

Student's Perceptions Towards Blackboard and Moodle as Tools for Innovative and Self-directed Learning

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Abstract: A Learning Management System (LMS) contributes highly to the learning experience of university students. A Learning Management System plays a fundamental role in modern education by providing a well-organised platform for managing, delivering, and tracking learning activities. The importance of Learning Management Systems has grown significantly, as educational institutions and organisations progressively lean towards digital learning environments to promote innovative learning. Learning Management Systems such as Blackboard and Moodle can offer a flexible platform for students to foster self-directed learning, collaboration and digital competency. However, it is imperative to gain student buy-in as the success of a platform such as Blackboard or Moodle depends on student acceptance and engagement. The purpose of this study was to determine the perceptions of university students towards two different Learning Management Systems, namely Blackboard and Moodle, as tools for innovative learning and self-directed learning. The sample for this study was made up of 196 third-year students who had experience working with both Blackboard and Moodle. Online questionnaires were sent out to the identified third-year students and responses were then analysed using both data visualisation and descriptive analysis. The results yielded from the study gave a clear guideline of the perceptions that students had towards Blackboard and Moodle as tools for innovative learning and self-directed learning. The findings of this study strongly indicate that Blackboard was perceived by students as a more effective platform for supporting innovative and self-directed learning compared to Moodle. Blackboard's structured layout, intuitive navigation, and features such as progress tracking, announcements, and virtual classrooms were frequently cited as factors that enhanced students' ability to manage their learning independently and engage creatively with course material.

Keywords: Learning Management System, Innovative Learning, Self-directed Learning, Moodle, Blackboard, Student Perceptions

1. Introduction

"In today's rapidly changing world, the most important skill a student can learn is how to learn. Self-directed and innovative learners will be best prepared to adapt, thrive, and lead" (Wagner, 2012). Learning is not only the product of formal face to face class sessions that students receive from educators. Learning is also the product of student engagement with content, driven by curiosity, creativity, and the ability to take ownership of one's own learning process. According to Simelane-Mnisi (2023), in a bid to promote innovative learning and self-directed learning, educational institutions have supplemented face to face learning with digital tools such as learning management systems (LMS).

This study offers a novel contribution to existing literature by exploring and comparing university students' perceptions of both Blackboard and Moodle as tools for fostering innovative and self-directed learning. While previous research has explored the role of LMS in education, a comparative analysis of student perceptions across these two prominent learning management systems in the context of innovation and self-direction remains underexplored. Therefore, the purpose of this study was to determine the perceptions of university students towards Blackboard and Moodle as tools for innovative and self-directed learning.

2. Literature Review

The focus of this research as stated in the introduction is to determine the perceptions of university students towards Blackboard and Moodle as tools for innovative and self-directed learning. To set the tone for this study it is imperative to briefly unpack the key concepts namely, LMS, innovative learning and self-directed learning. A learning management system is a software application that is designed to manage, deliver and track online courses such as, educational courses, training programs and learning and development initiatives (Emmamoge, Hassan & Kauthar, 2020, cited in Gamede et al., 2021). Innovative learning is student centred; it promotes critical thinking amongst students, it fosters creativity, it looks at addressing real-world problems and it leverages technology in order to provide students with learning material and platforms that will allow for engagement (Mogashoa & Mkhize, 2023). Self-directed learning is characterised by an individual taking ownership of their learning process without relying solely on their educator to navigate them through their academic journey (Lai, Saab & Admiraal, 2022). The comparative nature of this research also required that a summary of the features offered by both Learning Management Systems, namely Blackboard and Moodle, were to be included in the

study. Providing a summary of the features contributed to contextualising the student feedback regarding the specific tools available to them, specifically those tools that they felt contributed to innovative and self-directed learning. Table 1 and Table 2 provide an overview of the key features offered by both Blackboard and Moodle.

Table 1: Features of Moodle (Moodle, 2025)

| Features | Description |
|---|--|
| General Features | |
| Modern easy to use interface | Moodle offers a modern interface which is easy to navigate, on both desktop and mobile devices. |
| Personalised My course page | Moodle has a course page which displays current, past and future courses. |
| See-at-a-glance timeline | Moodle has a dashboard which allows for users to view all deadlines and calendar events simultaneously. |
| Collaborative tools and activities | Moodle offers users many activities such as forums, wikis, glossaries, and other activities to foster collaboration. |
| Convenient file management | Moodle allows for files to be uploaded into the Moodle environment from various locations such as cloud storage services including MS OneDrive, Dropbox and Google Drive. |
| Notifications | When enabled, Moodle allows for users to receive automatic alerts on new assignments and deadlines, forum posts and also send private messages to one another. |
| Tracking Progress | Educators and learners can track progress with an array of features for tracking individual activities, such as gradebook. Features such as detailed reporting and analytics are also available for educators to track student progress. |
| Continuous Improvement | As an open-source project, it benefits from ongoing development and improvements from a global community. |
| Cost-Effective | Due to its open-source nature, Moodle is generally less expensive to use than commercial LMS platforms. |
| Administrative Features | |
| Customisable site Design and Layout | Moodle offers options for customizing themes, logos, and layouts or for designing one's own theme. |
| Secure authentication and mass enrolment | Moodle offers various ways to manage authentication through authentication plugins. Moodle also offers various options to add and enrol users to your Moodle site and courses through enrolment plugins. |
| Multilingual Capability | Moodle allows users to view course content and learn in their own language or set it up for multilingual users and organisations. |
| Bulk course creation and easy backup | Moodle allows for courses to be added in bulk, for courses to be backed up and large courses to be restored with ease. |
| Manage user roles and permissions | Moodle allows for managing and assigning roles to various stakeholders based on the role that they are required to fulfil within a specific module. |
| Open Standards | Moodle supports open standards like IMS-LTI and SCORM. |
| Regular security updates | Moodle is regularly updated with the latest security patches to help ensure your Moodle site is secure. |
| Course Development and Management Features | |
| Direct learning path | Moodle allows for courses to be design and managed to meet various requirements. Classes can be instructor-led, self-paced, blended or entirely online. |
| Encourages collaboration | Moodle has built-in collaborative publishing features that foster engagement and encourage content-driven collaboration. |
| Multimedia integration | Moodle's built-in media support enables you to easily search for and insert video and audio files in your courses. |
| Group management | The group feature on Moodle allows educators to learners to share courses, differentiate activities and facilitate teamwork. |
| Marking work flow | Moodle allows for markers to be Conveniently assigned to different assignments, manage grade moderation and control when marks are released to individual learners. |
| In line marking | Moodle allows for a marker to easily review and provide in-line feedback by annotating files directly within browser. |

| Features | Description |
|---------------------------|---|
| Peer and self-assessments | Moodle has built-in activities such as workshops and surveys to encourage learners to view, grade and assess their own and other course members' work as a group. |
| Integrated badges | Fully has badges compatible with Mozilla Open Badges, motivate learners and reward participation and achievement with customised Badges. |
| Advanced grading | Moodle allows educators to select from advanced grading methods to tailor the gradebook to their course and examination criteria. |
| Competency based marking | Moodle allows for educators to set up competencies with personal learning plans across courses and activities. |
| Security and privacy | Moodle has strong security measures throughout the platform. Moodle also allows educators to teach and share in a private space only you and your class can access. |

Table 2: Blackboard features (Aidoos, 2024; Blackboard Inc., 2024)

| Features | Description |
|---|--|
| General Features | |
| Mobile access | Blackboard allows for students to access course materials via the Blackboard mobile app. |
| User dashboard | Blackboard has a dashboard which displays all the past, current, and future courses that a student is enrolled in. The dashboard also displays the achievements that a student has earned and the progress that a student is making in courses where the progress tool is enabled by the lecturer. |
| Notifications | Blackboard allows for real-time updates on assignments, grades, and messages. |
| Accessibility support | Blackboard is invested in the usability and accessibility of all its products and services, therefore it endeavours to design and develop its products and services aligned with internationally recognized Web Content Accessibility Guidelines (WCAG), as well as Section 508 of the Rehabilitation Act of 1973. |
| Cloud integration | The Blackboard Partner Cloud streamlines its inventory of content into a single registration and activation process. |
| Administrative Features | |
| Course creation and management | Blackboard allows individuals with admin rights to create, copy, archive, and delete courses. |
| User enrolment and roles | Blackboard allows for various roles (Instructor, Student, Teaching Assistant) to be assigned to different individuals enrolled for a module. |
| Course catalogue management | Blackboard allows for institutions to create, manage and organize courses into searchable categories. |
| Permissions and access control | Blackboard has access control which is an essential security measure that regulates user access to resources, ensuring that only authorised individuals can perform specific actions or access certain data. |
| System reporting and analytics | Blackboard allows instructors and teaching assistants to monitor student activity, content access and overall performance. |
| Tool management | Enable or disable features/tools at institution or course level. |
| LMS integration | Integrates with SIS, LTI tools, and authentication systems. |
| Course Development and Management Features | |
| Content authoring tools | Blackboard allows for instructors to create and organise modules, multimedia, and learning units according to their needs. |
| Course templates | Blackboard allows instructors to reuse and customise course structures and content across terms or sections. |
| Course copy and export | Course Copy and Export is a feature in Blackboard which allows instructors to copy entire courses or export them for sharing or backup. |

| Features | Description |
|---------------------------------------|---|
| Assessment and quizzes | Blackboard allows for instructors to design tests with multiple question types, such as multiple-choice questions, multiple answer questions, true/false questions and essay type questions. Automated grading is also a feature available in Blackboard. |
| Test pools and question banks | In Blackboard tests do not always have to be started from scratch as instructors can reuse and randomize assessment content across courses. |
| Self and peer assessment | Blackboard provides students with the opportunity assess themselves and to evaluate each other's work using predefined criteria. |
| Grade centre | The grade centre in Blackboard serves as a snapshot of all the students marks. The grade centre allows for flexible grading with weighting, calculated columns, and rubrics. |
| Assignments and drop box | Create assignments with file submission, plagiarism check (SafeAssign). |
| Communication tools | Blackboard uses announcements, emails, and messages to engage students. |
| Discussion boards | Blackboard enable peer-to-peer interaction through asynchronous discussions. |
| Blogs and journals | Blackboard has blogs and Journals which allow students to partake in reflective writing. |
| Feedback and rubrics | Blackboard provides timely, detailed feedback of assessments with standardized rubrics. |
| Learning modules | Blackboard allows for instructors to organise content into sequenced, trackable modules for structured learning. |
| Adaptive release | Blackboard allows for content to be released on pre-defined criteria such as releasing a test on specific date to specific students based on their student numbers. |
| Multimedia & SCORM support | Blackboard supports embedding multimedia content like videos and animations, as well as SCORM packages, directly into courses. |
| Collaborate ultra (Virtual Classroom) | Blackboard ultra allows for live sessions through virtual classroom. meetings. |

3. Research Design and Methodology

A carefully selected research design and methodology is essential to the success of any research study. The research design and methodology of a study serves as the blueprint which dictates how a study is conducted. All the necessary techniques or procedures used to collect, analyse and interpret data are selected in the research and methodology phase. Based on Saunders, Lewis and Thornhill's (2019: 108) research onion (see fig 1), the following research design and methodological choices were made for this study:

- **Philosophical paradigm:** For this study, pragmatism served as the philosophical paradigm of choice. Pragmatism focuses on the practical outcomes of ideas, and on solving real world problems. The focus of this study was on determining the perceptions of third-year students towards Blackboard and Moodle as tools for innovative and self-directed learning therefore, it aligns with the ethos of pragmatism which delves into practical utility and effectiveness.
- **Theoretical underpinning:** Constructivism and self-determination were the two theories that underpinned this study. Constructivism states that learners actively construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences. In the context of digital tools, this implies that the design and functionality of Blackboard and Moodle could either facilitate or hinder students' active engagement and knowledge construction, thereby impacting their innovative learning. Self-determination theory, particularly its emphasis on autonomy, provided a lens through which to understand self-directed learning. If students perceived Blackboard and Moodle as supporting their autonomy as learners, they would more likely engage in self-directed learning.
- **Methodological choice:** This study used a mono-method approach, in the form of an online questionnaire which contained both open-ended and closed-ended questions. The addition of both open-ended and closed-ended questions allowed for better insight into addressing the purpose of the study.

- **Time Horizon:** This study took on a cross-sectional time horizon as data was collected from third-year students on one occasion. Essentially the study provided a snapshot of the perceptions of third-year students in 2024.
- **Data collection and analysis:** Data was collected with an online questionnaire which was compiled using Google forms. The questionnaire contained both open-ended and closed-ended questions that were analysed using data visualisation and descriptive analysis.
- **Sample:** Purposive sampling was used to select the sample for this study, which comprised 196 third-year students enrolled in the School of Consumer Intelligence and Information Systems at the University of Johannesburg. This specific sample was selected due to their relevant experience with both Learning Management Systems. All participants possessed two to three years of experience with Blackboard and one year experience with Moodle, providing a good basis for comparative perceptions.
- **Validity and reliability:** To enhance the validity and reliability of the questionnaire, a pilot test was conducted with an individual who possessed extensive knowledge on teaching and learning within the LMS domain. The valuable feedback received from this individual was then integrated to refine the final questionnaire.

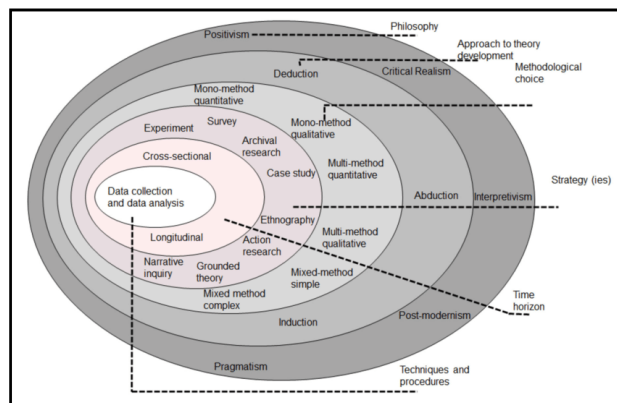


Figure 1: Research onion (Saunders et al., 2019, p. 108)

4. Results and Discussion

Following the distribution of online questionnaires, via Google Forms to the third-year students who formed part of the sample, the closed-ended and open-ended responses were subsequently analysed and interpreted as outlined below."

4.1 Presentation and Interpretation of Closed-ended Questions

Figure 2 - 10 serve as a visual representation of the responses received from the closed-ended questions that were disseminated to the students. Of the 196 students who responded to the questionnaire 91.7% stated that they used to accessed Blackboard on a daily basis to access their course work. Of the 196 only 8.3% said that they used to access Blackboard once a week. In terms of Moodle a 100% of the students stated that they currently accessed Moodle daily (See figure 2 and 3). These findings reflect self-regulation and initiative from the student's side, and a willingness to access the learning management systems that are offered by their institution. Students who regularly access their institution's LMS demonstrate key attributes of self-directed and innovative learners.

In terms of the overall learning experience (See figure 4), and the overall collaboration experience (See figure 5), Blackboard dominated with 76.5% stating that Blackboard offered a better learning experience than Moodle. The students also felt that Blackboard offered a better overall collaboration experience. However, there were 5.9% of the students who did feel that Moodle was slightly better than Blackboard in terms of collaboration. The following statement was then posed to students (See figure 6) **"Moodle provides a more innovative and engaging learning experience compared to Blackboard. (e.g. forums, online engagement, Lecturer to student engagement, student to student engagement)"**. Based on this statement 52.9% and a further 23.5% strongly disagreed with the statement clearly leaving the impression that Blackboard was perceived, by the students, to be a better LMS for innovative and engaging learning.

The students were also asked to rate the following statement (See figure 7) **"I prefer Moodle over Blackboard for innovative learning"**. The responses yielded from this statement showed that 41.2% of the students strongly disagreed while 23.5% disagreed. These percentages left the impression that again, Blackboard was the clear preference for innovative learning. In both the above statements there were students who were unsure, and this could perhaps be attributed to the fact that students had more working experience with Blackboard. In both above-mentioned statements there was a percentage of students, albeit small, that agreed to Moodle being the better choice for innovative and engaging learning.

In terms of the user friendliness of Blackboard and Moodle (See figure 8), which encompass aspects such as easy navigation, personalised learning and engaging content and activities for students, a significant 82.4% of the students felt that Blackboard was much easier to use. Lastly students were asked if they thought if Blackboard was used effectively by their lecturers as a tool for innovative learning and if Moodle is currently being used effectively by lecturers for innovative learning. A 100% of the students agreed that Blackboard was indeed used effectively for innovative learning, however with regards to Moodle 75% disagreed and only 25% agreed. Based on the closed-ended questions and the responses thereof it can be concluded that Blackboard was the preferred LMS in terms of innovative learning. The responses provided may also suggest that lecturers may need to consider engaging more with the features in Moodle, that support innovative learning and evoke self-directed learning.

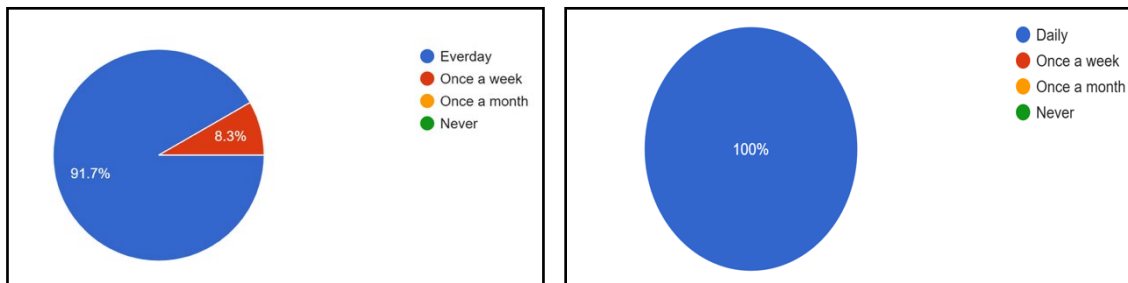


Figure 2 and 3: Blackboard vs Moodle access (own source developed for this study, 2024)

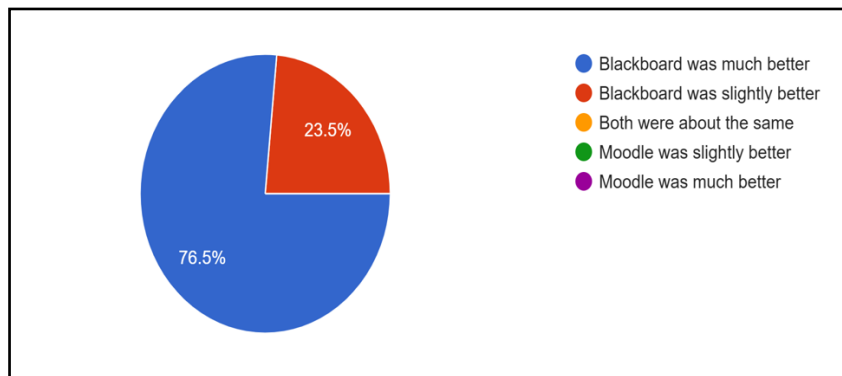


Figure 4: Overall learning experience (own source developed for this study, 2024)

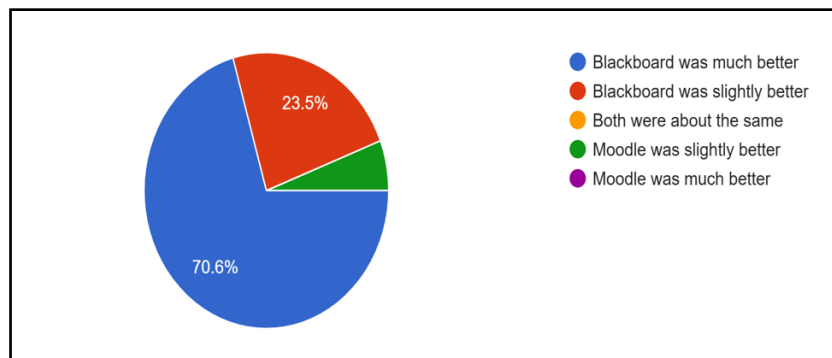


Figure 5: Overall collaboration experience (own source developed for this study, 2024)

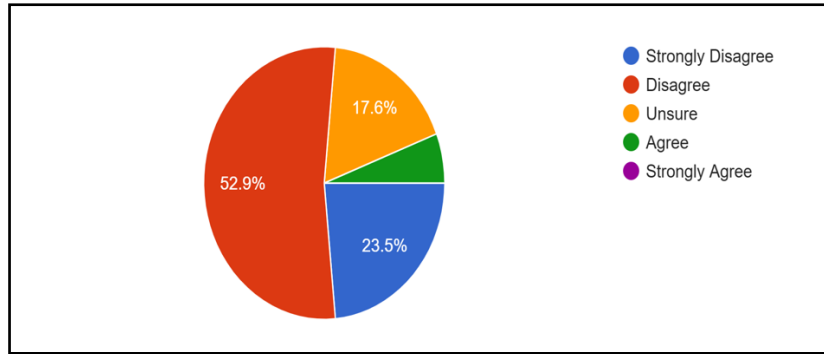


Figure 6: Innovative and engaging learning experience: Moodle vs Blackboard (own source developed for this study, 2024)

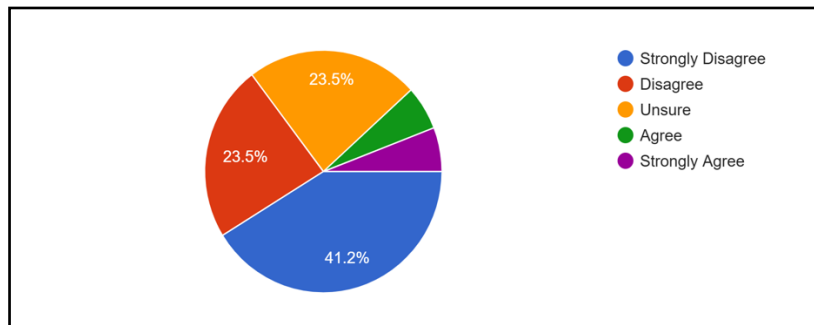


Figure 7: Moodle over Blackboard for innovative learning (own source developed for this study, 2024)

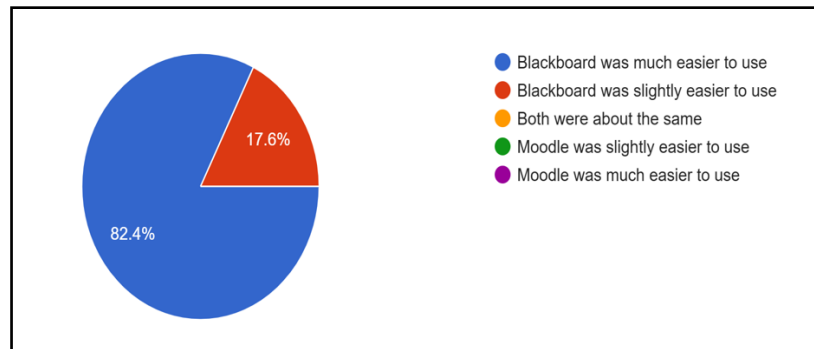


Figure 8: User Friendliness of Blackboard and Moodle (own source developed for this study, 2024)

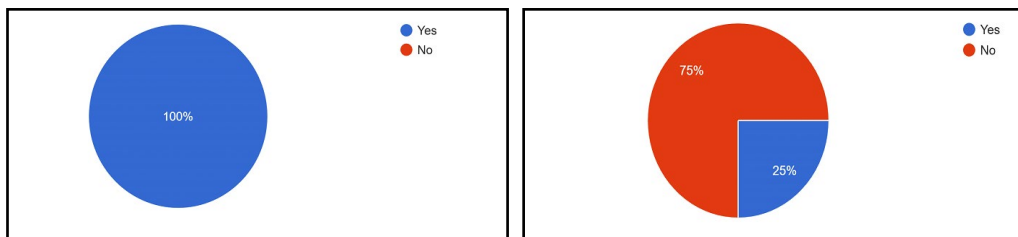


Figure 9 and 10: Use of Blackboard vs Moodle for innovative learning (own source developed for this study, 2024)

4.2 Presentation and Interpretation of Open-ended Questions

Based on the responses from the open-ended questions student perceptions highlighted Blackboard's navigation and user-friendliness, as contributing factors to a significantly better learning experience. Key features that were praised on Blackboard included its well-organised course modules, intuitive interface, and effective announcement/notification systems. Students also valued the virtual class tools and progress-tracking

features, which actively promoted self-directed learning. Verbatim responses emphasized Blackboard's "clearly organised course modules," "intuitive interface," and its ability to help students "manage deadlines and monitor their learning milestones effectively."

In contrast, Moodle faced consistent criticism regarding its user interface and navigation. Students described Moodle as "overcomplicating basic functions" and having a "cluttered and unwelcoming" interface, which made it difficult to access content efficiently. While many students reported no significant challenges with Blackboard, occasional issues like downtime or streaming difficulties were noted. Moodle, however, was frequently cited for poor organisation and technical glitches like continuous logouts.

Ultimately, Blackboard emerged as the preferred platform for both collaborative and self-directed learning. Students praised Blackboard's integrated collaborative tools, which fostered a cohesive environment for group projects and discussions. For self-directed learning, Blackboard's organised structure and intuitive navigation were highlighted as crucial for managing coursework, tracking progress, and exploring subjects independently. These findings were consistent across open-ended and closed-ended responses, firmly establishing Blackboard as the favoured LMS for supporting innovative and self-directed learning.

5. Conclusion

The main objective of this study was to explore the perceptions of third-year university students towards the utilisation of Blackboard and Moodle as tools for innovative and self-directed learning. Keeping into consideration the evolving educational landscape in terms of technology, this study endeavoured to understand which Learning Management System better facilitates learner independence, engagement and knowledge construction. The findings of this study strongly indicate that Blackboard was perceived by students as a more effective platform for supporting innovative and self-directed learning compared to Moodle. Blackboard's structured layout, intuitive navigation, and features such as progress tracking, announcements, and virtual classrooms were frequently cited as factors that enhanced students' ability to manage their learning independently and engage creatively with course material. Conversely, students reported that Moodle posed challenges related to interface complexity, content organization, and limited support for media integration and collaborative tools. Despite Moodle's potential and open-source flexibility, students in this context did not perceive it as being used effectively to support innovation or self-direction. This highlights the importance of not only platform capability but also institutional implementation and lecturer engagement in optimising LMS use. It is recommended that institutions who are considering or who are currently using Moodle, to prioritize user experience in digital learning environments by adopting a student-centric approach in platform implementation, ensuring intuitive design to facilitate learner independence. It is also recommended that institutions acknowledge and address prior user experience when adopting or evaluating new LMS platforms, implementing comprehensive scaffolding and support to mitigate familiarity bias and ensure equitable learning opportunities across different systems. It is important to note that the students who formed part of the sample for this study had more working experience with Blackboard hence this could have contributed to them perceiving Blackboard as a better LMS for innovative learning and self-directed learning.

Ethics Declaration

Ethical clearance was obtained from the University of Johannesburg's, College of Business and Economics (CBE) Research Ethics Committee. Ethics clearance for this research was approved on 15 November 2022. Reference number: 2022SCiiS043.

AI Declaration

The authors declare that the Artificial Intelligence (AI) tool, Gemini, was used. The AI assistance was limited to idea organisation and all intellectual content, critical analysis, and final interpretations were conducted by the authors. The use of AI tools complied with ethical standards and authorship criteria.

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