



PLATFORMS USED IN ONLINE EDUCATION AND THE ENHANCEMENT OF STUDENTS' LEARNING IN THE UNIVERSITY OF BUEA, CAMEROON

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Abstract

This study investigated the influence of online education platforms on the enhancement of students' learning at the University of Buea. Specifically, the study examined the influence of Coursera and Moodle on students' learning outcomes. Two research objectives were formulated to guide the study, and these were subsequently transformed into research questions and hypotheses. The study adopted a descriptive survey research design. A four-point Likert-scale questionnaire was used as the main instrument for data collection. Through simple random sampling, four establishments of the University of Buea were selected for the study, while accidental sampling technique was employed in administering the questionnaire to a sample of 357 students. Data collected were analysed using both descriptive and inferential statistics. Descriptive statistics involved frequencies and percentages, whereas inferential statistics were analysed using the Pearson Product-Moment Correlation Coefficient. Findings revealed that both Coursera and Moodle significantly influence the enhancement of students' learning at the University of Buea. The study concluded that the effective use of online learning platforms positively contributes to students' academic engagement and learning outcomes. Based on these findings, the study recommended that students and instructors should increasingly integrate and maximise the use of Coursera and Moodle in the teaching-learning process in order to improve academic performance and promote effective online education practices within the university.

Keywords:

Online Education, Coursera, Moodle, Students' Learning, University of Buea.

Introduction

Johnson and Wilkinson (2020), opine that Coursera is a massive open online course (MOOC) platform that partners with universities and organizations to offer online courses, specializations, and degree programmes. It provides learners worldwide with access to high-quality educational content, often incorporating interactive assignments, peer assessments, and certification options. The platform helps students in the University of Buea by providing access to quality education from top universities, ensuring they receive high-standard learning materials that might not be available locally. Its flexibility allows students to learn at their own pace, making it easier to balance studies with other responsibilities. Coursera is an online learning platform where people can take courses on different subjects from top universities and

companies around the world. It helps students learn new skills at their own pace, anytime and anywhere.

In response to the COVID-19 pandemic in 2020, Coursera launched the "Coursera for Campus" initiative, providing universities with free access to its extensive course catalogue to support the continuity of education during campus closures (Maggioncalda, 2019). This initiative enabled higher education institutions to integrate Coursera's offerings into their curricula, ensuring that students could continue their studies remotely without significant disruption. Coursera has emerged as a transformative force in global education, offering scalable learning opportunities that transcend geographical and economic boundaries. Almatrafi and Alzahrani (2021) analyzed the role of Coursera in promoting lifelong learning among university students in the Middle East. Their findings indicated that students who actively engaged with Coursera courses developed improved digital literacy, self-directed learning habits, and a stronger sense of academic independence. These skills, often underemphasized in traditional settings, were found to be crucial in preparing students for the demands of the modern workforce.

In terms of enhancement in learning, Coursera's data analytics capabilities have also shown potential in identifying at-risk learners. Research conducted by Zhang and Wang (2023) employed learning analytics on Coursera users and found that student participation in quizzes, video lectures, and discussion forums was positively correlated with course completion rates and final grades. This suggests that learner engagement metrics on Coursera can serve as early indicators of academic success or failure, enabling institutions to implement timely interventions. Coursera's flexible learning model has also been praised for its support of diverse learning paces and styles. According to Patel et al. (2022), students appreciated Coursera's asynchronous format, which allowed them to revisit complex topics and learn at their own pace. This flexibility was particularly beneficial for students with part-time jobs, caregiving responsibilities, or limited internet connectivity. The study emphasized that such flexibility not only enhanced accessibility but also reduced learning anxiety, contributing to improved academic outcomes.

However, instructor presence or the lack thereof remains a key limitation in Coursera's learning model. A study by Demirkol and Aydin (2020) explored student perceptions of instructor interaction in MOOC environments and found that Coursera users often felt isolated due to the limited availability of real-time feedback and live interaction. The absence of synchronous engagement opportunities was seen as a barrier to deeper learning, particularly in complex subjects requiring clarification and discussion. Moreover, cultural relevance and contextualization of content have been noted as areas for improvement. A study by Mwangi (2021) investigated the applicability of Coursera content for African university students and found that while the courses were rich in content, they often lacked local context, examples, and case studies. This mismatch sometimes reduced learner engagement and limited the applicability of knowledge to real-world regional problems. The study recommends co-creation of content with local universities to bridge this gap.

More so, the professional benefits of Coursera's certification programs have been documented in several global studies. For example, Hernández and López (2022) assessed Coursera's role in upskilling unemployed youth in Latin America and found that 67% of participants who completed professional certificate programs reported improved employability and job

acquisition. These results support Coursera's claim of bridging the skills gap and empowering learners through accessible, industry-relevant education.

The impact of Coursera on student satisfaction has been subject to academic scrutiny. A study by Nguyen (2022) assessed learners' satisfaction with Coursera courses, revealing relatively low satisfaction levels, with a mean score of 2.39 out of 6.0. Factors contributing to this dissatisfaction included perceived ineffectiveness of peer assessments, lack of interaction with instructors, and issues with plagiarism detection software. The study also found moderate correlations between learner satisfaction and affective, behavioural, and cognitive attitudes, suggesting that these dimensions significantly influence students' overall contentment with online courses.

Despite these challenges, Coursera's initiatives have demonstrated tangible benefits for learners. According to Maggioncalda (2019), universities utilizing Coursera have been able to enhance their curricula with job-relevant, multi-disciplinary online learning, thereby improving student employability. This underscores Coursera's role in democratizing education and enhancing learning across diverse demographics.

According to Williams and Garcia (2020), Modular Object-Oriented Dynamic Learning Environment (Moodle) is an open-source learning management system designed to support online and blended learning. It offers customizable features, such as course management, interactive assessments, and collaboration tools, making it a widely used platform in higher education and corporate training. It supports a variety of multimedia formats and provides tools for quizzes, assignments, forums, and more. Moodle is an open-source learning management system (LMS) widely used by educational institutions to create and manage online courses. It provides tools for creating assignments, quizzes, discussion forums, and multimedia content, while also allowing educators to track student progress and facilitate interaction (Moodle, 2021). The platform supports a flexible and collaborative learning environment that can cater to various educational needs, making it particularly valuable in distance learning settings. In the context of the University of Buea, Moodle is an online platform that helps teachers create and share learning materials, give assignments, and communicate with students. It makes learning easier by bringing everything into one place on the internet. Moodle plays a significant role in enhancing the academic performance of students. By enabling students to work at their own pace, track their progress, and participate in interactive activities, Moodle helps improve motivation and academic performance (Wang, 2020). Furthermore, the platform fosters a sense of community among students and teachers, contributing to a more supportive and effective learning experience.

Moodle, an open-source Learning Management System (LMS), has been extensively studied for its impact on enhancing learning in higher education. A systematic review by Watson et al. (2021) analysed 155 journal articles published between 2015 and 2021, highlighting Moodle's widespread adoption, particularly in Science Technology Engineering and Mathematics (STEM) education. The review identified that effective Moodle integration often involves innovative teaching methods and active learning strategies, which are associated with improved student outcomes. However, the study also noted gaps in research regarding the long-term impacts of Moodle usage on academic performance (Watson et al., 2021).

In a study focusing on blended learning environments, Chango et al. (2024), investigated the use of multi-source and multimodal data from Moodle to predict academic performance. The research collected data from various activities, including theory classes, practical sessions, and online Moodle interactions. Findings indicated that combining data from different sources, particularly Moodle quizzes and forum participation, allowed for accurate predictions of students' final grades. This underscores the potential of Moodle's data analytics capabilities in identifying at-risk students and informing targeted interventions (Chango et al., 2024). Further exploring Moodle's communicative tools, Latifi et al. (2021) examined their impact on enhancement of students' learning. The study found that the integration of digital technologies, such as forums and messaging within Moodle, transformed traditional teaching methods and created integrated communication environments. This integration was associated with enhanced student engagement and improved learning outcomes, suggesting that the communicative instruments of Moodle play a significant role in academic success (Latifi et al., 2021).

However, the shift towards online learning platforms like Moodle has raised concerns about the erosion of traditional educational standards. Zhou (2025) discussed the trend of universities moving away from face-to-face lectures to digital content delivery, partly due to declining in-person attendance. Academics expressed apprehension that this shift might prioritize cost-cutting over educational quality, potentially diminishing the interactive and social aspects of learning that are crucial for student development (Zhou, 2025).

Moodle's effectiveness in promoting student engagement and academic success has been a topic of considerable research. Beck and Johnson (2022) explored how the use of Moodle in language learning courses enhanced student interaction and improved learning outcomes. Their research found that Moodle's ability to provide instant feedback on quizzes and assignments led to increased motivation among students, as they could track their progress and identify areas for improvement. This immediate feedback loop was found to be a key factor in enhancing student engagement, particularly in subjects where language acquisition was the main focus. Johnson and Wilkinson (2020) examined how the collaborative tools within Moodle, such as group assignments and forums, encouraged peer-to-peer learning. Their study concluded that the collaborative features within Moodle not only facilitated academic discussions but also promoted teamwork and problem-solving skills among students. These skills are crucial in preparing students for professional environments where collaboration and communication are essential.

Another important aspect of Moodle is its role in facilitating personalized learning paths. According to Gani et al. (2023), Moodle's adaptive learning features allow instructors to create customized learning experiences for individual students. By using Moodle's tracking tools, instructors can monitor students' progress and adjust the learning materials and activities according to each student's needs. This personalized approach helps ensure that students receive the support they require, ultimately enhancing learning thus improving their academic performance and learning outcomes. In addition, the impact of Moodle on student motivation and retention has been widely studied. According to Smith et al. (2022), students who regularly engaged with Moodle's interactive elements, such as quizzes and peer assessments, showed higher levels of motivation and academic persistence. The research found that when students could actively participate in their learning through interactive tools, they felt more in control of their academic journey, which led to greater satisfaction and reduced dropout rates. These

findings suggest that Moodle's interactive capabilities can significantly contribute to improving student retention rates in higher education.

Despite its benefits, Moodle is not without challenges. A study by Jenkins and McCormick (2022) highlighted the challenges faced by both students and educators when using Moodle for the first time. They found that many students struggled with navigating the platform, especially when they lacked digital literacy skills. Similarly, instructors experienced difficulty in integrating Moodle's complex features into their teaching, which led to reduced effectiveness in online learning environments. The study suggests that institutions should offer comprehensive training and support to both students and staff to ensure the successful implementation of Moodle. In addition to usability issues, the scalability of Moodle for large institutions has also been questioned. Wang et al. (2023) explored the challenges of managing large numbers of students on Moodle, particularly in courses with hundreds of participants. While Moodle is capable of handling large volumes of students, the study found that without sufficient server infrastructure, there were instances of slow system performance and downtime. To address these issues, the study recommends investing in robust IT infrastructure and providing additional resources for Moodle administrators to ensure smooth operation.

Statement of the Problem

In the era of technological advancement and digitalisation, almost every student in the University of Buea is in possession of one or more of the following electronic gadgets; phones, laptops, tablets, and smart televisions. Most establishments make use of Wi-Fi that allow devices like phones, laptops, tablets, and smart televisions to connect to the internet without physical cables. Students therefore have the opportunity to explore platforms used in online education for the enhancement of their learning.

Inadequate use of platforms used in online education might limit the students of learning resources. This may result in students facing some challenges with their academic work, which may lead to some students having lower grades and some failing courses. This may cause some students to spend more years in the university than initially programmed, and some even dropping out of school. It is for this reason that this study seeks to find out the platforms used in online education and the enhancement of students' learning in the university of Buea, Cameroon

Methodology

This study made use of the descriptive survey research design with the use of quantitative method. A sample of 357 students from four establishments in the University of Buea were used for the study, to whom a closed-ended four-point Likert scale questionnaire was administered. Random sampling technique was used to get the establishments while accidental sampling technique was used to get students from the selected establishments who availed themselves to respond to the questionnaire that was administered by direct delivery technique. The data collected were analyzed descriptively using frequencies and percentages, and inferentially using the Pearson Product-Moment Correlation Coefficient.

Findings

The findings were based on the following research questions:

Research question one: to what extent does Coursera influence the enhancement of students' learning in the University of Buea?

Table 1 *Coursera and Enhancement of Students' Learning*

SN	ITEM	Stretched				Collapsed	
		SA	A	D	SD	SA +A	SD +D
1	Coursera has provided me with practical course content.	80 (22.4%)	221 (61.9%)	46 (12.9%)	10 (2.8%)	301 (84.3%)	56 (15.7%)
2	I am satisfied with the quality of the courses offered on Coursera for my academic goals	66 (18.5%)	209 (58.5%)	67 (18.8%)	15 (4.2%)	275 (77%)	82 (23%)
3	Coursera has improved my skills in subjects outside of my formal university curriculum, contributing to my overall academic success.	64 (17.9%)	218 (61.1%)	51 (14.3%)	24 (6.7%)	282 (79%)	75 (21%)
4	I often use Coursera to do research	56 (15.7%)	226 (63.3%)	48 (13.4%)	27 (7.6%)	282 (79 %)	75 (21%)
5	Coursera has provided me with more knowledgeable articles concerning my courses.	67 (18.8%)	205 (57.4%)	68 (19.0%)	17 (4.8%)	272 (76.2%)	85 (23.8%)
6	I can learn at my own pace using Coursera	73 (20.4%)	217 (60.8%)	47 (13.2%)	20 (5.6%)	290 (81.2%)	67 (18.8%)
7	The lack of instructor interaction limits my understanding	66 (18.5%)	212 (59.4%)	55 (15.4%)	24 (6.7%)	278 (77.9%)	79 (22.1%)
8	Coursera helps me gain skills that improve my employability	60 (16.8%)	224 (62.7%)	48 (13.4%)	25 (%)	284 (79.5%)	73 (20.5%)
9	I feel confident learning independently through Coursera	58 (16.2%)	223 (62.5%)	54 (15.1%)	22 (6.2%)	281 (78.7%)	76 (21.3%)

	MRS	590 (18.3%)	1955 (60.8%)	484 (15.0%)	184 (5.7%)	2545 (79.2%)	668 (20.7%)
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In relation to research question one, nine items were used to find out the extent to which Coursera influence the enhancement of students’ learning in the University of Buea. In relation to item one, 301 respondents (84.3%) agreed to the fact that Coursera has provided them with practical course content while 56 respondents (15.7%) disagreed. In relation to item two, 275 respondents (77%) agreed to the fact that they are satisfied with the quality of the courses offered on Coursera for their academic goals while 82 respondents (23%) disagreed. In relation to item three, 282 respondents (79%) agreed to the fact that Coursera has improved their skills in subjects outside of their formal university curriculum, contributing to their overall academic success while 75 respondents (21%) disagreed.

In relation to item four, 282 respondents (79%) agreed to the fact that they often use Coursera to do research while 75 respondents (21%) disagreed. In relation to item five, 272 respondents (76.2%) agreed to the fact that Coursera has provided them with more knowledgeable articles concerning their courses while 85 respondents (23.8%) disagreed. In relation to item six, 290 respondents (81.2%) agreed to the fact that they can learn at their own pace using Coursera while 67 respondents (18.8%) disagreed. In relation to item seven, 278 respondents (77.9%) agreed to the fact that the lack of instructor interaction limits their understanding while 79 respondents (22.1%) disagreed. In relation to item eight, 284 respondents (79.5%) agreed to the fact that Coursera helps them to gain skills that improve their employability while 73 respondents (20.5%) disagreed. In relation to item nine, 281 respondents (78.7%) agreed to the fact that they feel confident learning independently through Coursera while 76 respondents (21.3%) disagreed.

To further determine the influence Coursera on the enhancement of students’ learning in the University of Buea, the Pearson product-moment correlation coefficient was calculated to ascertain the influence as indicated in the table below.

Verification of Hypothesis

H₀₁: Coursera has no significant influence on the enhancement of students’ learning in the University of Buea.

H_{a1}: Coursera has a significant influence on the enhancement of students’ learning in the University of Buea.

Table 2

Perceived Influence of Coursera on the Enhancement of Students’ Learning in the University of Buea

		<i>Coursera</i>	<i>Academic performance</i>
<i>Coursera</i>	Pearson Correlation	1	.943**
	Sig. (2-tailed)		.000
	N	357	357
<i>Academic performance</i>	Pearson Correlation	.943**	1
	Sig. (2-tailed)	.000	
	N	357	357

****.** Correlation is significant at the 0.01 level (2-tailed).

From the table above, the Pearson correlation coefficient ($r = .943^{**}$, $P=0.05$) indicates a strong positive and statistically significant relationship between Coursera and academic performance of students in the University of Buea. This, therefore, connotes enough statistical evidence ($r=0.943^{**}$, $n=357$, $P=0.05$) that Coursera positively and significantly influences the enhancement of students' learning in the University of Buea. Hence, the null hypothesis is rejected, and the alternate hypothesis is accepted, which states that Coursera has a significant influence on the enhancement of students' learning in the University of Buea.

Research question two: to what extent does Moodle influence the enhancement of students' learning in the University of Buea?

Table 3
Moodle and Enhancement of Students' Learning

SN	ITEM	Stretched				Collapsed	
		SA	A	D	SD	SA +A	SD +D
1	I find Moodle's tools helpful in understanding course materials	208 (58.3%)	110 (30.8%)	34 (9.5%)	5 (1.4%)	318 (89.1%)	39 (10.9%)
2	The feedback I receive from Moodle improves my learning	45 (12.6%)	259 (72.5%)	44 (12.3%)	9 (2.5%)	304 (85.1%)	53 (14.9%)
3	Moodle is user-friendly enough to navigate effectively during my course.	198 (55.5%)	94 (26.3%)	54 (15.1%)	11 (3.1%)	292 (81.8%)	65 (18.2%)
4	Moodle support interaction with instructors and peers	207 (58.0%)	88 (24.6%)	50 (14.0%)	12 (3.4%)	295 (82.6%)	62 (17.4%)
5	I find it easy to participate in forum discussions on Moodle	204 (57.1%)	91 (25.5%)	50 (14.0%)	12 (3.4%)	295 (82.6%)	62 (17.4%)
6	I am able to track my academic progress using Moodle	196 (54.9%)	84 (23.5%)	47 (13.2%)	30 (8.4%)	280 (78.4%)	77 (21.6%)
7	I feel motivated to learn through Moodle's interactive tools	215 (60.2%)	78 (21.8%)	47 (13.2%)	17 (4.8%)	293 (82%)	64 (18%)
8	Technical difficulties sometimes make it challenging to use Moodle	237 (66.4%)	71 (19.9%)	30 (8.4%)	19 (5.3%)	308 (86.3%)	49 (13.7%)
9	I find Moodle more effective than face-to-face learning	43 (12.0%)	196 (54.9%)	66 (18.5%)	52 (14.6%)	239 (66.9%)	118 (33.1%)
	MRS	1553 (48.3%)	1071 (33.3%)	422 (13.1%)	167 (5.1%)	2624 (81.6%)	589 (18.4%)

In relation to research question two, nine items were used to find out how Moodle influence the enhancement of students’ learning in the University of Buea? In relation to item one, 318 respondents (89.1%) agreed to the fact that they find Moodle’s tools helpful in understanding course materials while 39 respondents (10.9%) disagreed. In relation to item two, 304 respondents (85.1%) agreed to the fact that the feedback they receive from Moodle improves their learning while 53 respondents (14.9%) disagreed. In relation to item three, 292 respondents (81.8%) agreed to the fact that Moodle is user-friendly enough to navigate effectively during their course while 65 respondents (18.2%) disagreed. In relation to item four, 295 respondents (82.6%) agreed to the fact that Moodle support interaction with instructors and peers while 62 respondents (17.4%) disagreed.

In relation to item five, 295 respondents (82.6%) agreed to the fact that they find it easy to participate in forum discussions on Moodle while 62 respondents (17.4%) disagreed. In relation to item six, 280 respondents (78.4%) agreed to the fact that they are able to track their academic progress using Moodle while 77 respondents (21.6%) disagreed. In relation to item seven, 293 respondents (82%) agreed to the fact that they feel motivated to learn through Moodle’s interactive tools while 64 respondents (18%) disagreed.

In relation to item eight, 308 respondents (86.3%) agreed to the fact that technical difficulties sometimes make it challenging to use Moodle while 49 respondents (13.7%) disagreed. In relation to item nine, 239 respondents (66.9%) agreed to the fact that they find Moodle more effective than face-to-face learning while 118 respondents (33.1%) disagreed

To further determine the effect Moodle on the enhancement of students’ learning in the University of Buea, the Pearson product-moment correlation coefficient was calculated to ascertain the influence as indicated in the table below.

Verification of Hypothesis Two

H₀₂: Moodle, has no significant influence on the enhancement of students’ learning in the University of Buea?

H_{a2}: Moodle has a significant influence on the enhancement of students’ learning in the University of Buea?

Table 4

Perceived Influence of Moodle on the Enhancement of Students’ Learning in the University of Buea

		<i>Moodle</i>	<i>Academic performance</i>
<i>Moodle</i>	Pearson Correlation	1	.817**
	Sig. (2-tailed)		.000
	N	357	357
<i>Academic performance</i>	Pearson Correlation	.817**	1
	Sig. (2-tailed)	.000	
	N	357	357

****.** Correlation is significant at the 0.01 level (2-tailed).

From the table above, the Pearson correlation coefficient ($r = .817^{**}$, $P=0.05$) indicates a strong positive and statistically significant relationship between Moodle and enhancement of students' learning in the University of Buea? This, therefore, connotes enough statistical evidence ($r=0.817^{**}$, $n=357$, $P=0.05$) that Moodle positively and significantly influence the enhancement of students' learning in the University of Buea? Hence, the null hypothesis is rejected, and the alternate hypothesis is accepted, which states that Moodle has a significant influence on the enhancement of students' learning in the University of Buea?

Conclusion

The findings revealed that Coursera positively and significantly influence the enhancement of students' learning in the University of Buea? This study is in line with Sun and Chen (2020), who say online platforms like Coursera enhance students' learning experiences by providing interactive and flexible learning environments that promote critical thinking and academic engagement. This aligns closely with the Community of Inquiry (CoI) Framework, which emphasizes cognitive presence, social presence, and teaching presence as essential elements in a successful online learning environment. Coursera's video lectures, peer forums, and interactive quizzes are structured to support these presences, thus facilitating deeper learning. Supporting this, Nwankwo and Okeke (2020) observed that students who engaged consistently with Coursera courses showed improved academic performance in assessment tests and coursework due to enhanced understanding and repeated exposure to course content. Furthermore, Asongu et al. (2023) found that the collaborative tools within Coursera fostered peer interactions and instructor feedback, which motivated students to maintain focus and stay academically productive.

The CoI framework helps explain how Coursera's features support a rich learning environment conducive to academic success. The Technology Acceptance Model (TAM) also provides a theoretical basis for understanding students' adoption and use of Coursera. According to Mensah and Gyang (2021), perceived usefulness and ease of use were critical determinants in students' continued engagement with online learning platforms like Coursera, which subsequently enhanced their learning. Their findings revealed that when students find a platform intuitive and helpful for their studies, they are more likely to integrate it into their academic routines.

Eze and Chinedu (2022) noted that students who perceived Coursera as an effective supplementary learning tool demonstrated better retention and understanding of complex academic concepts. These findings illustrate how TAM supports the idea that positive perceptions of Coursera's usability directly influence enhancement of students' learning. The Theory of Transactional Distance, which emphasizes the psychological and communication space between learners and instructors in online learning environments, also explains Coursera's effectiveness. Adebayo and Yusuf (2023) reported that when instructional design reduces ambiguity and increases interaction—as seen in Coursera's structured discussion forums and interactive assessments—students are more engaged and perform better academically. Therefore, the Theory of Transactional Distance helps contextualize Coursera's design as one that minimizes cognitive gaps and enhances students' learning. It was concluded that Coursera has a significant influence in the enhancement of students' learning in the University of Buea.

The findings also revealed that Moodle positively and significantly influence the enhancement of students' learning in the University of Buea. This study is in line with Al-Fraihat et al. (2020) who hold the view that Moodle significantly enhances students' academic outcomes by providing accessible, structured, and interactive learning environments. This aligns with the Technology Acceptance Model (TAM) which postulates that perceived ease of use and perceived usefulness determine the acceptance and effective utilization of technology. When students perceive Moodle as user-friendly and beneficial to their learning, they are more likely to use it effectively, leading to enhancement in students' learning. In support, Mwakyusa and Mwalyagile (2022) found that higher education students in Tanzania reported better engagement and academic results when using Moodle due to its intuitive design and supportive learning tools.

Similarly, Kpolovie and Awusaku (2021) observed that Nigerian university students using Moodle experienced improved academic achievements, especially when lecturers effectively integrated multimedia and feedback mechanisms within the platform. These findings collectively support the view that Moodle fosters students' learning through technological acceptance and usability, as emphasized in TAM. From the perspective of the Community of Inquiry (CoI) framework, which emphasizes teaching presence, cognitive presence, and social presence as core elements of effective online learning, Moodle contributes positively to students' learning by facilitating structured instructional interactions.

As noted by Bervell and Umar (2021), Moodle supports the establishment of a strong teaching presence through its discussion forums, quizzes, and feedback mechanisms, which promote deeper understanding and learner engagement. This is consistent with the findings of Oye et al. (2021), who demonstrated that the integration of Moodle in Nigerian higher institutions significantly improved students' cognitive presence and knowledge construction due to interactive features and timely feedback. Likewise, Obielodan and Nwokeoma (2023) affirmed that Moodle's design encourages collaborative learning and social interaction, contributing to academic success. These studies affirm that Moodle's affordance foster a conducive community of inquiry, ultimately leading to enhanced academic performance. In line with Self-Determination Theory (SDT), which posits that autonomy, competence, and relatedness are crucial for intrinsic motivation and academic success, Moodle's learning environment supports student autonomy and self-regulation. Musgrave (2020) emphasizes that Moodle empowers students to take control of their learning through flexible access to course materials, thereby increasing motivation and academic outcomes. Similarly, Adarkwah (2021) found that the use of Moodle in Ghanaian universities enhanced learners' sense of competence and engagement, especially when students could track their progress and receive immediate feedback. Further, Mnguni and Mhlongo (2022) observed that Moodle's features such as self-paced learning and peer collaboration promoted intrinsic motivation among South African students, which correlated positively with academic performance. These findings resonate with SDT by showing how Moodle facilitates psychological needs that underlie student motivation and learning achievement.

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