

Comparative Study between Moodle, Canvas and Google Classroom

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ABSTRACT

The integration of digital platforms has dramatically changed teaching practices and improved the way teachers deliver content and students interact with learning materials. Educational platforms have become an essential tool in modern education as they provide a flexible, interactive, and accessible environment that can meet different learning needs. This paper evaluates the performance of three widely used LMS platforms (Moodle, Google Classroom, and Canvas) against criteria developed by AINOA (formerly FFFOD). The evaluation focuses on six key areas: Pedagogical Features, Monitoring and Reporting, Design and Ergonomics, Deployment, Technical Features, and Offers and Services.

Through this comparative overview, this document aims to help educators and institutions select the learning management system that best suits their teaching goals and technology infrastructure. In addition, the document highlights the evolving landscape of digital education and the importance of aligning LMS platforms with the latest AINOA guidelines to ensure adaptability and effectiveness in modern educational environments.

keywords: LMS E-learning Pedagogy Customization Deployment Monitoring Accessibility

INTRODUCTION

In recent years, the integration of digital platforms into education has dramatically changed teaching practices, marking a fundamental shift in the way educators deliver content and how students consume learning materials. Among the many tools available, Moodle, Google Classroom, and Canvas have emerged as leading Learning Management Systems (LMS), each offering different features for different educational needs.

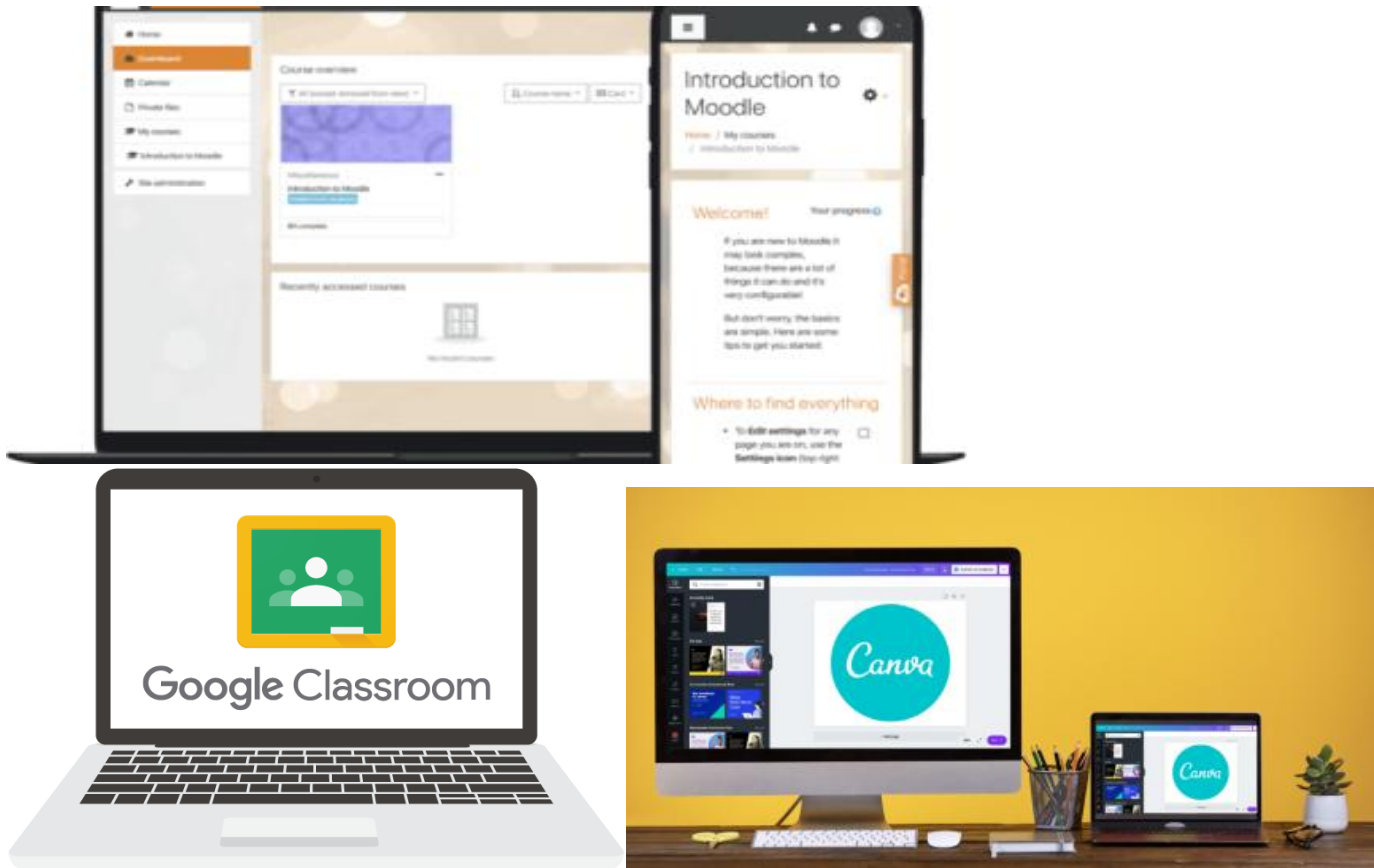
These platforms are essential in bridging the gap in access to resources, accommodating different learning styles, and encouraging collaboration, while providing a flexible, interactive, and accessible environment for modern education.

The rise of these tools has come with the growing popularity of blended and distance learning models, making it imperative for educational institutions to leverage technology to create engaging and inclusive learning experiences.

Given the widespread use of these learning management system platforms, evaluating their performance against a robust framework is essential to help educators and institutions select the tools that best suit their educational and institutional needs. To achieve this goal, the AINOA framework (formerly known as FFFOD) serves as a valuable analytical benchmark that focuses on six key areas: A. Instructional Functionality, B. Monitoring and Reporting, C. Design and Ergonomics, D. Delivery, E. technical features F. Offers and Services. This evaluation is particularly important as education increasingly requires tools that are fully functional, adaptable, and able to meet different learning needs.

By evaluating these platforms against these criteria, educators can better understand how Moodle's extensive customization options support complex instructional strategies, how Canvas combines simplicity with advanced functionality to increase learner engagement, and how Google Classroom provides a lightweight, easy-to-use option for simple learning scenarios. This study highlights the **importance** of adapting learning management system platforms to modern educational standards and the evolving technological landscape to

ensure their adaptability and continued effectiveness in supporting dynamic learning environments.



Criteria for Selecting an LMS

A. Pedagogy:

LMSs are not inherently good or bad in terms of pedagogical theories. Rather, LMSs are based on specific pedagogical approaches. The value of personalized courses may be diminished if features such as mandatory training or assessment tools are not used. As instructors focus on creating their own content, the emphasis shifts from pre-built materials to integrated content creation tools. When peer learning plays a key role in teaching strategies, tools that facilitate communication and collaboration become essential.

B. Monitoring and Reporting:

The importance of tracking learner activity and presenting the data collected varies by institution type—whether it is educational, vocational, or corporate. Funders and stakeholders may have different requirements, so it is important to ensure that the LMS can be configured to effectively meet these reporting requirements.

C. Design and User Experience:

To strengthen brand image and improve the learning experience, LMS customization and branding capabilities are essential. As the trend of accessing the internet through smartphones and tablets increasingly outpaces desktop use, responsive interfaces and mobile compatibility are essential.

D. Provisioning:

The cost and time required to deploy an LMS must be commensurate with the number of users expected.

For smaller learning groups, less integration with HR systems may be required, streamlining the process. Conversely, larger organizations may have more complex requirements, making large-scale deployment costs and configurations more predictable.

E. Technical Considerations:

While an E-learning platform may meet current needs, it is important to assess its adaptability in the coming years as technology evolves and the number of learners grows. In addition to the technical capabilities of the platform, the skills required to manage and support the educational platform for long-term sustainability need to be considered

Comparative Etude

Comparative Study of Google Classroom, Moodle, and Canvas Choosing

The right learning management system (LMS) is critical for educational institutions looking to improve the learning experience and optimize course delivery. This comparative study looks at three popular LMS platforms - Google Classroom, Moodle, and Canvas - and examines their instructional features, monitoring and reporting **capabilities**, design and ergonomics, delivery processes, technical features, and pricing models. Each platform has unique strengths and weaknesses that make it suitable for different educational institutions.

Pedagogical Features

Comparative Study of Google Classroom, Moodle, and Canvas

Choosing the right digital learning environment is essential for educational institutions aiming to enhance teaching effectiveness and streamline the delivery of educational content. This comparative study delves into three widely used platforms - Google Classroom, Moodle, and Canvas - evaluating them based on pedagogical features, monitoring and reporting capabilities, design and ergonomics, deployment, technical features, and pricing models. Each platform presents unique advantages and limitations, making them suitable for different educational needs and organizational scales.

A. Pedagogical Features

Google Classroom focuses on simplifying course management and fostering collaboration between teachers and students. Its integration with Google's G Suite tools, such as Google Docs, Sheets, and Drive, allows real-time cooperation and seamless document sharing. For example, teachers can create Google Docs assignments that enable multiple students to edit simultaneously, promoting peer learning. Google Classroom's simplicity is beneficial for K-12 schools, extracurricular programs, or small institutions that require basic course administration without extensive customization. However, the absence of advanced pedagogical features such as adaptive learning, advanced quizzing, or gamification limits its applicability in higher education or professional training environments.

Moodle, an open-source platform, is renowned for its unparalleled flexibility and breadth of pedagogical tools. Instructors can design sophisticated learning paths by employing conditional activities, enabling students to access new material only after completing prerequisite tasks. For instance, language courses can integrate listening exercises that unlock written tasks upon completion, supporting scaffolded learning. Moodle's rich repository of plugins allows for gamification elements such as leaderboards and badges, enhancing student motivation and engagement. Moreover, Moodle facilitates collaborative activities through forums, wikis, and group assignments, empowering educators to implement constructivist teaching models. This versatility makes Moodle the go-to platform for universities and large institutions seeking to craft customized, interactive learning experiences.

Canvas balances ease of use with advanced pedagogical capabilities. Its hallmark feature, Mastery Paths, automatically personalizes learning based on student performance. For example, students who demonstrate proficiency in introductory math concepts can proceed directly to more complex problems, while those who struggle receive additional practice materials. Canvas also supports multimedia integration, discussion forums, and collaborative projects, fostering active learning. Additionally, instructors can embed interactive quizzes within video lectures, blending synchronous and asynchronous teaching strategies. This makes Canvas

particularly appealing to institutions aiming to merge intuitive design with sophisticated pedagogical tools.

Comparison: Moodle stands out for its adaptability and breadth of pedagogical features, ideal for institutions pursuing dynamic and innovative teaching methods. Canvas strikes a harmonious balance between user-friendliness and robust instructional tools, catering to mid-sized to large institutions. Google Classroom's straightforwardness positions it as the best fit for smaller learning environments focused on simplicity and collaboration.

B. Monitoring and Reporting

Efficient monitoring and reporting mechanisms are critical for tracking student progress, identifying at-risk learners, and refining instructional strategies. Google Classroom offers essential tracking tools that allow teachers to monitor assignment submissions and provide timely feedback. Teachers can access a real-time overview of which students have submitted work, streamlining the grading process. Despite this, Google Classroom's analytics are basic, and its limited data visualization tools restrict deeper insight into student engagement patterns.

Moodle excels in monitoring and reporting by offering granular tracking options and comprehensive reporting features. Instructors can analyze student activity logs to determine time spent on specific resources or identify participation trends. For instance, Moodle's configurable gradebook can display individual and class-wide performance metrics, assisting educators in pinpointing struggling students early. Additionally, Moodle's integration with external analytical tools, like Google Analytics or custom reporting plugins, allows institutions to generate advanced performance dashboards.

Canvas provides intuitive real-time dashboards, making it easier for instructors to visualize student progress. The platform's analytics tools highlight patterns in engagement, assignment completion, and discussion participation. Canvas's learning analytics dashboards also offer predictive insights, enabling institutions to proactively intervene when students are at risk of underperforming. For example, if a student consistently submits assignments late, the dashboard triggers an alert, prompting instructors to reach out and provide additional support.

Comparison: Moodle's deep configurability makes it the most suitable for institutions seeking in-depth, customized reporting. Canvas offers highly accessible, real-time analytics tailored for dynamic classroom environments. Google Classroom, while functional for basic reporting needs, lacks the complexity required for larger-scale educational analytics.

C. Design and Ergonomics

The design and usability of digital learning environments significantly impact engagement and overall user experience. Google Classroom features a minimalist, intuitive interface, enabling quick navigation and straightforward classroom management. Its mobile-friendly design ensures that students can access resources from smartphones and tablets, fostering accessibility on the go. However, the platform's limited customization options can be a drawback for institutions seeking branded visually distinct environments.

Moodle, in contrast, offers extensive design flexibility, allowing institutions to tailor the platform's aesthetics and functionality to align with institutional branding. Educators can customize course layouts, integrate multimedia content, and adjust navigation menus to enhance usability. Moodle's mobile apps and responsive web design further expand accessibility, though its vast array of options can lead to complexity if not carefully managed.

Canvas combines modern aesthetics with practical design, offering a sleek interface that prioritizes clarity and ease of navigation. Its dashboard consolidates course information, deadlines, and announcements, providing students and instructors with a centralized hub for learning activities. Canvas's native mobile apps replicate the full functionality of the desktop platform, ensuring consistent user experiences across devices.

Comparison: Canvas provides the most user-friendly and visually appealing design, ideal for institutions

prioritizing simplicity and accessibility. Moodle's extensive customization capabilities cater to institutions aiming to create branded learning environments but may require more technical expertise. Google Classroom offers streamlined, intuitive usability suitable for basic educational setups.

D. Deployment

Deployment complexity and scalability differ across platforms, influencing the implementation process.

Google Classroom's cloud-based structure allows for effortless deployment with minimal technical input. Schools can rapidly launch and manage courses by leveraging existing Google accounts.

Moodle's deployment demands greater technical expertise, particularly for self-hosted configurations. Institutions must manage installation, updates, and server maintenance. Despite this complexity, Moodle's scalability makes it ideal for large organizations requiring multi-site implementations.

Canvas, as a cloud-hosted solution, streamlines deployment. Institutions benefit from vendor support, minimizing the need for in-house IT resources. Universities often complete Canvas deployment within weeks, aided by comprehensive onboarding services provided by Instructure.

Comparison: Google Classroom is the simplest to deploy, while Moodle offers scalability for technically proficient institutions. Canvas balances rapid deployment with comprehensive functionality, supported by vendor services.

E. Technical Features

Google Classroom integrates with G Suite, offering essential features such as document sharing and real-time collaboration. However, its reliance on G Suite constrains advanced customization and scalability.

Moodle's open-source architecture provides unmatched adaptability. Institutions can extend functionality through plugins and custom development. However, managing this flexibility requires dedicated IT support.

Canvas regularly updates its platform, reducing maintenance requirements. Its extensive third-party integrations ensure compatibility with evolving technologies, fostering long-term adaptability.

Comparison: Moodle's flexibility is unparalleled but demands technical oversight. Canvas balances adaptability with ease of maintenance. Google Classroom offers simplicity at the cost of limited extensibility.

CONCLUSION

The comparative analysis of Moodle, Google Classroom, and Canvas highlights the strengths and limitations of each platform. While all three offer valuable features, Moodle emerges as the most comprehensive, flexible, and pedagogically advanced LMS.

Moodle's customization and scalability make it the ideal choice for institutions seeking a long-term digital learning solution. Unlike Google Classroom, which lacks advanced pedagogical tools, and Canvas, which is limited by licensing costs and vendor control, Moodle offers unmatched adaptability through its open-source architecture. Its ability to integrate learning analytics, gamification, and personalized learning pathways ensures that institutions can optimize student engagement and success.

Additionally, Moodle's strong monitoring and reporting capabilities, its ability to support blended learning models, and its active global community provide institutions with an LMS that is not only cost-effective but also future-proof.

Given the evolving demands of digital education, Moodle stands out as the best choice for institutions looking to implement a robust, data-driven, and student-centered learning management system.

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