in the findings of these studies, should follow equity-focused strategies, making sure that the systems are both available, and technologically advanced.

Even with the above-mentioned shortcomings, the potential of the LMS cannot be ignored. The discussion indicates that the effectiveness of these systems is not naturally limited by the technology itself, but instead, by the pedagogical model they operate on. If LMS platforms are employed as a tool for expanding the student-centered approach and interactive learning environment in education, instead of being a basic system of content delivery by instructors, they are more likely to support and develop critical thinking abilities and creativity of the students. For example, the learning process can be enriched by the integration of feedback mechanisms (where students also give feedback to their classmates), assignments requiring deep problem-solving skills, and balanced digital content.

A particularly unexpected finding from the review is the central role of instructor involvement in determining the effectiveness of LMS platforms. Despite substantial investments in educational technologies, it is not the platforms themselves but how educators use them that most influences learning outcomes. Studies emphasize that LMS should not be seen as substitutes for classroom teaching, but as tools whose success depends on pedagogical intent, instructional design, and active facilitation. Without purposeful integration and engagement by instructors, even advanced LMS features often fail to support deep learning or meaningful student interaction. This insight underscores the need for digital pedagogy training and a shift in focus from technological capability to human-centered instructional strategy.



Limitations of this paper should be acknowledged, despite the thorough conduct of a secondary literature analysis on the strength of weaknesses of LMS. The primary limitation of this study lies in its exclusive reliance on secondary literature, which, while valuable for synthesizing existing knowledge, may not capture the most recent updates to LMS platforms or reflect real-time usage patterns across diverse educational contexts. Rapid technological advancements mean that features, user interfaces, and pedagogical tools within platforms such as Blackboard, Moodle, and Canvas are frequently updated developments that may not be fully documented in published literature. As a result, some findings may be based on outdated versions of these systems, thereby affecting the accuracy and timeliness of the conclusions.

Additionally, the review concentrated primarily on three dominant LMS platforms—Blackboard, Moodle, and Canvas—while excluding other widely used systems such as Google Classroom, Managebac, or Schoology. This narrow focus may limit the generalizability of the study’s conclusions, particularly in regions where alternative platforms are more prevalent. Another important limitation is the absence of primary empirical research, such as interviews, surveys, or case studies, which could have provided richer, context-specific insights into user experiences and pedagogical practices.

Future studies incorporating mixed methods approaches—combining both qualitative and quantitative data—would provide deeper insights into the multifaceted effectiveness of LMS. Such approaches could capture not only measurable outcomes like academic performance and platform usage but also user experiences, engagement levels, and pedagogical impacts. Additionally, broader comparisons across a wider range of LMS platforms and educational contexts would enhance our understanding of how these systems adapt to diverse institutional needs and learner populations.

To optimize the utilization of LMS platforms and their integration into higher education, the study proposes a comprehensive redesign of these systems. As the educational landscape increasingly shifts toward hybrid and online models in the post-pandemic era, enhancing digital learning tools becomes important. The study recommends that this kind of learning systems interfaces be redesigned for greater inclusivity and ease of use, ensuring accessibility for all learners, including those with disabilities or limited digital proficiency. Furthermore, it emphasizes the importance of training instructors in digital pedagogy, particularly in using LMS to promote interactivity, critical thinking, and meaningful student engagement. Blended learning models are encouraged, combining the flexibility of LMS with the cognitive and emotional benefits of face-to-face or synchronous learning. Continuous evaluation and updating of these platforms-based on student feedback and emerging technological trends are also essential, with a focus on adaptability and scalability. Finally, integrating social and collaborative features into the online learning systems is vital to fostering stronger student-to-student and student-to-instructor interaction, thereby replicating the dynamic, affective elements of traditional classroom setting

In conclusion, the role of LMS in higher education is both vital and evolving. While these platforms have successfully addressed the need for flexible and scalable educational delivery, especially during and after the COVID-19 pandemic, their pedagogical potential remains underutilized. The study emphasizes that these systems are not inherently deficient; rather, their educational value hinges on how they are used. With thoughtful implementation, inclusive design, and pedagogical innovation, these platforms can move beyond being administrative



tools and become genuine facilitators of meaningful, interactive, and critical learning. As higher education continues to adapt to the realities of a digital age, investing in the transformation of LMS from repositories of content to dynamic learning ecosystems is essential.

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