

ENHANCING TEACHING EFFECTIVENESS THROUGH AI POWERED LEARNING MANAGEMENT SYSTEMS AMONG BUSINESS EDUCATORS IN TERTIARY INSTITUTIONS IN ANAMBRA STATE: OPPORTUNITIES AND CHALLENGES

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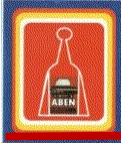
Abstract

This study investigated the potential of AI-driven Learning Management System (LMS) in improving educational practices among business educators in public tertiary institutions in Anambra State. Three research questions guided the study. The study employed a descriptive survey research design using 112 business educators as population. Data were collected using questionnaire, structured into three clusters, with reliability coefficients of 0.71, 0.74, and 0.86, respectively, as assessed by Cronbach's alpha. Data analysis was conducted using mean scores and standard deviations. The findings of this study reveal a low level of utilization of AI-powered Learning Management Systems (LMS) among business educators in public tertiary institutions in Anambra State. The adoption and integration into teaching practices remain limited among these educators. Additionally, the study also identified several challenges and barriers faced by business educators in adopting and integrating AI-powered LMS into their teaching practices. These challenges include a lack of training on effectively using AI-powered LMS, limited access to necessary technology and infrastructure among others. Based on these findings, the study recommended that government in collaboration with public tertiary institutions should organise comprehensive training programmes for business educators to ensure effective AI integration. These programmes should encompass fundamental AI technologies, practical classroom applications, and strategies for leveraging AI tools to enhance teaching effectiveness. Continuous professional development should be provided to keep business educators abreast of the latest advancements in AI and educational technology.

Keywords: Teaching Effectiveness, Artificial Intelligence, AI, Learning Management Systems, LMS, business educators, opportunities, challenges

Introduction

Higher education in the 21st century is evolving rapidly due to advances in technology, globalization, and changing student demographics. With the widespread availability of online learning platforms, universities are increasingly offering courses and degree programs that can be completed entirely online (Dieguez et al., 2021). This practice provides greater access to higher education and offers students more flexibility in their learning process (Neumann et al., 2021). As educational sectors become more diverse, with students enrolling from a variety of environments, there is a growing emphasis on cross-cultural understanding and global citizenship. As the pace of technological change accelerates, universities are playing a more



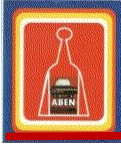
significant role in driving innovation and research (Bisen, et al., 2021). This has led to more partnerships between academia and industry, as well as a greater focus on entrepreneurship and commercialization. In contemporary employment drives, employers are increasingly seeking graduates with specific skills and competencies rather than a broad-based education (Kocak et al., 2021). Consequently, notable institutions are shifting towards teaching and learning process that can enhance skills-based learning patterns that offer students practical, career-focused skills.

Teaching and learning process can be defined as a transformation process of knowledge from teachers to students. It is referred as the combination of various elements within the process where an educator identifies and establishes the learning objectives and develops teaching resources and implements the teaching and learning strategy. Teaching effectiveness is a multifaceted concept that goes beyond the mere delivery of content. According to Centra (1993), it involves the ability of instructors to not only convey subject matter but also engage students in a way that promotes deep understanding and critical thinking. This definition emphasizes the importance of interaction and adaptability in the teaching process, recognizing that effective teaching requires responsiveness to the varied needs and learning styles of students. Engaging students and fostering a participatory learning environment are critical components of effective teaching, as they help students develop critical thinking skills and a deeper understanding of the material.

Marzano (2003) expands on this by highlighting the comprehensive impact of teaching on student achievement. This definition underscores the significance of creating a positive learning environment, utilizing diverse instructional strategies, and continually assessing and refining teaching practices. Effective teaching, in this view, is not static but dynamic, requiring educators to be reflective practitioners who are committed to ongoing professional development. The use of varied instructional methods is crucial for addressing different learning styles and ensuring that all students can benefit from the instruction. Both definitions agree on the necessity of engaging students and adapting teaching methods to meet their needs. They also highlight the importance of continuous improvement in teaching practices, whether through formal assessment or reflective practice. Together, these definitions of teaching effectiveness provide a holistic view, emphasizing the interaction between teacher behavior, student engagement, and educational outcomes.

Teaching effectiveness is a multi-dimensional construct that encompasses various aspects of the teaching process, including the ability to deliver content clearly, engage students, manage the classroom, and assess student learning (Munna &Kalam, 2021). For business educators, teaching effectiveness is crucial as it directly impacts students' understanding of complex business concepts, their ability to apply theoretical knowledge in practical scenarios, and their readiness for the business world. AI-powered learning management systems (LMS) offer significant opportunities to enhance teaching effectiveness among business educators in public tertiary institutions by addressing these three critical components; teacher behaviour, student engagement and educational outcomes. AI-powered LMS can significantly enhance teaching effectiveness for business educators by providing advanced tools and resources that address the key components of effective teaching.

The development of AI has resulted in an array of advancements and innovations that have impacted many facets of human life. As a fundamental component to societal evolution and individual development, education has had significant benefits from AI breakthroughs. For instance, the integration of AI in educational systems is altering the ways in which students learn, teachers educate, and institutions function (Bisen, et al., 2021). By personalizing learning



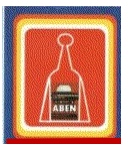
experiences, automating administrative responsibilities, and delivering real-time feedback, AI is revolutionizing the educational landscape, bridging gaps, and encouraging a more inclusive and effective learning environment.

AI-powered learning management systems (LMS) are digital platforms that leverage artificial intelligence to enhance the delivery, management, and assessment of educational content. These systems utilize AI algorithms to provide personalized learning experiences, automate administrative tasks, and offer real-time feedback to both students and educators, thereby improving the overall efficiency and effectiveness of the educational process (Choi, 2020). As Aldosari (2020) opined, AI-powered learning management systems (LMS) are advanced educational platforms that integrate artificial intelligence technologies to support and optimize teaching and learning processes. These systems enable adaptive learning, personalized content delivery, automated grading, and predictive analytics to identify and support at-risk students, fostering a more individualized and data-driven educational environment. Chaudhry et al. (2023) emphasize that AI-powered LMS can adapt to the teaching and learning preferences of teachers and students, making the educational process more engaging and effective.

AI in LMS can significantly improve teacher behaviour by automating routine administrative tasks, allowing educators to focus more on pedagogical strategies and student engagement. According to Munna and Kalam (2021), the teaching and learning process can be enhanced through continuous feedback and adaptive learning, which AI systems can provide. AI tools can analyze teaching practices, suggest improvements, and offer personalized professional development opportunities. For example, AI-powered teaching tools provide feedback on teaching performance, helping educators refine their teaching methods to better engage students. Also, student engagement is a key factor in effective teaching, and AI-powered LMS can greatly enhance this aspect by providing personalized learning experiences. Pedro et al. (2019) highlight that AI in education can tailor educational content to individual student needs, making learning more interactive and meaningful.

Additionally, AI-driven tools such as chatbots and virtual assistants can offer instant support and answers to student queries, fostering a more responsive and engaging learning environment. AI-powered LMS can also improve educational outcomes by offering real-time feedback and data-driven insights into student performance. Kamalov et al. (2023) note that AI applications can analyze large datasets to identify patterns and predict student performance, enabling early intervention for those at risk of academic failure. This proactive approach ensures that students receive the necessary support to succeed, ultimately leading to better educational outcomes. Moreover, AI can facilitate more accurate and efficient assessment methods, providing immediate feedback to students and helping them understand their strengths and areas for improvement. Thus, the holistic approach to teaching effectiveness, which includes teacher behaviour, student engagement, and educational outcomes, can be significantly enhanced through the integration of AI-powered LMS. As Ndem (2016) points out, effective teaching requires continuous improvement and adaptation to meet the evolving needs of students. AI provides the tools and insights necessary for educators to enhance their teaching practices, engage students more effectively, and achieve better educational outcomes.

Artificial intelligence is playing a vital role in upgrading the quality of higher education in numerous ways (Choi, 2020). AI-powered learning approaches have been employed to evaluate students' performance records, determine their strengths and weaknesses, and provide them with customized learning experiences that are tailored to their individual needs. This approach provides students with a tool kit model to gain knowledge more effectively with a productive outcome (Aldosari, 2020). AI-based technology such as chatbots, virtual assistance tools, and

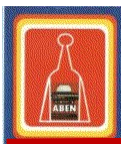


adaptive learning systems offer immersive and engaging learning experiences that allow students to discover complex theories and solutions in a more interactive and meaningful manner (Chaudhry et al., 2023; Pradana et al., 2023). In assessment and feedback, AI assists in grading and appraising student assignments, for example, monitoring students' participation and involvement in library resource utilization, providing faster and more precise feedback to students, and freeing up time for instructors to focus on other aspects of teaching (Essien et al., 2020).

Consequently, as technology continues to evolve and improve, one can expect to see even more innovative and effective applications of AI in education, leading to more personalized, engaging, and effective learning experiences for students (Li et al., 2021). This promising journey of AI has the potential to significantly improve the performance and engagement of teachers in higher education. Since teaching staff in higher education have a critical role both in administrative and academic areas and are completely engaged in regulatory, accreditation, and other important activities, the adoption of AI can help teachers automate administrative tasks, such as grading assignments, tracking attendance, and providing feedback to students (Bisen et al., 2021). AI also can help teachers identify areas where they can improve their teaching skills and provide personalized professional development opportunities.

Though the integration of AI in LMS offers several benefits, however, the adoption of AI in education also presents certain challenges, especially in developing country like Nigeria. Essien et al. (2020) discuss the potential obstacles, including the need for substantial investment in technology infrastructure and the training required for educators to effectively utilize these advanced systems. Additionally, there are concerns about data privacy and the ethical implications of using AI to monitor and analyze student behavior. In the landscape of higher education in Nigeria, persistent challenges such as unequal access, limited inclusivity, and the inadequacy of catering to diverse learning styles can pose significant challenges (Odhiambo, 2016; Sanusi, 2022). As Odhiambo reasoned, the prevailing use of traditional, one-size-fits-all teaching methods falls short of effectively engaging students with varied learning preferences, hindering the development of active participation and critical thinking skills. Moreover, reliance on traditional assessment methods fails to capture a comprehensive understanding of students' knowledge, skills, and practical application, with limited tools for assessing and enhancing non- cognitive skills. Going by these notions, traditional teaching and assessment approaches seem insufficient in addressing these pressing issues.

Moreover, the absence of opportunities for international collaboration and cultural exchange in higher education compounds these challenges. To bridge these gaps, the integration of artificial intelligence (AI) emerges as a pivotal solution. AI algorithms have the capacity to analyze individual learning patterns, allowing for the tailoring of coursework to accommodate diverse students learning preferences. The incorporation of predictive analytics for instance, can effectively identify students at risk, facilitating timely interventions to support their academic journey (Neumann et al., 2021). Also, AI-driven educational content delivery systems can offer adaptability to students' pace, learning styles, and knowledge gaps, thereby revolutionizing the approach to content dissemination. Additionally, the automation of administrative tasks through AI can provide the means to liberate educators from routine responsibilities, allowing them to focus on more impactful activities. Hence, this research will actively contribute to the empowerment of the higher education system through the adoption of AI. The findings of this research endeavour will serve to assist institutional policymakers in recognizing how the adoption of new technology is perceived in higher education, enabling them to provide the necessary infrastructure and training to overcome specific challenges. Since the role of AI is inevitable in future education, current research aims to investigate opportunities and challenges in enhancing teaching effectiveness



through AI powered learning management systems among business educators in public Tertiary institutions in Anambra State.

Statement of the Problem

In the rapidly evolving educational landscape, the integration of artificial intelligence (AI) in learning management systems (LMS) has emerged as a transformative approach to enhance teaching effectiveness. AI-powered LMS have the potential to personalize learning experiences, automate administrative tasks, provide real-time feedback, and ultimately improve educational outcomes. However, despite these promising benefits, the adoption and implementation of AI-powered LMS in public tertiary institutions, particularly among business educators in Anambra State, Nigeria, remain limited and uneven. Business educators play a critical role in preparing students for the dynamic and competitive business environment. Yet, many of these educators face challenges in effectively engaging students, personalizing instruction, and managing administrative tasks. Traditional teaching methods often fail to address the diverse learning needs of students and the increasing demand for innovative teaching strategies. Moreover, there is a significant gap in understanding the current level of awareness, utilization, and challenges and barriers faced by business educators in adopting and integrating AI-powered LMS in their teaching practices among business educators in public tertiary institutions in Anambra State.

The potential opportunities offered by AI-powered LMS, such as enhancing teaching practices, improving student engagement, and streamlining administrative processes, are significant. However, these opportunities are often accompanied by challenges, including technological barriers, lack of training, resistance to change, and concerns about data privacy and ethical implications. This study seeks to investigate the current state of AI-powered LMS adoption among business educators in public tertiary institutions in Anambra State, explore the opportunities these systems present for enhancing teaching effectiveness, and identify the challenges that hinder their widespread implementation.

Purpose of the Study

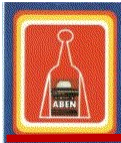
The main purpose of the study is to investigate opportunities and challenges in enhancing teaching effectiveness through AI powered learning management systems among business educators in public Tertiary institutions in Anambra State. Specifically, the study sought to examine:

1. To assess the current level of utilization of AI-powered learning management systems (LMS) among business educators in public tertiary institutions in Anambra State.
2. To identify the opportunities provided by AI-powered LMS for enhancing teaching and administrative duties of business educators in public tertiary institutions.
3. To examine the challenges and barriers faced by business educators in adopting and integrating AI-powered LMS in their teaching practices.

Research Questions

The following research questions will guide the study:

1. What is the current level of utilization of AI-powered learning management systems among business educators in public tertiary institutions in Anambra State?
2. What opportunities do AI-powered LMS provide for enhancing the teaching and administrative duties of business educators in public tertiary institutions?
3. What are the challenges and barriers faced by business educators in adopting and integrating AI-powered LMS in their teaching practices?



Method

This study aims to investigate the enhancement of teaching effectiveness through AI-powered Learning Management Systems (LMS) among business educators in public tertiary institutions in Anambra State, focusing on both opportunities and challenges. This methodology section outlines the research design, population and sample, data collection methods, data analysis procedures, and ethical considerations.

The study employed a mixed-methods approach, combining quantitative and qualitative data collection and analysis techniques. This approach will provide a comprehensive understanding of the current state of AI-powered LMS adoption, its impact on teaching effectiveness, and the opportunities and challenges associated with its implementation. The target population for this study includes all the 112 business educators in public tertiary institutions in Anambra State. The entire population of 112 business educators in all the public institutions in Anambra State was used for the study. Thus, there was no sampling since the population was manageable.

The instrument for data collection is a questionnaire titled "Questionnaire for Enhancing Teaching Effectiveness through AI-Powered Learning Management Systems (QEETAPLS)" is a structured data collection questionnaire consisting of a series of questions designed to gather information from respondents. In the context of this study, the questionnaire is used to assess the utilization, opportunities, and challenges associated with AI-powered learning management systems (LMS) among business educators in public tertiary institutions in Anambra State. The questionnaire includes items related to three key research questions arranged in clusters A, B, and C. Each cluster was structured to address specific research question and with items tailored to capture specific aspects of the educators' experiences and perceptions gearing towards answering the research questions. The questionnaire has a Likert-scale items and closed-ended response options designed to assess:

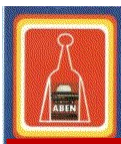
- Utilization of AI-powered LMS
- Opportunities presented by AI-powered LMS
- Challenges and barriers to adoption

The questionnaire was validated by two experts in Vocational and Technology Education and 1 in measurement and evaluation. The internal consistency reliability was established through a pilot test. Cronbach alpha statistical method was used to establish the reliability coefficient of 0.71, 0.74 and 0.86 for each of the clusters. Copies of the questionnaires were distributed directly to the respondents to ensure a wide reach and facilitate easy data collection.

Data from the questionnaires were analysed using descriptive statistics. Descriptive statistics (mean, standard deviation, frequency, and percentage) will summarize the responses. The decision rule for research question 1 include: Low = 10 – 15, Moderate = 20 – 25, High = 30 - 40. However, mean decision rule of 2.5 was used in taking decision for research questions two and three. All participants will be provided with detailed information about the study's purpose, procedures, potential risks, and benefits. Informed consent will be obtained before participation. Participants' identities and responses will be kept confidential. Data will be anonymised to protect privacy. Participation in the study will be entirely voluntary, and participants can withdraw at any time without any consequences.

Results

Data from the field of study are analysed and presented in the table as follows:

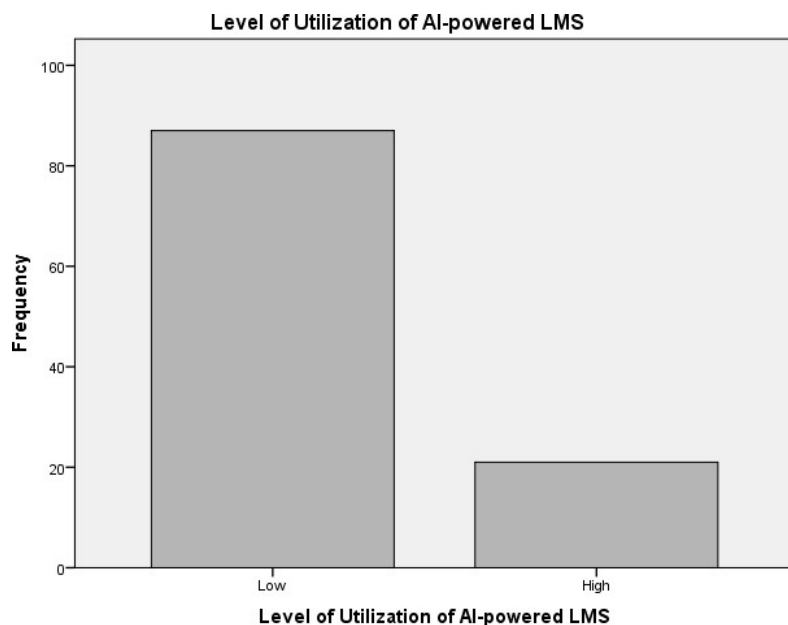


Research Question 1

What is the current level of utilization of AI-powered learning management systems among business educators in public tertiary institutions in Anambra State?

Table 1: Range of scores and percentages showing the current level of utilization of AI-powered LMS among business educators in public tertiary institutions

Range	Frequency	Percent	Decision
Low	87	80.6	Low
High	21	19.4	
Total	108	100.0	



Findings in table 1 and the chart revealed that with frequency and percentages responses of majority of business educators low = 87(80.6 percent) and High = 21(19.4 percent), the current level of utilization of AI-powered learning management systems among business educators in public tertiary institutions in Anambra State is low.

Research Question 2

What opportunities do AI-powered LMS provide for enhancing the teaching and administrative duties of business educators in public tertiary institutions?

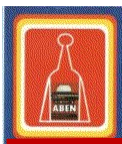


Table 2: Mean response scores of business educators on opportunities that AI-powered LMS provide for enhancing teaching of business educators in public tertiary institutions

	N	Mean	Std. Deviation
AI-powered LMS improves my ability to provide personalized learning experiences for students.	108	3.49	.502
AI-powered LMS helps me manage administrative tasks more efficiently.	108	3.08	.810
Using AI-powered LMS enhances student engagement in my classes.	108	2.96	.875
AI-powered LMS provides valuable insights into student performance and progress.	108	3.55	.500
AI-powered LMS enables more effective communication with students.	108	2.54	1.072
AI-powered LMS facilitates better collaboration among faculty members.	108	2.95	.825
Using AI-powered LMS helps in identifying at-risk students early.	108	3.55	.500
AI-powered LMS streamlines the process of creating and updating course materials.	108	3.54	.501
AI-powered LMS supports a more flexible and adaptive learning environment.	108	2.99	.803
AI-powered LMS has positively impacted my teaching and administrative efficiency.	108	3.47	.502

Table 2 revealed that based on the mean decision rule of 2.5, highlight the transformative impact of AI-powered Learning Management Systems (LMS) on teaching effectiveness among business educators in public tertiary institutions in Anambra State. Educators reported that these systems significantly enhance their ability to provide personalized learning experiences for students; manage administrative tasks more efficiently; enhances student engagement in classes; provide valuable insights into student performance and progress; enable more effective communication with students; facilitates better collaboration among faculty members. Using AI-powered LMS helps in identifying at-risk students early; streamline the process of creating and updating course materials and supports a more flexible and adaptive learning environment.

Research Question 3

What are the challenges and barriers faced by business educators in adopting and integrating AI-powered LMS in their teaching practices in Anambra State?

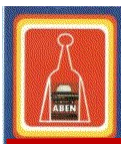


Table 3: Mean response scores on the challenges and barriers faced by business educators in adopting and integrating AI-powered LMS in their teaching practices

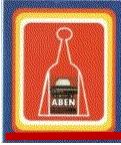
	N	Mean	Std. Deviation
Lack of training on how to use AI-powered LMS effectively is a significant barrier.	108	3.04	.853
Limited access to necessary technology and infrastructure hinders the adoption of AI-powered LMS.	108	2.98	.831
Concerns about data privacy and security prevent me from fully utilizing AI-powered LMS.	108	1.99	.859
Resistance to change among faculty members is a major challenge in adopting AI-powered LMS.	108	2.35	1.035
The cost of implementing AI-powered LMS is a significant barrier.	108	3.00	.809
Technical issues and software glitches make it difficult to use AI-powered LMS effectively.	108	2.06	.783
Lack of institutional support and resources for AI-powered LMS adoption is a challenge.	108	3.60	.492
Difficulty in integrating AI-powered LMS with existing teaching practices and curriculum.	108	2.60	1.191
Uncertainty about the effectiveness of AI-powered LMS in improving teaching outcomes.	108	1.84	.799
The challenges and barriers to adopting AI-powered LMS outweigh the potential benefits.	108	2.06	.783

Table 3 revealed that based on the mean decision rule of 2.5, the challenges and barriers faced by business educators in adopting and integrating AI-powered LMS in their teaching practices include: Lack of training on how to use AI-powered LMS effectively, limited access to necessary technology and infrastructure, the high cost of implementing AI-powered LMS, lack of institutional support and resources for AI-powered LMS adoption and difficulty in integrating AI-powered LMS with existing teaching practices and curriculum.

Discussion

The Findings of the study are hereby discussed:

The findings of the research question one reveal that the current level of utilization of AI-powered learning management systems (LMS) among business educators in public tertiary institutions in Anambra State is low, with a significant majority of respondents, 87 (80.6%), reporting low usage and only 21 (19.4%) indicating high usage. This indicates that despite the potential benefits of AI-powered LMS, their adoption and integration into teaching practices remain limited among these educators. This finding aligns with previous studies that have highlighted similar challenges in the adoption of AI and advanced technologies in education. For instance, Essien, Chukwukelu, and Essien (2020) discuss the opportunities and challenges of adopting AI for learning and teaching in higher education. They emphasize that while AI technologies have the potential to revolutionize



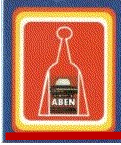
education; their adoption is often hindered by factors such as lack of training, infrastructure, and institutional support. This supports the current finding of the study that the utilization of AI-powered LMS is low due to similar barriers.

Furthermore, Aldosari (2020) in his study on the future of higher education in the light of AI transformations also emphasised on the slow adoption rate of AI technologies in educational settings. Aldosari points out that despite the transformative potential of AI to enhance educational outcomes and administrative efficiency, many educators and institutions are still in the early stages of integration due to a variety of challenges including resistance to change, cost, and technical issues. This reinforces the current findings that the utilization of AI-powered LMS among business educators in Anambra State is not yet widespread. On the other hand, there are studies that suggest a more optimistic view of AI integration in education. For example, Choi (2020) highlights the opportunities for higher education in Korea through AI, suggesting that with proper support and training, educators can effectively leverage AI technologies to enhance teaching and learning outcomes. However, the low level of utilization found in the current study indicates that such support and training might be insufficient or lacking in the context of public tertiary institutions in Anambra State, especially among business educators.

Findings of the research question two reveals that AI-powered Learning Management Systems (LMS) have a transformative impact on teaching effectiveness among business educators in public tertiary institutions in Anambra State. Educators reported significant improvements in their ability to provide personalized learning experiences for students, manage administrative tasks more efficiently, and enhance student engagement in classes. Additionally, AI-powered LMS provides valuable insights into student performance and progress, enables more effective communication with students, facilitates better collaboration among faculty members, and helps in identifying at-risk students early. Furthermore, these systems streamline the process of creating and updating course materials and support a more flexible and adaptive learning environment.

These findings are supported by previous studies. Dieguez et al. (2021) emphasize the transformative role of technology in education, particularly in developing 21st-century skills such as entrepreneurship and leadership. Their study highlights that the integration of advanced technologies, including AI, significantly enhances the educational experience by providing personalized learning opportunities and improving administrative efficiencies, which is consistent with the current study's findings. Similarly, Kocak et al. (2021) discuss the mediating role of critical thinking and cooperatively in the 21st-century skills of higher education students, emphasizing that the adoption of AI and advanced technologies in educational settings leads to improved student engagement and collaboration among faculty members. This aligns with the current findings that AI-powered LMS enhances student engagement, facilitates better faculty collaboration, and supports a flexible and adaptive learning environment. However, some studies highlight challenges that might hinder the full realization of AI-powered LMS's potential. For instance, Essien, Chukwukelu, and Essien (2020) discuss the opportunities and challenges of adopting AI in higher education, noting barriers such as lack of training, infrastructure, and institutional support. These challenges could explain why the utilization of AI-powered LMS remains low among business educators in Anambra State, despite the reported benefits.

Findings of the research question three revealed that business educators in public tertiary institutions in Anambra State face several challenges and barriers in adopting and integrating AI-powered Learning Management Systems (LMS) into their teaching practices. These challenges include a lack of training on effectively using AI-powered LMS, limited access to necessary technology and infrastructure, the high cost of implementing AI-powered LMS, lack of institutional



support and resources for AI-powered LMS adoption, and difficulty integrating AI-powered LMS with existing teaching practices and curriculum. These findings are in agreement with previous studies, highlighting the difficulties educators face in adopting new technologies. For instance, Essien, Chukwukelu, and Essien (2020) discuss the opportunities and challenges of adopting artificial intelligence for learning and teaching in higher education. They emphasize that while AI offers significant potential for enhancing educational outcomes; its implementation is often hampered by inadequate training, insufficient infrastructure, and lack of institutional support. This supports the current findings that these barriers significantly impact the adoption of AI-powered LMS.

Similarly, Neumann et al. (2021) explore the barriers to teaching 21st-century competencies and the impact of digitalization in higher education. They identify several challenges, including the need for professional development, the high cost of technology, and difficulties in integrating new technologies with existing curricula. These findings corroborate the current study's results, which highlight similar barriers faced by business educators in Anambra State. In contrast, some studies suggest that despite these challenges, there are ways to overcome these barriers. For example, Dieguez, Loureiro, and Ferreira (2021) emphasize the importance of entrepreneurship and leadership in higher education to develop the necessary 21st-century skills. They argue that with proper training, support, and leadership, the integration of advanced technologies, including AI, can be successfully achieved, leading to improved educational outcomes. While this perspective acknowledges the challenges identified in the current study, it also offers a potential pathway for overcoming them.

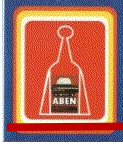
Conclusion

The findings of this study reveal a low level of utilization of AI-powered Learning Management Systems (LMS) among business educators in public tertiary institutions in Anambra State. Despite the well-documented potential benefits of AI-powered LMS, their adoption and integration into teaching practices remain limited among these educators. The study also demonstrates that AI-powered LMS have a transformative impact on teaching effectiveness among business educators in public tertiary institutions in Anambra State. Business educators reported significant improvements in various aspects of their teaching practices. These include enhanced ability to provide personalized learning experiences, more efficient management of administrative tasks, and increased student engagement in classes. However, the study also identified several challenges and barriers faced by business educators in adopting and integrating AI-powered LMS into their teaching practices. These challenges include a lack of training on effectively using AI-powered LMS, limited access to necessary technology and infrastructure, the high cost of implementing AI-powered LMS, lack of institutional support and resources for AI-powered LMS adoption, and difficulty in integrating AI-powered LMS with existing teaching practices and curriculum.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. Federal and State government in collaboration with public tertiary institutions should organise comprehensive training programs for business educators to ensure effective AI integration. These programs should encompass fundamental AI technologies, practical classroom applications, and strategies for leveraging AI tools to enhance teaching effectiveness. Continuous professional development should be provided to keep educators abreast of the latest advancements in AI and educational technology.
2. Public tertiary institutions should organize comprehensive training programs to equip business educators with the necessary skills to effectively use AI-powered LMS. This

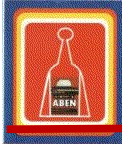


should include hands-on workshops, online courses, and continuous professional development opportunities to ensure educators are proficient in utilizing these systems. These training sessions should cover all aspects of LMS utilization, including personalized learning, administrative task management, and student engagement strategies.

3. Public tertiary institutions should invest in upgrading their technological infrastructure to support the effective implementation of AI-powered LMS. This includes providing reliable internet access, modern computer labs, and necessary hardware and software resources.
4. Given the high cost of implementing AI-powered LMS, institutions should seek funding from government bodies, educational grants, and private partnerships to subsidize these costs. Additionally, providing financial incentives for educators who adopt and integrate AI-powered LMS could encourage wider usage. Institutions should strengthen their support structures for educators by providing dedicated IT support teams, offering regular troubleshooting sessions, and maintaining a robust helpdesk service to address technical issues promptly.
5. Strong institutional support is crucial for the successful adoption of AI-powered LMS. Government should develop policies that promote the use of these systems and provide continuous support and resources to educators.

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