# Enhancing Students' Cognitive Responsibility with Different LMS: Practicality and Over-Expectancy in the Digital Era

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**Abstract**

Since the advent of the digital age, Learning Management Systems (LMSs) have become an indispensable component in educational institutions, as they provide many tools and platforms that make learning easier. This research investigates the practicality of employing a variety of LMSs to improve students' cognitive responsibility, as well as the risk of over-expectation from doing so. The concept of cognitive responsibility relates to the act of students taking responsibility for their learning process, actively participating with materials provided by the course, and critically reflecting on their learning experiences. The issues arise, and to avoid

overestimating the capabilities of these platforms, LMSs can offer significant benefits in increasing cognitive responsibility. Within the context of the digital learning landscape, techniques for effectively leveraging various Learning Management Systems (LMS) have been explored in this article to cultivate cognitive responsibility while simultaneously keeping reasonable expectations.

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## Introduction

Teaching and learning processes have undergone substantial shifts as a result of the incorporation of technology into educational settings in recent years. The Learning Management System, often known as LMS, has become increasingly commonplace in educational institutions. These systems provide a centralised platform for the delivery of courses, the management of content, the evaluation of these courses, and communication. The promotion of students' cognitive responsibility is one of the primary goals of education. Encouragement of critical thinking, active engagement with the course material, and ownership of the learning process are all ways to achieve this. Within the context of the digital era, this study investigates the various ways in which LMSs might be utilised to improve students' cognitive responsibility while also addressing practical problems and avoiding over-expectation.

Many study papers have been written to study the cognitive responsibility of students when using various LMSs. Pigultong & Prammanee (2023)

discovered that the use of LMSs resulted in an improvement in the cognitive scores of undergraduate students. Post-test scores showed a statistically significant difference between all groups following the utilisation of the LMSs. The findings of the investigations Cromley et al. (2020) did with undergraduate biology students revealed that integrated interventions administered through an LMS have the potential to improve course grades. According to the findings of another study that focused on online cognitive assessment through the use of the LMS Moodle, students were generally prepared to take the test, and they felt it to be both practical and successful (Nugroho, 2022). Using LMS logs, Salehian Kia and colleagues were able to determine the Self-Regulated Learning (SRL) behaviours of students. They discovered that there was a good degree of agreement between the self-reported and trace data classifications of SRL phases. By taking all of these factors into account, these studies highlight the potential for various LMSs to enhance learning outcomes and raise students' awareness of cognitive responsibility.

**Some Common Learning Management Systems**
**Moodle:**

A LMS that is open-source and widely used in corporate and educational contexts is called Moodle. It provides an extensive selection of features for the management of courses, the generation of content, the evaluation of students, and communication. Moodle is equipped with a big community of users and developers who contribute to its development, and it offers a high degree of customisation.
**Canvas:**

Canvas is an LMS that Instructure created. It is well-known for its user interface, its compatibility with mobile devices, and its extensive tools for the construction of courses, collaboration, and evaluation. It is common for elementary and secondary schools, as well as higher education institutions and corporate training programmes, to use Canvas.

**Blackboard Learn:**

Blackboard Learn is an all-encompassing learning management system that is utilised by educational institutions all around the world. Among the tools that it provides are those for the construction of courses, the management of content, evaluation, communication, and cooperation. Additionally, Blackboard Learn is compatible with other Blackboard products as well as solutions developed by third parties.

**Google Classroom:**

Google Classroom is a free LMS that Google built and is primarily geared towards elementary, middle, and high schools. It is equipped with seamless integration with Google Workspace (formerly known as G Suite) applications, which includes Google Drive, Docs, and Sheets, making it possible to easily collaborate and share content. The ease of use and seamless connection with other Google services are two of the most notable features of Google Classroom.

**Schoology:**

Schoology is an LMS that is hosted on a secure server and is designed for use in K–12 schools, higher education institutions, and corporate training programmes. Course management, communication, collaboration, assessment, and analytics are a few of the features accessible through this platform.

Personalised instruction and integration with tools and content providers from third parties are two of Schoology's primary focuses.

**D2L Brightspace:**

Personalised learning is the primary focus of the learning management system (LMS) named D2L Brightspace. Course design, content administration, assessment, communication, and analytics are some of the capabilities made available through this platform. In addition to educational institutions, enterprises, and government organisations, D2L Brightspace is utilised by these entities.

**Edmodo:**

Edmodo is a social learning network targeted at elementary, middle, and high schools, as well as districts. Communication, collaboration, material exchange, and evaluation are all made possible by the use of these tools. In addition to providing features that encourage parent participation, Edmodo fosters an environment that is conducive to collaborative and interactive learning.

**Understanding Cognitive Responsibility**

Before delving into the role of LMS, it's crucial to have a clear understanding of what the concept of cognitive responsibility entails. To understand "cognitive responsibility," picture a regular classroom where students are expected to do prescribed work and satisfy the teacher's constant need for practice sheets. And adversely think about a modern classroom, where students are supposed to do their self-directed activities and projects. Students are assessed based on the calibre of their work and categorised as performing at, below, or (for those identified as

over-achievers) exceeding their potential. Here, it is the teachers' responsibility to organise and oversee the assignments. External entities may frequently conduct learning assessments here. However, for pupils who do not meet the standards in these assessments, they provide extra school hours. The students were asked how they plan to use a few hours per week to acquire knowledge in any subject according to their interests. The interview mostly centred around the strategies the individuals would employ to acquire knowledge, their estimated time frame for learning, their criteria for determining successful learning, the challenges they anticipated, and their proposed methods for overcoming those challenges. By following this process in the second case, the classroom is brimming with cheerful, engaged, and industrious children.

In the traditional concept of the classroom, neither the teacher nor the pupils have cognitive responsibility. The primary emphasis is placed on tasks and activities. However, in comparison to the modern classroom, the teacher possesses cognitive objectives, both long-term and immediate, assesses the pupils' progress towards these purposes, and adjusts their activities accordingly to achieve those objectives. The students may be informed about the objectives and motivated to actively pursue them, but their actual accountability is restricted to explicit assignments and activities. That is how we can comprehend cognitive responsibility as the capacity of students to take charge of their own education by establishing objectives, keeping track of their progress, looking for necessary resources, and reflecting on their experiences in the classroom (Braojos & Salmerón-Pérez, 2015; Amri & Ekaningsih, 2018). Active engagement, critical thinking,

and self-regulated learning habits are all features of cognitive responsibility. Through the cultivation of cognitive responsibility, educators aim to equip students with the ability to become learners who are able to adapt to a variety of learning situations throughout their lives (Mansouri et al., 2021; Richardson & Newby, 2006). By encouraging students to actively participate in their own learning process, teachers empower them in order to foster a sense of ownership and accountability regarding their educational success. This approach fosters independence and resilience, equipping the skilled students needed to navigate challenges and thrive in diverse learning environments.

## Leveraging LMS for Enhancing Cognitive Responsibility:

The following are some of the elements and functionalities that can be found in various LMSs that allow students to improve their cognitive responsibility:

**Course Organisation and Navigation:** Learning Management Systems (LMS) platforms offer structured environments in which course materials are organised in a logical manner (Pisoni, 2022). This makes it simpler for students to access resources, monitor their progress, and navigate through the curriculum.

**Interactive Content Delivery:** Learning Management Systems (LMS) make it possible for teachers to add multimedia components, interactive activities, and simulations into the teaching resources they employ (Nugroho, 2022), which encourages active participation and in-depth learning.

**Collaborative Learning Opportunities:** Students

have the opportunity to have meaningful conversations, share ideas, and gain insight into one another through collaborative learning opportunities (Chen et al., 2019), which are offered by many Learning Management Systems (LMSs). These methods include discussion forums, group projects, and peer collaboration (Tran & Hasegawa, 2022).

**Formative Assessment and Feedback:** Learning Management Systems (LMS) have support for a variety of assessment methods, such as quizzes, assignments, and peer reviews. This enables teachers to provide timely feedback to students and enables students to assess the results of their own learning (Mansouri et al., 2021).

**Personalised Learning Paths:** Some Learning Management Systems (LMS) include adaptive learning technologies that assess the performance data of students in order to personalise their educational experiences according to their specific requirements, preferences, and preferred modes of learning.

**Practical Considerations and Challenges**

While LMS provides a multitude of advantages for fostering cognitive responsibility, some practical issues and problems that should be addressed:

**Digital Divide:** Students have varying degrees of access to technology and internet connectivity, which can result in differences in their capacity to learn with LMS in an efficient manner (Dlalisa & Govender, 2020). Universities were urged to maintain a certain standard of technological support for students and teachers to utilise LMSs to cultivate reflective practices and encourage students to reflect on their learning process, create objectives, and evaluate their progress.

**Training and Technical Support:** Both teachers and students may require training and support to effectively utilise the LMS and maximise its capabilities. This is particularly accurate for more intricate capabilities. The study conducted by Snoussi (2019) revealed that while students generally possess technological proficiency, a subset of them struggle to utilise certain software related to LMS. Consequently, these students lack the ability to effectively follow faculty instructions and fulfil their obligations on platforms such as Blackboard or Moodle.

**Pedagogical Alignment:** According to Wichadee (2014), the LMS alone is not the only useful technique for students in teaching and learning. It emphasises the crucial role of instructors in motivating learners to utilise the features of the LMS. To optimise students' learning experiences, it is imperative to synchronise the LMS with pedagogical principles (Richardson & Newby, 2006), instructional methodologies (Mandalapu et al., 2022), and learning objectives (Pigultong & Prammanee, 2023). Moreover, it is imperative for universities to promote the utilisation of LMS and prioritise the implementation of effective learning techniques by leveraging the diverse range of tools and functions offered by these systems, with the aim of attaining pedagogical goals (Al-Hunaiyyan et al., 2020).

**Overreliance on Technology:** There is a risk of overestimating the capabilities of LMS and relying entirely on technology without taking into consideration the significance of human interaction, critical thinking, and creative problem-solving (Yen et al., 2015).

**Mitigating Over-Expectations**

The use of LMS, which began in 2003, has been

crucial in promoting effective teaching and learning methods. Currently, LMSs play a crucial role for achieving learning objectives, but their use at universities is sometimes overlooked (Al-Hunaiyyan et al., 2020). Students and instructors can cooperate using the LMS, but it is important for instructors to provide support to motivate students to actively participate in the LMS. Dahlstrom et al. (2014) emphasise that both instructors and students seldom utilise the advanced functions and capabilities of the LMS. Furthermore, they believe that user engagement is strongest for basic LMS features, while it is lowest for elements that enable interactivity, collaboration, and engagement. Providing students with the opportunity to gradually build their autonomy and self-regulation skills within the LMS can assist them in gradually developing cognitive responsibility.

Teaching and learning methods play a vital role in transitioning from traditional classrooms to online education. Schools employ LMS for conventional classroom teaching (Dlalisa & Govender, 2020). But LMSs, collaboration devices, and e-learning platforms enable instructors and students to effectively oversee, organise, distribute, and monitor learning activities to cultivate metacognitive awareness and increase cognitive responsibility (Pigultong & Prammanee, 2023). When modifying classroom courses, it is important to consider the teaching and learning style, where LMSs are to be commonly utilised by educational institutions to enhance teaching due to their distinctive characteristics (Richardson & Newby, 2006).

Proficiency in technology is crucial for students and faculty members for effective utilisation of LMS and

engages in online courses (Tran & Hasegawa, 2022; Pisoni, 2022). This proficiency allows them to efficiently manage and participate in their courses without any hindrances (Mansouri et al., 2021). By combining online and offline learning activities, a balanced approach can be achieved that leverages the advantages of LMS while still encouraging in-person interactions and practical experiences. Participants indicated that intensive training sessions were necessary to uphold a high level of literacy in LMS.

Given the widespread use and growing significance of mobile devices, modern learning environments necessitate access of materials, collaborate, and engage with mobile-friendly devices at any time and from any location (Chang et al., 2014). Hence, it is imperative to prioritise the development of user interfaces that are user-friendly for mobile devices to promote the utilisation of all tools and functions available in the LMS (Amri & Ekaningsih, 2018). Teachers are able to cultivate students' digital literacy abilities, include media literacy, information literacy, and digital citizenship. This will enable students to navigate LMS successfully and critically evaluate online materials.

**Conclusion**

Students' cognitive responsibility can be improved through the use of LMSs, which gives students valuable tools and chances. Educators have the ability to encourage students to take ownership of their learning journey, develop critical thinking abilities, and thrive in diverse learning environments by effectively harnessing features of various LMSs and addressing practical problems. However, it is of the utmost importance to keep one's expectations in check

and to make certain that technology is utilised in a manner that serves as a facilitator rather than a replacement for successful teaching and learning processes. It is ultimately necessary to take a holistic approach to the promotion of cognitive responsibility. This approach should incorporate pedagogy, technology, and student-centred practices in order to cultivate academic achievement and learning that continues throughout one's life.

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