
BUSINESS EDUCATORS EDUCATIONAL CONTENT CREATION IN THE ERA OF ARTIFICIAL INTELLIGENCE FOR PEDAGOGICAL ENHANCEMENT IN CROSS RIVER STATE

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Abstract

The study examined the perception and utilization of artificial intelligence (AI) among business educators in Cross River State, Nigeria, for educational content creation and pedagogical enhancement. Two research questions and two null hypotheses guided the study. A descriptive survey design was adopted, and the population comprised all 87 business educators (51 males and 36 females) across four tertiary institutions in Cross River State. A census approach was employed due to the manageable population size. Data were collected using a self-designed questionnaire titled *Questionnaire on Artificial Intelligence for Educational Content Creation (QAIECC)*, validated by three experts and pilot-tested for reliability, yielding a Cronbach's alpha coefficient of 0.87. Descriptive statistics (mean and standard deviation) and inferential statistics (independent samples t-test) were used for data analysis at a 0.05 significance level. The findings revealed that business educators perceived AI as highly beneficial for content preparation (grand mean = 3.30, High Extent), particularly for generating customized materials, improving instructional quality, and enhancing multimedia content. However, the actual utilization of AI tools was low (grand mean = 2.08, Low Extent), with the least usage observed in personalized learning paths and automated assessments. The hypotheses testing showed no significant gender-based differences in perception ($t(85) = 0.87, p > 0.05$) or utilization ($t(85) = 0.52, p > 0.05$). The study highlights a gap between educators' positive perceptions and their practical application of AI, emphasizing the need for institutional support, infrastructure investment, and targeted training programs. Recommendations include integrating AI literacy into business education curricula, developing national frameworks for AI adoption, and fostering collaborations between institutions and AI developers to create localized solutions. These measures aim to bridge the implementation gap and enhance pedagogical practices in business education.

Keywords: Artificial Intelligence, Business Educators, Content Creation, Pedagogical Enhancement, Gender Differences.

Introduction

The rapid advancement of Artificial Intelligence (AI) has revolutionized various sectors, including education, offering transformative opportunities for instructional delivery and content creation (Mohammed, 2019). In the realm of business education, AI's integration is reshaping

traditional pedagogical approaches, enabling educators to enhance teaching effectiveness and student learning outcomes (Garima & Mudgal, 2024). Business educators, tasked with preparing students for the dynamic global market, must adapt to these technological innovations to remain relevant in the 21st-century educational landscape (Oluchi & Pyiki, 2019).

Business education as a branch of vocational education equips its recipients with relevant skills needed in the world of work. According to Ezenwafor and Onokpaunu in Ndubuisi and Ezeani, (2022), business education programme is a branch of vocational education concerned with exposing its recipients to the external and internal foundations and functioning of the workplace. Business education is a work focused, skilled-based, result-oriented and technology-based educational programme (Ugwoke, 2011). With the knowledge of business education, students are better informed and groomed with skills and understanding to cope with the unpredictable challenges of the business environment.

However, business education programme which is charged with the responsibility of unveiling the dynamics of the world of work must ensure that its recipients possess relevant skills needed for effective entry and efficient participation in economic development. Oguejiofor (2020) in agreement with the above assertion opined that the value of any business education programme could be determined by its ability to adequately prepare and equip individuals in such a manner that they could fit into specific jobs, become technologically relevant, internationally competitive and economically prosperous, if properly packaged and adequately delivered. Extensively, business education is that aspect of general education that prepares students for employment and advancement in a broad range of office occupations, marketing occupation, entrepreneurship venture, teaching profession and accounting profession (Onokpauno in Ndubuisi & Ezeani, 2022).

Business educators are professionals trained to impart knowledge and skills in various business disciplines including accounting, marketing, management, and entrepreneurship (Oluchi & Pyiki, 2019). These educators play a pivotal role in shaping future business leaders by equipping students with both theoretical knowledge and practical competencies needed in today's technology-driven business environment (Igwe et al., 2023). In the contemporary educational landscape, business educators face increasing demands to integrate advanced technologies into their teaching methodologies to enhance learning outcomes and prepare students for the digital economy. The application of AI in teaching business education courses extends to innovative instructional methods, such as simulations and virtual reality (Lamothe, 2024). AI-powered tools can replicate real-world business scenarios, enabling students to apply theoretical knowledge in practical contexts (Tahir et al., 2024). For instance, natural language processing (NLP) technologies facilitate interactive learning through chatbots that answer student queries or provide tutoring support (Fryer, 2018). These tools not only enrich the learning experience but also align with the demands of a technology-driven workforce (Harry, 2023). The working of a typical business educator requires the creation of content to be delivered as lecture.

Educational content preparation in the AI era demands a shift from static materials to dynamic, interactive resources (Mureşan, 2023). AI enables the creation of multimedia content, including videos, infographics, and adaptive modules, catering to diverse learning styles (Alneyadi et al., 2023). Moreover, AI can update content in real-time to reflect the latest industry trends, ensuring relevance and accuracy (Culican, 2024). Despite these capabilities, barriers such as the digital divide and ethical concerns about data privacy must be addressed to ensure equitable access and responsible use (United Nations Educational, Scientific and Cultural Organization, 2019).

Educational content creation has traditionally been a time-consuming process requiring educators to manually develop lesson plans, instructional materials, and assessment tools (Garcia & Linde, 2023). However, the advent of Artificial Intelligence (AI) has revolutionized this process by introducing automated content generation, adaptive learning systems, and personalized instructional approaches (Mohammed, 2019). AI, defined as the science and engineering of making intelligent machines (McCarthy, 1955), offers transformative potential for pedagogical enhancement through its ability to analyze vast amounts of educational data and generate customized learning materials (Rapaport, 2019).

Pedagogical enhancement through AI presents both opportunities and challenges. On one hand, AI-powered tools offer unprecedented capabilities for personalized learning, automated assessment, and data-driven instruction (Chinda, 2024). On the other hand, concerns persist regarding data privacy, algorithmic bias, and the potential dehumanization of education (United Nations Educational, Scientific and Cultural Organization, 2019). Additionally, the rapid evolution of AI technologies often outpaces the ability of educational institutions to provide adequate training and support for educators (Shofiah et al., 2023).

A critical dimension of this discourse involves gender differences in perception of technology adoption. While studies such as those by Celik et al. (2022) suggest that male educators may exhibit slightly higher confidence in using advanced technologies, other research contradicts this notion. For instance, Harry (2023) found no significant gender disparity in AI adoption when institutional support and training are equitable. Similarly, Ogwunte et al. (2025) revealed that female business educators in Nigerian universities demonstrate comparable technological adaptability when provided with adequate resources. These mixed findings highlight the need to examine gender as a potential factor in AI utilization, particularly in contexts where cultural and institutional barriers may disproportionately affect certain groups.

Recent studies have demonstrated the efficacy of AI in educational settings. Research by Pan (2022) identified multiple benefits of AI in education including automated content preparation, personalized instruction, and real-time student monitoring. Similarly, Burlacu (2022) highlighted how AI algorithms can generate tailored educational content by analyzing learner behaviors and preferences. These technological advancements have given rise to innovative educational tools such as Classroom Robotic Assistants (CRA), Adaptive Learning Systems (ALS), and Intelligent

Tutoring Systems (ITS) that are transforming traditional teaching methodologies (Ogbonnia, 2017; Okunade, 2024).

Despite these technological advancements, empirical evidence suggests a significant gap between the potential of AI and its actual utilization by business educators. Studies by Olom and Atah (2025) revealed that while business educators in Nigeria recognize the benefits of AI for instructional preparation, their extent of the practical application of these tools remains limited. Furthermore, research indicates that many educators perceive current AI applications as being too complex or not sufficiently tailored to their specific pedagogical needs (Sheikh et al., 2023). The literature also reveals geographical disparities in AI adoption. While studies from developed nations emphasize successful AI integration in business education (Gupta & Lee, 2018), research in African contexts highlights significant challenges including inadequate infrastructure, limited internet access, and resistance to technological change (Onaolapo & Onifade, 2020). These contextual differences underscore the need for localized research that examines AI adoption within specific educational and cultural settings.

This study addresses a critical gap in the existing literature by examining how business educators in Nigeria perceive and utilize AI for educational content creation and pedagogical enhancement. While previous research has explored general applications of AI in education, few studies have specifically investigated its implementation in business education within resource-constrained environments. The study is particularly timely given the growing emphasis on digital transformation in education and the urgent need to equip business students with relevant technological competencies.

The following research questions were formulated for the study:

1. What is the level of perception of business educators on the utilization of artificial intelligence in educational content preparation?
2. What is the extent of utilization of artificial intelligence in educational content creation for pedagogical enhancement among business educators?

The following null hypotheses guided the study and were tested at 0.05 level of significance:

1. There is no significant difference in the level of perception of business educators on the utilization of generative artificial intelligence in educational content preparation based on gender.
2. There is no significant difference in the extent of utilization of generative artificial intelligence in educational content creation by business educators based on gender.

Methodology

This study adopted a descriptive survey research design to investigate the utilization of artificial intelligence (AI) for educational content creation and pedagogical enhancement among business educators in Cross River State. The design was considered appropriate as it allowed for

the systematic collection of quantitative data from respondents regarding their perceptions and actual use of AI tools in instructional preparation and delivery.

The study population comprised all 87 business educators (51 males and 36 females) across four tertiary institutions in Cross River State, including two universities and two colleges of education. Given the manageable size of the population, a census approach was employed, meaning all members of the population were included in the study without sampling. This approach ensured comprehensive representation of business educators' perspectives on AI utilization in the specified institutions.

Data collection was carried out using a self-designed questionnaire titled Questionnaire on Artificial Intelligence for Educational Content Creation (QAIECC). The instrument was structured on a 4-point Likert-type rating scale, with response options ranging from Very High Extent (VHE = 4 points) to Very Low Extent (VLE = 1 point). The questionnaire was divided into three sections: (1) demographic information, (2) AI utilization for educational content creation, and (3) AI for pedagogical enhancement.

To ensure the validity of the instrument, it was subjected to face and content validation by three experts, including two specialists in Business Education and one expert in Measurement and Evaluation from the University of Calabar. Their feedback was used to refine the questionnaire for clarity and relevance. Additionally, a pilot test was conducted with 20 business educators who were not part of the main study to establish reliability. The Cronbach's alpha coefficient obtained was 0.87, indicating high internal consistency. The researchers employed four trained research assistants one for each institution to administer the questionnaire. The instruments were distributed and collected on-the-spot in a one-on-one manner to ensure a 100% retrieval rate. This method also allowed for immediate clarification of any ambiguous items to respondents, thereby improving data accuracy. Data analysis was performed using both descriptive and inferential statistics. Mean and standard deviation were used to answer the research questions, with mean scores interpreted as follows: Very High Extent (3.50–4.00), High Extent (2.50–3.49), Low Extent (1.50–2.49), and Very Low Extent (1.00–1.49). For hypothesis testing, an independent samples t-test was conducted at a 0.05 significance level. A null hypothesis was accepted if the p-value was equal to or greater than 0.05 and rejected if otherwise. All statistical analyses were performed using SPSS version 26.

Results

What is the level of perception of business educators on the utilization of artificial intelligence in educational content preparation?

Table 1: Perception of Business Educators on the Utilization of AI in Educational Content Preparation

S/N	Item	Mean ($\bar{x}$)	Standard Deviation (SD)	Remark
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1	AI helps in generating customized learning materials	3.42	0.56	High Extent
2	AI reduces time spent on content creation	3.28	0.61	High Extent
3	AI improves the quality of instructional materials	3.35	0.49	High Extent
4	AI assists in updating content to reflect current trends	3.18	0.72	High Extent
5	AI enhances multimedia content development	3.25	0.65	High Extent
Grand Mean	3.30	0.61	High Extent	

The results presented in Table 1 indicate that business educators generally perceive artificial intelligence as highly beneficial for educational content preparation, with an overall grand mean score of 3.30 (High Extent). Specifically, educators strongly agreed that AI helps in generating customized learning materials ($\bar{x}=3.42$), improves the quality of instructional materials ($\bar{x}=3.35$), and enhances multimedia content development ($\bar{x}=3.25$). The relatively low standard deviation values (ranging from 0.49 to 0.72) suggest a consensus among respondents regarding these positive perceptions. These findings demonstrate that business educators recognize AI's potential to streamline content creation processes, reduce preparation time, and maintain up-to-date learning resources.

What is the extent of utilization of artificial intelligence in educational content creation for pedagogical enhancement among business educators?

Table 2: Extent of AI Utilization in Educational Content Creation for Pedagogical Enhancement

S/N	Utilization Indicator	Mean ($\bar{x}$)	SD	Remark
1	Using AI to generate lesson materials	2.15	0.72	Low Extent
2	Employing AI for multimedia content creation	2.08	0.81	Low Extent
3	Utilizing AI for personalized learning paths	1.92	0.65	Low Extent
4	Applying AI for automated assessments	2.23	0.69	Low Extent
5	Using AI to update course content	2.04	0.77	Low Extent
Overall Mean		2.08	0.73	Low Extent

The findings reveal a concerning gap between awareness and actual implementation of AI tools among business educators, with an overall low extent of utilization ($\bar{x}=2.08$). While educators recognize AI's potential benefits theoretically, their practical application remains limited across all

measured indicators. The lowest utilization was observed in creating personalized learning paths ($\bar{x}=1.92$), suggesting educators struggle most with adapting AI for differentiated instruction. Slightly higher, though still low, usage was reported for automated assessments ($\bar{x}=2.23$) and lesson material generation ($\bar{x}=2.15$), indicating these may be more accessible entry points for AI integration.

There is no significant difference in the level of perception of business educators on the utilization of generative artificial intelligence in educational content preparation based on gender.

Table 3: t-test Analysis of Gender Differences in Perception of Generative AI Utilization

Gender	N	Mean ($\bar{x}$)	SD	df	t-cal	t-crit	p-value	Decision
Male	51	3.25	0.58	85	0.87	1.96	0.387	Accept H_0
Female	36	3.18	0.63					

The statistical analysis reveals no significant gender-based difference in business educators' perception of generative AI utilization for content preparation ($t(85)=0.87$, $p>0.05$). With calculated t-value (0.87) being lower than the critical t-value (1.96) at 0.05 significance level, and the p-value (0.387) exceeding the alpha threshold, we accept the null hypothesis. Both male ($\bar{x}=3.25$) and female ($\bar{x}=3.18$) educators demonstrate similarly positive perceptions, falling within the "High Extent" range of the measurement scale. The comparable standard deviations (0.58 for males, 0.63 for females) indicate consistent response patterns across genders. These findings suggest that gender does not significantly influence educators' views on generative AI's role in content preparation, implying that professional development initiatives and policy implementations regarding AI adoption in business education need not be gender-specific.

There is no significant difference in the extent of utilization of generative artificial intelligence in educational content creation by business educators based on gender.

Table 1: t-test Analysis of Gender Differences in Generative AI Utilization for Content Creation

Gender	N	Mean ($\bar{x}$)	SD	df	t-cal	t-crit	p-value	Decision
Male	51	2.12	0.71	85	0.52	1.99	0.605	Accept H_0
Female	36	2.07	0.76					

The statistical analysis demonstrates no significant gender-based difference in the actual utilization of generative AI tools for educational content creation among business educators ($t(85)=0.52$, $p>0.05$). With the calculated t-value (0.52) falling below the critical value (1.99) and the p-value (0.605) exceeding the 0.05 significance threshold, we retain the null hypothesis. Both male ($\bar{x}=2.12$) and female ($\bar{x}=2.07$) educators show similarly low levels of AI utilization, as evidenced by mean scores hovering around the "Low Extent" range (2.00-2.49) on the measurement scale. The comparable standard deviations (0.71 for males, 0.76 for females) suggest equivalent variability in usage patterns across genders. These findings indicate that while previous

studies showed no gender difference in perceptions of AI's value, the current implementation challenges in applying generative AI for content creation affect all educators uniformly, regardless of gender. The results highlight that institutional barriers (such as training deficiencies, resource limitations, or curriculum constraints) likely influence utilization rates more significantly than gender factors, suggesting that interventions to boost AI adoption should focus on systemic rather than demographic considerations. The uniformly low utilization scores across genders reinforce the need for comprehensive professional development programs and institutional support mechanisms to enhance practical AI integration in business education.

Discussion of Findings

The results of Research Question 1 indicate that business educators perceive artificial intelligence (AI) as highly beneficial for educational content preparation, with an overall high extent of positive perception (grand mean = 3.30). Specifically, educators strongly acknowledged AI's role in generating customized learning materials ($\bar{x}=3.42$), improving instructional quality ($\bar{x}=3.35$), and enhancing multimedia content development ($\bar{x}=3.25$). This finding aligns with the assertions of Pan (2022), who identified AI's capacity to automate content preparation and personalize instruction as key advantages in education. Similarly, Burlacu (2022) emphasized how AI-driven content generation can streamline educational workflows by analyzing learner behaviors and preferences. The consensus among respondents, reflected in the low standard deviations (0.49–0.72), suggests widespread recognition of AI's potential to transform content creation processes, reduce preparation time, and maintain resource relevance.

For Hypothesis 1, the t-test analysis revealed no significant gender-based differences in educators' perceptions of generative AI ($t(85)=0.87$, $p=0.387$). Both male ($\bar{x}=3.25$) and female ($\bar{x}=3.18$) educators shared similarly high perceptions, consistent with the work of Harry (2023), who found equitable AI adoption rates when institutional support is gender-neutral. This challenges earlier claims by Celik et al. (2022) about gender disparities in technology confidence, suggesting that systemic factors not gender shape AI perceptions. The non-significant result implies that interventions to promote AI adoption in business education should prioritize universal training and resource allocation rather than gender-specific strategies.

The findings for Research Question 2 reveal a concerning disparity between business educators' positive perceptions of AI and their actual utilization of these technologies for educational content creation. With an overall low extent of utilization (grand mean = 2.08), educators demonstrated limited practical application across all measured indicators. The lowest utilization was observed in creating personalized learning paths ($\bar{x}=1.92$), suggesting educators struggle most with implementing AI for differentiated instruction. This aligns with the findings of Sheikh et al. (2023), who identified complexity and lack of customization as significant barriers to AI adoption in educational settings. The slightly higher, though still low, utilization rates for automated assessments ($\bar{x}=2.23$) and lesson material generation ($\bar{x}=2.15$) indicate these may

represent more accessible entry points for AI integration, as noted by Ogbonnia (2017) in his work on AI-assisted instructional delivery.

The results of Hypothesis 2 further reinforce these findings, showing no significant gender-based differences in AI utilization ($t(85)=0.52$, $p=0.605$). Both male ($\bar{x}=2.12$) and female ($\bar{x}=2.07$) educators exhibited similarly low levels of implementation, supporting Ogwunte et al.'s (2025) conclusion that institutional and systemic factors - rather than demographic variables - primarily influence technology adoption patterns. The comparable standard deviations (0.71 for males, 0.76 for females) suggest equivalent variability in usage patterns across genders, contradicting earlier assumptions about gender disparities in technology adoption (Celik et al., 2022).

The paradox between high perception and low utilization underscores the need for comprehensive professional development programs. As Culican (2024) argued, AI's potential in education can only be realized when educators are equipped with practical skills to leverage these tools. The findings call for policy initiatives that address infrastructural deficits and foster a culture of innovation, ensuring that educators' positive perceptions translate into actionable pedagogical practices. These findings collectively highlight several critical issues. First, they confirm the existence of a significant implementation gap in Nigerian business education, as previously identified by Onaolapo and Onifade (2020) in their study of African educational contexts. The uniformly low utilization rates across genders suggest that interventions should focus on systemic barriers such as inadequate infrastructure, limited training opportunities, and curriculum constraints, rather than demographic factors. This aligns with UNESCO's (2019) recommendations for addressing technological disparities in developing educational contexts.

Conclusion

This study examined the perception and utilization of artificial intelligence (AI) among business educators in Nigeria for educational content creation and pedagogical enhancement. The findings revealed a significant paradox: while educators demonstrated high positive perceptions of AI's benefits, their actual utilization remained low. Notably, no gender-based differences were observed in either perception or utilization, underscoring that systemic barriers rather than individual or demographic factors hinder AI adoption. The results highlight an urgent need for institutional interventions to bridge the gap between educators' awareness of AI's potential and their ability to integrate it effectively into teaching practices.

Recommendations

1. Universities and colleges should invest in AI infrastructure (e.g., reliable internet access, software licenses) and establish dedicated support units to assist educators in adopting AI tools.
2. Educators training institutions should design hands-on training programs focused on practical AI applications, such as creating personalized learning paths and automated assessments, which showed the lowest utilization rates.

3. Curriculum Planners should integrate AI literacy into business education curricula to model its use for future educators and professionals. This could include modules on AI-driven content creation tools (e.g., generative AI for lesson materials) and ethical considerations (United Nations Educational, Scientific and Cultural Organization, 2019).
4. Government and educational agencies should develop national frameworks to standardize AI adoption in tertiary institutions, with funding allocated for technology upgrades and educator training.
5. There should be research collaboration to encourage partnerships between institutions and AI developers to co-create localized solutions addressing educators' specific needs, such as user-friendly interfaces for non-technical users.

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