Enhancing Higher Education Learning through Blackboard: Impact on Student Learning and Diversity

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Abstract: The increasing reliance on digital learning platforms in higher education necessitates an exploration of how Learning Management Systems (LMS) like Blackboard influence student learning experiences and accommodate learning diversity. This study examines the effectiveness of Blackboard in promoting inclusive and engaging learning experiences at the University of Fort Hare. The purpose of this research was to investigate how students interact with Blackboard, the challenges they face, and the extent to which the platform supports diverse learning needs. This study is guided by the Community of Inquiry (CoI) framework, which examines cognitive, social, and teaching presence in online learning. By applying this framework, the research evaluates how Blackboard fosters meaningful engagement, supports diverse learning needs, and enhances instructional effectiveness, contributing to a more inclusive and student-centered digital learning environment. This study adopts a mixed-methods approach. This methodology allows for a comprehensive analysis of students' perceptions, engagement levels, and barriers to the optimal use of Blackboard. The findings indicate that while Blackboard enhances accessibility to learning materials and fosters asynchronous engagement, students encounter challenges related to digital literacy, navigation complexities, and limited interactive elements. Additionally, variations in students' technological proficiency and learning preferences highlight the need for adaptive instructional strategies. The above findings indicate the importance of integrating student centered design principles into Blackboard's usage, ensuring that learning experiences cater to diverse student backgrounds. Providing training for both students and lecturers is important in addressing technical challenges, improving digital literacy, and ensuring seamless navigation of Blackboard. The study's relevance lies in informing institutional strategies for improving Blackboard's pedagogical effectiveness, fostering student engagement, and promoting digital inclusivity. By addressing these concerns, the University of Fort hare can enhance student learning experiences and bridge digital disparities, ultimately contributing to a more equitable and responsive higher education environment.

Keywords: Blackboard, Learning Management System, Student Engagement, Learning Diversity

1. Introduction and Background

In recent years, universities have made a big shift towards using online learning tools to support teaching and learning. At the University of Fort Hare (UFH). Blackboard is the Learning Management System (LMS) used to give students access to learning materials, sharing of announcements, and allowing interaction between students and lecturers. This shift has been especially important during and after the COVID-19 pandemic, which pushed many institutions to rely more on digital platforms , (Czerniewicz at el, 2020). While Blackboard makes it easier for students to access learning content at any time, it also comes with practical challenges that affect how students learn and engage with their studies (Uziak,at et, 2018). Many UFH students come from disadvantaged backgrounds, and not all of them have the same level of digital skills. Some students struggle to use Blackboard because they are not familiar with technology, while others face problems like poor internet connection or difficulty in navigating the system. Alokluk (2018) states that effective implementation of Blackboard must address a number of barriers, including institutional culture, pedagogical and technical support, teacher's familiarity with technology and pedagogical content knowledge, students' technical knowledge, and resources. These challenges make it hard for all students to benefit equally from online learning. Some also find the content on Blackboard not interactive enough, which can make learning feel lonely or boring.

The central problem addressed in this study is the disconnect between the intended functionality of Blackboard as an inclusive learning platform and the actual experiences of students at UFH. While Blackboard is designed to support a wide range of learning needs through its digital tools and flexible content delivery mechanisms, in practice, it does not always meet the diverse requirements of all students. According to Yu at el (2024) many students encounter barriers such as limited digital literacy, inconsistent access to reliable devices or internet connectivity, and difficulties in navigating the platform's interface. Additionally, the way in which learning content is structured and delivered on Blackboard often fails to consider students' varied learning preferences, linguistic backgrounds, and levels of prior exposure to digital learning environments (Raza at el, 2022). These challenges contribute to unequal learning experiences and hinder full participation in the academic process for some students.

At UFH, first-year students are supported through structured Blackboard training sessions designed to introduce them to the platform's key features, including course navigation, accessing learning materials, submitting assignments, and participating in online discussions. These trainings are conducted during the first week of the academic year as part of the student orientation programme. The training runs over a full week, with two sessions held daily, each lasting two hours. Following the initial training week, additional refresher sessions are scheduled every Wednesday for the first term to reinforce learning and address any challenges students may encounter as they begin engaging with their online courses.The TeL Student Assistants play an important role in providing hands on guidance, answering student queries, and offering one-on-one consultations to ensure that first-year students develop the digital skills needed to effectively engage with their courses on Blackboard. This support system is crucial in helping new students transition into the digital learning environment with confidence.

2. Literature Review

2.1 The Role of Learning Management Systems in Higher Education

The LMS play an important role in higher education by enhancing teaching and learning processes. These platforms facilitate the creation, delivery, and management of educational content, making learning materials easily accessible to students (Thangavel, 2024). In addition to supporting academic delivery, LMS streamline administrative functions such as documentation storage and report generation, thus improving institutional efficiency (Madyatmadja et al., 2023). The integration of LMS into higher education institutions has transformed traditional educational practices, supporting more organized, centralized, and efficient workflows.

The LMS also contributes significantly to teaching and learning by promoting student engagement and supporting a variety of learning preferences. The LMS faciliatates the creation of interactive learning environments that encourage active participation, leading to improved student satisfaction and learning outcomes (Madyatmadja et al., 2023). Moreover, LMS offer flexible and accessible learning opportunities, allowing students to learn at their own pace and from any location (Ebbini, 2023). By accommodating various pedagogical approaches, these systems help lecturers address diverse learning needs and styles, ultimately enriching the overall educational experience.

Despite their numerous advantages, the implementation of the LMS is not without challenges. Issues such as system complexity, infrastructure limitations, and the need for skilled personnel can hinder effective integration (David et al., 2022). Nevertheless, the transformative potential of LMS in higher education remains substantial. Continued investment in training, system development, and technological innovation is essential to fully leverage the benefits of the LMS and ensure they contribute meaningfully to the advancement of teaching, learning, and institutional effectiveness.

2.2 Digital Literacy and Access in the South African Higher Education Context

Digital literacy and access in South African higher education are pressing concerns, shaped by persistent socio-economic disparities and rapid technological advancements. While the integration of digital tools has the potential to enrich learning experiences, many students continue to face significant obstacles in both access and skill development. Research shows that a considerable number of students lack the digital and information literacy skills necessary for academic success and meaningful participation in the digital world (Shibambu & Mojapelo, 2024). As the demands of the Fourth Industrial Revolution grow, there is a rising need for inclusive digital practices, especially in multilingual educational settings where technology can serve as a tool to improve learning outcomes (Ndebele, 2022).

Despite efforts to promote digital inclusion, many students still experience inconsistent access to digital resources. This tension is often felt as students navigate between technologically enriched environments and under-resourced ones, reflecting broader inequalities in the South African education system (Kajee & Balfour, 2011). The digital divide in this context is not simply about having or lacking technology, but rather about the quality, consistency, and context of access. As such, it is important to move beyond simplistic understandings of digital inequality and recognize the nuanced, uneven experiences of students across different institutions and communities (Liebenberg et al., 2012).

The educational implications of these disparities are significant. Multimodal pedagogies offer a promising response, allowing lectures to tap into the diverse resources that students bring with them and to create more inclusive learning environments (Archer, 2016). At the same time, there is a growing recognition of the need for curricula to incorporate digital competencies to better prepare students for the evolving demands of the digital age (Shibambu & Mojapelo, 2024). Although the challenges remain considerable, there are ongoing efforts

through policy, pedagogy, and institutional reform to bridge digital gaps and promote greater equity in South African higher education.

2.3 Theoretical framework

The study employs the Community of Inquiry (CoI) framework developed by Garrison, Anderson, and Archer (2000). This model guides the design of effective online and blended learning environments by emphasizing the interplay of three core elements: cognitive presence, social presence, and teaching presence. Below on figure 1 is the Community of Inquiry framework diagram that illustrates the interrelatedness of the three elements of the framework.

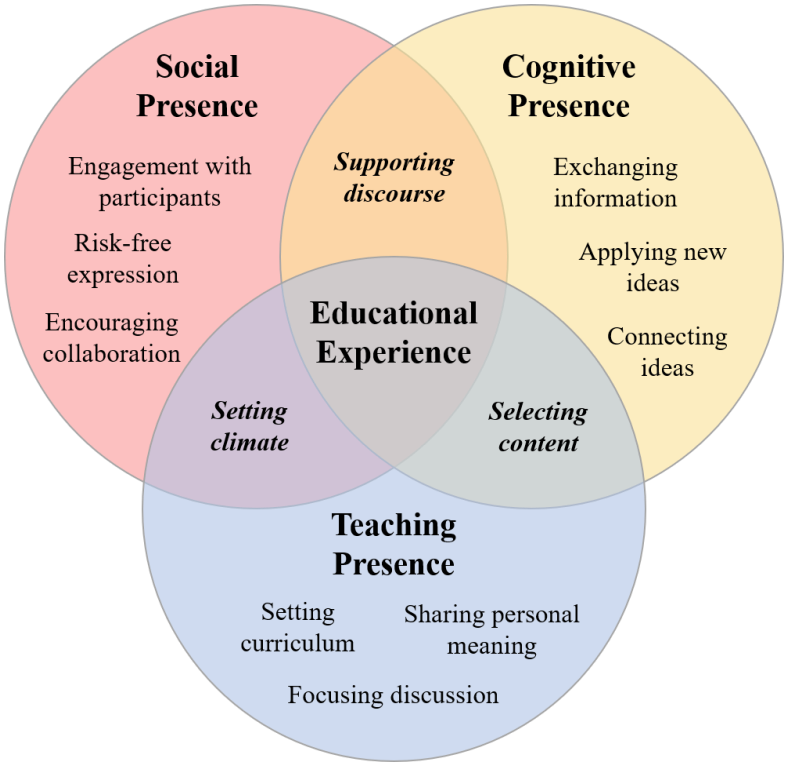


Figure 1: Community of Inquiry framework.

The framework looks at three key areas: cognitive presence (how students make sense of the content), social presence (how students connect with others), and teaching presence (how lecturers guide the learning process). The study explores how well these areas are working on Blackboard and what can be improved. The aim is to help the university make better decisions about how to use Blackboard in ways that support all students, especially those with limited digital access or learning support.

3. Methodology

3.1 Research Design

The parallel mixed-methods design was employed in the study to effectively capture undergraduate students' perceptions, engagement levels, and barriers to using Blackboard. In this approach, quantitative data was collected through structured surveys, allowing for statistical analysis of students' usage patterns, satisfaction levels, and technical challenges. At the same time, qualitative data was gathered using open-ended survey questions, providing deeper insight into students' personal experiences and contextual factors influencing their use of the LMS. The data from both strands were collected independently but analyzed together to draw comprehensive conclusions. As Hashemi et al (2013) highlight, this concurrent design ensured that both numeric trends and individual voices were equally considered. The combination of closed- and open-ended items strengthened the study's validity, offering both breadth and depth in understanding students' interactions with Blackboard. This design is particularly useful in educational research where multiple forms of evidence enrich interpretation and application (Mislevy,, Behrens, Dicerbo,& Levy, 2012).

3.2 Sampling

In this study, one academic bootcamp was conducted for the faculty of Social Sciences first year students in UFH. The bootcamp aimed to support students' transition into university learning by covering key academic and digital skills, including a dedicated session on digital literacy, which focused on effective use of Blackboard and other online learning tools. It is mandatory for all students to attend from the faculty of Social Sciences. Following the academic boot camp, a questionnaire was distributed to the students through Google forms to collect their responses and perceptive. Out of 650 students who attended the bootcamp, 276 students completed and submitted the questionnaire. This resulted in a response rate of approximately 42%. The collected responses were then used to anaylse the effectiveness of Blackboard in promoting inclusive and engaging learning experiences at the university.

3.3 Data Collection

In this study, the data collection process used both quantitative and qualitative methods to capture a comprehensive set of responses from participants. Quantitative data were gathered through numerical responses, which involved the use of surveys with closed- ended questions and rating scales. This type of data provides measurable results that facilitate the identification of trends, patterns, and correlations within the dataset.

In addition, qualitative data was collected through narrative responses, which involved open ended questions with prompts that encouraged participants. This approach captures the experiences, opinions, and insights offering context and elaborating beyond numerical scores. Participants shared their personal reflections on the effectiveness of Blackboard in promoting inclusive and engaging learning.

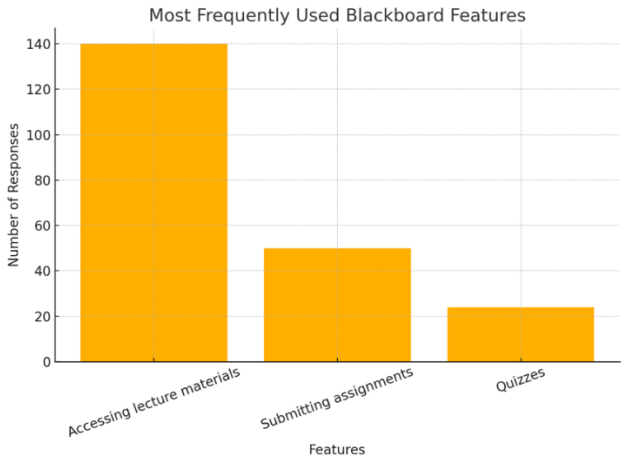
3.4 Data Analysis

The analysis is structured using the Community of Inquiry (CoI) framework, which evaluates the learning environment through three key presences: Cognitive, Social, and Teaching. The goal is to identify strengths and areas of improvement in Blackboard usage to support all students, especially those with limited digital access or learning support.

4. Results and Discussion

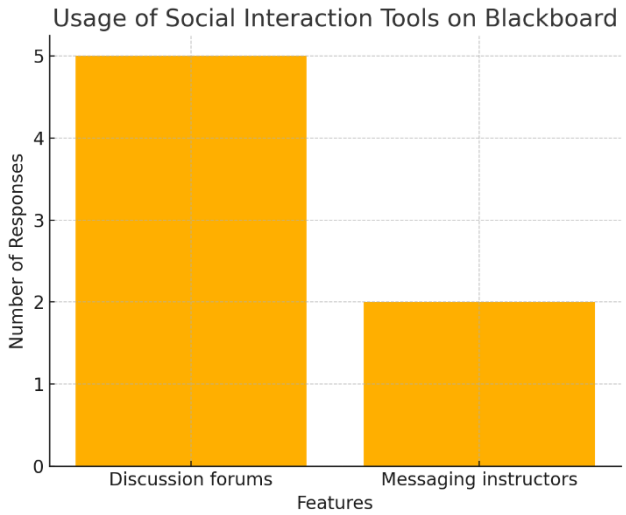
4.1 Cognitive Presence Analysis

Cognitive presence refers to the extent to which students can construct and confirm meaning through sustained reflection and discourse. Within the Blackboard learning environment, it is demonstrated by how students engage with academic content, particularly in ways that support understanding, inquiry, and knowledge building. Based on the survey data, the most frequently used feature was accessing lecture materials, which received the highest number of responses (140), indicating its central role in students' use of the platform. This was followed by submitting assignments, with 50 responses, highlighting its importance in managing coursework. Quizzes were also commonly utilized, with 24 responses, suggesting that they are a valued tool for assessment and engagement in the learning process. These findings indicate that students are consistently using Blackboard to engage in academic activities that foster independent learning and understanding of course content. The high usage of content delivery and assessment features shows that students are utilizing Blackboard not just for administrative tasks but as a core component of their academic learning.



4.2 Social Presence Analysis

Social presence involves the ability of students to project themselves socially and emotionally within a digital learning environment. In the context of Blackboard, this presence is fostered through tools that enable interaction, collaboration, and communication among students and lecturers. Based on the survey data collected, discussion forums were used by only 5 respondents, indicating limited engagement with peer-to-peer interaction features. Similarly, messaging lecturers was the least utilized feature, with only 2 respondents reporting its use, suggesting minimal direct communication between students and lecturers through the platform. These low usage numbers suggest that Blackboard's interactive features are underutilized for fostering community and connection. This minimal engagement indicates a gap in peer-to-peer and student instructor interaction, which can negatively impact students' sense of belonging and engagement. There is a clear need for targeted interventions to encourage and support meaningful online interactions through these tools to build a more connected and supportive learning community.

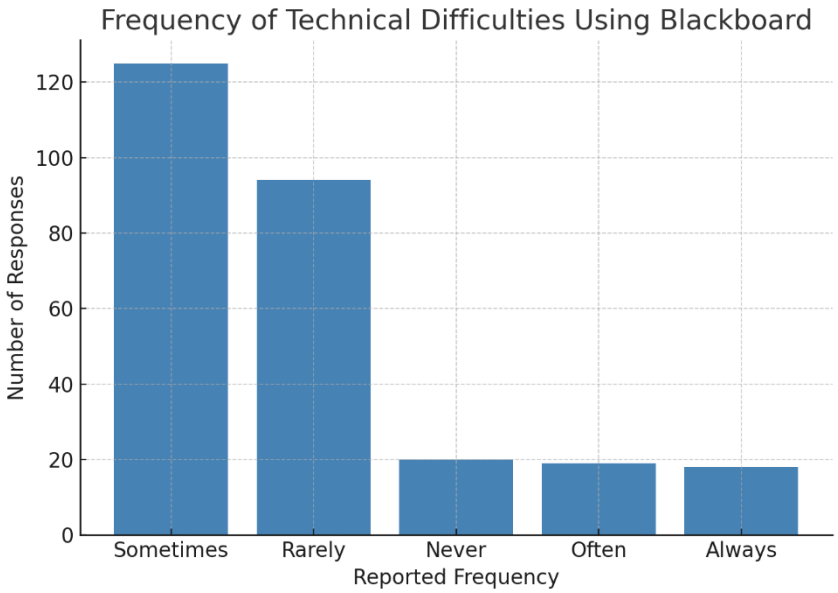


4.3 Teaching Presence Analysis

Teaching presence refers to the design, facilitation, and direction of cognitive and social processes to realize meaningful learning outcomes. Within the Blackboard platform, teaching presence is reflected in how well the platform is structured, how clearly course instructions are communicated, and the degree to which lecturers guide and support students through their learning journey. Based on the survey results, students expressed a high level of satisfaction with their learning experience, as reflected in the following, the average score for confidence in using Blackboard for academic activities was approximately 4.1 out of 5. The average score for ease of navigation on the platform was approximately 4.2 out of 5. These results suggest that the instructional design within Blackboard is generally well executed. The high ease of use scores implies that course structures, learning paths, and access to academic resources are automatically laid out. Similarly, the high confidence levels indicate that students feel adequately prepared and supported when engaging with Blackboard’s academic tools.

4.4 Barriers and Challenges

Technical difficulties emerged as a significant barrier to effective engagement with the Blackboard platform. When asked about the frequency of these issues, most students indicated they experienced them sometimes (19% responses), followed by rarely (14% responses), suggesting that while not constant, technical problems were a recurring concern. A smaller number of students reported never encountering issues (20), while others experienced them more frequently, with often (19) and always (18) responses, highlighting that for a subset of students, technical challenges were persistent and potentially disruptive. This distribution shows that while a considerable number of students face occasional issues, technical barriers are a consistent concern for a large portion of users. Such interruptions can affect students’ ability to attend classes, complete assessments, or access materials on time Open-ended responses revealed specific challenges such as poor internet connectivity, difficulty logging into the system, and problems with accessing or submitting online tests. These technical limitations disproportionately affect students with limited digital infrastructure and undermine the overall effectiveness of Blackboard as a learning tool.



5. Conclusion

This study has demonstrated that Blackboard plays an important role in enhancing access to learning content and promoting independent academic engagement among students at the University of Fort Hare. Guided by the Community of Inquiry (CoI) framework, the research revealed strong cognitive and teaching presences on the platform, particularly in terms of content accessibility, assignment submission, and course navigation. However, social presence remains significantly underdeveloped, with limited use of discussion forums and communication tools, thereby weakening the potential for peer collaboration and community building. Challenges such as inconsistent digital literacy, unreliable internet access, and technical glitches disproportionately affect students from disadvantaged backgrounds, undermining the inclusive potential of Blackboard. While training interventions such as bootcamps and the support of TeL Assistants have begun to address these gaps, sustained institutional efforts are needed to optimize Blackboard's pedagogical impact. Ultimately, the findings emphasize the importance of responsive digital learning environments that are not only technologically functional but also pedagogically inclusive. Addressing the structural and technical barriers identified in this study will be crucial to ensuring that Blackboard truly supports diverse learning needs and contributes meaningfully to equitable and transformative higher education in South Africa.

6. Recommendation

Based on the study's findings, it is recommended that the University of Fort Hare strengthen digital literacy support for both students and lecturers through continuous training and expanded access to TeL Assistants. Greater emphasis should be placed on enhancing social presence by encouraging the use of interactive features such as discussion forums and peer collaboration tools within Blackboard. To improve accessibility and user experience, the university should address technical issues related to platform reliability and ensure offline or low-bandwidth alternatives for students with limited connectivity. Furthermore, institutional policies should prioritize digital inclusion by aligning resources toward device provision, internet access, and pedagogical innovation. Ongoing monitoring and student feedback mechanisms are essential to ensure that Blackboard continues to meet the diverse and evolving needs of the student body.

Ethics Declaration

This research was carried out in line with established ethical standards and institutional protocols governing studies involving human participants. Approval for the study was granted by the Inter-Faculty Human Research Ethics Committee (Reference Number: IFHREC-25/08/0008). Participants were provided with full information regarding the study's purpose and procedures, and their voluntary involvement was obtained through signed informed consent. Measures were taken to safeguard participants' privacy, confidentiality, and anonymity, with all data managed in accordance with relevant data protection requirements.

AI Declaration

This paper was prepared with the assistance of artificial intelligence tools, namely ChatGPT (OpenAI), which was used to improve language clarity and support the development and refinement of ideas during the writing

process. The author remains fully responsible for all critical analysis, content decisions, and the overall structure of the work. The use of AI was conducted in alignment with relevant ethical and institutional guidelines.

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