REVIEWS

Embracing digital learning: Benefits and challenges of using Canvas in education

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ABSTRACT

The use of Canvas as a Learning Management System (LMS) in educational settings involves several benefits and drawbacks. Canvas' design advances asynchronous learning, granting students to engage with materials at their own pace; thus, accommodating diverse learning needs and schedules. Integrated learning tools and collaborative features, including discussion forums and group projects, ground an interactive learning environment, enhancing student engagement, and mimicking real-world teamwork scenarios. Additionally, Canvas' data analytics grant instructors valuable student performance and engagement insights. This enables them to develop targeted interventions based on the student's needs. However, technical issues, accessibility barriers, content readability challenges for dyslexic and non-native English speakers, depersonalization, and privacy concerns have emerged as significant drawbacks. This review is the first review that contrasts Canvas with other LMS platforms like Blackboard and Moodle. In order to maximize its educational benefits, we highlighted the differences in user satisfaction and ease of use and implied the importance of strategic implementation and support. This comprehensive and unbiased analysis will also be added to aid in developing the enhanced optimized practices for Canvas implementation. This includes instructor training, technical support, and strategies to foster online community and engagement, leveraging Canvas' strengths while mitigating its limitations to enhance educational outcomes and students' satisfaction.

Key Words: Canvas, Learning management system, Education, Educational outcomes, Digital learning, Student-centered Learning

1. INTRODUCTION

The evolution of digital technologies has significantly influenced various sectors, with education being one of the most profoundly affected domains.[1] The introduction and rapid adoption of Learning Management Systems (LMS) in educational institutions have been pivotal in this transformation, altering traditional pedagogical methodologies and fostering new forms of engagement and learning delivery.[2] LMS platforms, such as Canvas, Blackboard, and Moodle, have become central to this shift, offering diverse tools and functionalities that support teaching and learning processes.[3] Among these, Canvas by Instructure has distinguished itself as a leader in the field due to its flexibility, user-friendly interface, and comprehensive toolset, catering to the diverse needs of modern educational environments.[4]

Adopting Canvas across educational institutions worldwide reflects a broader trend toward integrating digital platforms into teaching and learning strategies. This integration is driven by the need to enhance accessibility, facilitate innovative teaching methodologies, and support the diverse learning preferences of students.[5] However, the transition to digital

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platforms also presents challenges, including issues related to technological accessibility, the digital divide, and the need for effective pedagogical practices that leverage these technologies.[6]

This paper seeks to explore the merits and pitfalls of using Canvas in educational contexts, providing a balanced perspective that considers both its contributions to enhancing educational outcomes and the challenges it presents. By synthesizing literature from peer-reviewed journals, case studies, and user reports, the study aims to offer a nuanced understanding of Canvas's role in the current educational landscape. Specifically, it examines how Canvas supports or hinders pedagogical objectives, impacts student engagement and learning outcomes, and fits within broader educational strategies. Furthermore, the analysis contributes to ongoing discussions among educators, administrators, and policymakers about the effective integration of LMS platforms in education. As digital technologies continue to evolve, understanding their impact on educational practices and outcomes becomes increasingly important. This paper, therefore, provides critical insights into the advantages and limitations of Canvas, guiding future decisions on technology adoption and pedagogical design in educational settings.

In the following sections, the paper will explore the merits of using Canvas, including its impact on accessibility, engagement, and pedagogical innovation. Then, the paper will address the pitfalls associated with Canvas, such as technical challenges, issues of digital equity, and potential effects on teacher-student dynamics. Finally, the paper will conclude with recommendations for educators and institutions to maximize the benefits of Canvas while mitigating its drawbacks.

2. Virtues of using Canvas in education

2.1 Enhanced accessibility and flexibility

Canvas architecture is inherently designed to support asynchronous learning, a pedagogical approach that allows learners to engage with course materials, participate in discussions, and complete assignments on their schedule.[7] This model of learning is particularly beneficial in today's diverse educational landscape, where students may be balancing academic commitments with work, family responsibilities, or other personal circumstances. The flexibility offered by Canvas ensures that education is accessible to a wider audience, breaking down traditional barriers to learning and participation.[8]

2.2 Integrated learning tools

The platform's ability to integrate with numerous educational tools and resources enhances the learning experience, offering a cohesive environment for students and instructors. From plagiarism detection software to multimedia resources, Canvas's ecosystem supports a range of pedagogical approaches.[9, 10]

2.3 Facilitating collaborative learning

Canvas's design inherently supports collaborative learning, a pedagogical approach that emphasizes learning through interaction, sharing, and cooperation among students. Features such as discussion forums, group projects, and peer reviews are central to this functionality, encouraging student interaction and engagement.[11] These tools not only facilitate communication and collaboration, but also mimic real-world working environments where teamwork and collaboration are essential.

Discussion forums allow for asynchronous communication, enabling students to engage in deep, reflective discussions. Group projects facilitated by shared workspaces and collaborative tools within Canvas help students develop teamwork skills, share diverse perspectives, and produce collective work. Peer review functionalities further enhance learning by enabling students to give and receive feedback, fostering a constructive learning environment where students learn from each other.[11, 12]

2.4 Data-driven insights for instructors

The analytics and reporting features of Canvas provide instructors with comprehensive insights into student performance and engagement. These data-driven capabilities enable educators to monitor individual and class progress, identify at-risk students early, and adjust teaching strategies to meet student needs more effectively. Analytics can reveal patterns in student engagement, such as which resources are most accessed and which assessments are challenging for students, allowing for targeted interventions and personalized feedback.[13, 14]

3. Drawbacks of using Canvas in education

3.1 Technical challenges and accessibility issues

Canvas's interface and functionalities, while designed to be user-friendly, can present technical challenges to both students and instructors. Navigational difficulties, issues with integrating certain third-party tools, and the learning curve associated with mastering the platform's full capabilities can hinder the learning process. Furthermore, the reliance on digital infrastructure highlights the digital divide, as students without reliable internet access or digital devices face significant barriers to participation in the digital learning environment.[15]

3.2 Content readability challenges

Students with dyslexia, for instance, may struggle with complex text structures and dense paragraphs that are not optimized for readability. A recent research study highlighted the importance of clear, structured, and visually accessible text for dyslexic learners, underscoring the need for readability considerations in educational content.[16] Similarly, non-native English speakers face additional challenges when navigating academic texts that employ advanced vocabulary or idiomatic expressions, potentially hindering their learning process.[17]

The variability in academic preparedness among students further complicates this issue. Learners coming from different educational backgrounds may have disparate experiences with critical reading and text analysis, making it imperative that educational materials accommodate a broad spectrum of reading levels. Without the ability to measure and adjust text complexity, instructors may inadvertently contribute to the learning disparities that digital platforms like Canvas seek to bridge.

3.3 Depersonalization of learning

The shift to digital learning environments can sometimes lead to a depersonalized educational experience. The lack of physical presence and direct interaction may affect student motivation, engagement, and the quality of teacher-student relationships.[18] Overcoming this challenge requires deliberate efforts to build community and connection online, as well as pedagogical strategies that promote engagement and personalization.

3.4 Privacy and security concerns

As with any digital platform, there are concerns regarding data privacy and security within Canvas. Concerns regarding data privacy and the potential for security breaches within Canvas necessitate stringent security measures to protect sensitive student information. Institutions must prioritize these aspects to maintain trust and comply with legal and ethical standards.[19]

3.5 Comparative analysis

Comparing Canvas to other LMS platforms such as Blackboard, Moodle, and Google Classroom reveals significant differences in user satisfaction and ease of use. Canvas is widely praised for its intuitive and user-friendly interface, making it a favorite among instructors and students alike.[20,21] Its flexibility and customization options allow for tailoring the learning experience to specific needs, which is a significant advantage. However, this level of customization may be limited compared to open-source alternatives like Moodle, which offers extensive flexibility but often requires more technical expertise.[22] Blackboard, with its established reputation and comprehensive feature set, provides robust course management, assessment, and collaboration tools, but its user interface can be less intuitive, presenting a steeper learning curve.[23] Google Classroom stands out for its seamless integration with other Google Workspace tools and its simplicity, but it lacks the advanced features of more comprehensive LMS platforms.[24]

Ultimately, the choice of an LMS should be informed by institutional needs, budget constraints, IT infrastructure, and specific pedagogical goals.[25] Each platform has its unique strengths and weaknesses, and institutions should carefully evaluate these factors to select an LMS that aligns with their strategic objectives and meets the needs of their educators and learners.[26] For instance, while Canvas is often lauded for its intuitive design and flexibility, Moodle's cost-effectiveness and customization capabilities might be more appealing to institutions with limited budgets or specific technical requirements. Blackboard's extensive support and training resources could be a deciding factor for institutions seeking a well-established platform with comprehensive features.[23] Google Classroom, though simpler, might be ideal for institutions already using Google Workspace, offering a cost-effective and easy-to-use solution.[24] By considering these factors, institutions can make an informed decision that best supports their educational mission and the needs of their educators and learners.

Furthermore, the effectiveness of any LMS is significantly influenced by the quality of content and the integration of various technologies. Static reading materials often fail to engage students or enhance retention.[27,28] Therefore, Subject Matter Experts (SMEs) should create dynamic, interactive content that leverages multimedia tools to foster better engagement and understanding. To address the limitations of static reading materials, educators should consider incorporating multimedia elements such as videos, interactive quizzes, and discussion forums.[29] These tools can enhance student interaction and improve content retention. By considering both the LMS platform and the quality of content delivery, institutions can make an informed decision that best supports their educational mission and the needs of their educators and learners.

4. Best practices for implementing Canvas

Maximizing the educational benefits of Canvas involves strategic implementation and ongoing support. Institutions should invest in comprehensive training for instructors to ensure they are equipped to utilize the platform effectively.

Technical support services are crucial for addressing the technical challenges that users may face.[30] Furthermore, fostering a culture of collaboration and feedback among users can enhance the platform's effectiveness and user satisfaction. Engaging students in the digital learning environment requires thoughtful course design, active learning strategies, and efforts to build community and connection among students.[31] Implementing these best practices can help institutions leverage Canvas to create engaging, inclusive, and effective learning experiences that support student success and pedagogical innovation.

5. Conclusion

Canvas represents a significant advancement in the digital education domain, offering promising avenues for enhancing teaching and learning experiences. Its strengths, including a centralized learning hub, multimedia integration, collaborative tools, accessibility, flexibility, and learning analytics, position it as a powerful tool for creating engaging and personalized or student-centered learning environments. However, its effective utilization demands a balanced consideration of potential limitations, such as the digital divide, technological barriers, adaptation challenges, and privacy concerns. By embracing best practices, providing comprehensive training and support, fostering a culture of continuous improvement, and addressing issues of educational equity, institutions can harness the full potential of Canvas. Ultimately, a thoughtful and strategic approach to integrating Canvas can pave the way for more inclusive, effective, and transformative learning experiences, contributing to student success and academic excellence in the digital age.

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Authors contributions

Dr. Qutaibah Oudat made substantial contributions to the conception or design of the work, conducted the literature search, drafted the manuscript, and read and approved the final manuscript to be published. Dr. Mohammad Othman drafted the manuscript, reviewed it critically for important intellectual content, and read and approved the final manuscript to be published.

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References

[1] Leahy SM, Holland C, Ward F. The digital frontier: Envisioning future technologies impact on the classroom. Futures. 2019; 113: 102422. https://doi.org/10.1016/j.futures.2019.04.009

[2] Oliveira PCd, Cunha CJCdA, Nakayama MK. Learning Manage-

ment Systems (LMS) and e-learning management: an integrative review and research agenda. JISTEM-Journal of Information Systems and Technology Management. 2016; 13: 157-80. https://doi.org/10.4301/S1807-17752016000200001

[3] Amiti F. Synchronous and Asynchronous E-Learning. European Journal of Open Education and E-learning Studies. 2020; 5(2). https://doi.org/10.46827/ejoe.v5i2.3313

[4] Chavis C, Efe SU, editors. Evaluation of Teaching Through Online Tools and Canvas Learning-management System at Morgan State University. 2021 ASEE Virtual Annual Conference Content Access; 2021.

[5] LIMA CD, BASTOS RC, VARVAKIS G. Digital learning platforms: an integrative review to support internationalization of higher education. Educação em revista. 2020; 36. https://doi.org/10.1590/0102-4698232826

[6] Marachi R, Quill L. The case of Canvas: Longitudinal datafication through learning management systems. Teaching in Higher Education. 2020; 25(4): 418-34. https://doi.org/10.1590/0102-4698232826

[7] Grant MM. Asynchronous online course designs: Articulating theory, best practices, and techniques for everyday doctoral education. Impacting Education: Journal on Transforming Professional Practice. 2021; 6(3): 35-46. https://doi.org/10.5195/ie.2021.191

[8] Fadde PJ, Vu P. Blended online learning: Benefits, challenges, and misconceptions. Online learning: Common misconceptions, benefits and challenges. 2014; 9(4): 33-48.

[9] Kurt S. Moving toward a universally accessible web: Web accessibility and education. Assist Technol. 2019; 31(4): 199-208. PMid:29219749 https://doi.org/10.1080/10400435.2017.1414086

[10] Idleman B. Asynchronous Learning Experiences in the Canvas LMS for Information Literacy in the Community College Setting: Northeastern University; 2022.

[11] Sobko S, Unadkat D, Adams J, et al. Learning through collaboration: A networked approach to online pedagogy. E-Learning and Digital Media. 2019; 17(1): 36-55. https://doi.org/10.1177/2042753019882562

[12] Smucker AD, Nuss SM. Enhancing Collaborative Learning Through Design for Learning. The William & Mary Educational Review. 2022; 8(1): 1.

[13] Hernández-de-Menéndez M, Morales-Menendez R, Escobar CA, et al. Learning analytics: state of the art. International Journal on Interactive Design and Manufacturing (IJIDeM). 2022; 16(3): 1209-30. PMCid:PMC9206225 https://doi.org/10.1007/s12008-022-00930-0

[14] Neal B, Perkovic V, Mahaffey KW, et al. Optimizing the analysis strategy for the CANVAS Program: A prespecified plan for the integrated analyses of the CANVAS and CANVAS-R trials. Diabetes Obes Metab. 2017; 19(7): 926-35. PMid:28244644 https://doi.org/10.1111/dom.12924

[15] Johnson LS. A case study of career and technical education teacher perceptions of online learning management systems: Northcentral University; 2018.

[16] McCarthy JE, Swierenga SJ. What we know about dyslexia and web accessibility: a research review. Universal Access in the Information Society. 2010; 9: 147-52. https://doi.org/10.1007/s10209-009-0160-5

[17] Nguyen CH, Nguyen NX. Rethinking (Non) Nativeness among English-Speaking Teachers in Vietnam. rEFLections. 2023; 30(2): 574-89. https://doi.org/10.61508/refl.v30i2.267528

[18] Howland JL, Moore JL. Student perceptions as distance learners in Internet-based courses. Distance Education. 2002; 23(2): 183-95. https://doi.org/10.1080/0158791022000009196

[19] Tummes JP. Staff's perception of students' informational privacy in higher education: The case of Canvas. 2023.

[20] Falcone K. A case study of faculty experience and preference of using blackboard and canvas lms: University of Phoenix; 2018.

[21] Dahlstrom E, Brooks DC, Bichsel J. The current ecosystem of learning management systems in higher education: Student, faculty, and IT perspectives. 2014.

[22] Tobar CM, de Lima SI, editors. Assessing a learning object standard adherence. 2007 37th Annual Frontiers In Education Conference-Global Engineering: Knowledge Without Borders, Opportunities Without Passports; 2007: IEEE.

[23] Stein SJ, Shephard K, Harris I. Conceptions of e-learning and professional development for e-learning held by tertiary educators in New Zealand. British Journal of Educational Technology. 2011; 42(1): 145-65. https://doi.org/10.1111/j.1467-8535.2009.00997.x

[24] Iftakhar S. Google classroom: what works and how. Journal of education and social sciences. 2016; 3(1): 12-8.

[25] Mtebe J. Learning management system success: Increasing learning management system usage in higher education in sub-Saharan Africa. International Journal of Education and Development using ICT. 2015; 11(2).

[26] Durak G, Çankaya S. Learning management systems: Popular LMSs and their comparison. Handbook of research on challenges and opportunities in launching a technology-driven international university: IGI Global; 2019. p. 299-320. https://doi.org/10.4018/978-1-5225-6255-9.ch016

[27] Brame CJ. Effective educational videos. 2015.

[28] Mayer RE. Multimedia learning. Psychology of learning and motivation. 41: Elsevier; 2002. p. 85-139. https://doi.org/10.1016/S0079-7421(02)80005-6

[29] Means B, Toyama Y, Murphy R, et al. Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. 2009.

[30] Reid L, Reid L. Learning management systems: The game changer for traditional teaching and learning at adult and higher education institutions. Global Journal of Human Social Science: G Linguistics & Education. 2019; 19(6): 1-13. https://doi.org/10.34257/GJHSSGVOL19IS6PG1

[31] Endozo AN, Oluyinka S, Daenos RG, et al. Teachers' experiences towards usage of Learning Management System: CANVAS. Proceedings of the 11th International Conference on Education Technology and Computers; 2019.