BUSINESS EDUCATORS' PERCEPTIONS OF THE CHALLENGES AND PROSPECTS OF INTEGRATING ARTIFICIAL INTELLIGENCE IN VOCATIONAL AND TECHNICAL EDUCATION IN UNIVERSITIES IN ANAMBRA STATE

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Abstract
The study examined Business educators' perceptions of the challenges and prospects of integrating Artificial Intelligence **(**AI) in Vocational and Technical Education (VTE) in Universities in Anambra State. Two research questions guided the study. Descriptive survey research design was adopted in carrying out the study. The area of the study was limited to Anambra State. All the 35 Business Educators from the universities in Anambra State were used for the study. Instrument for data collection was a structured questionnaire. The instrument was validated by three experts. The reliability of the instrument was ascertained using Cronbach Alpha reliability technique which yielded an overall coefficient of 0.90. Data collected were analyzed using mean and standard deviation. Results revealed that the challenges to AI integration include lack of adequate knowledge of AI concepts and tools, limited access to AI-enabled teaching resources in most VTE institutions, lack of institutional policy and strategic framework for integrating AI into the curriculum, among others. The study also revealed that prospects of integrating AI into VTE as identified by business educators include that it can make teaching and learning more efficient and personalized, enhance students' access to learning resources, foster collaboration and knowledge sharing among educators and students, among others. Based on the findings, the study recommended among others that Federal and State Ministries of Education, in collaboration with teacher training institutions and professional associations such as ABEN, should organize continuous capacity-building programmes on AI literacy and application for business educators. This will improve their digital competence and confidence in using AI tools for instructional purposes.

Keywords: *Business educators, Artificial Intelligence (AI), Vocational and Technical Education (VTE), Business Education*

Introduction

The twenty-first century has ushered in an era of rapid technological advancement, fundamentally transforming how individuals live, work and learn. Among these technological innovations, Artificial Intelligence (AI) has emerged as one of the most transformative forces across industries and disciplines. According to UNESCO (2021), AI refers to computer systems designed to perform tasks that typically require human intelligence, such as reasoning, learning, problem-solving, perception and language understanding. Globally, AI is increasingly viewed as a strategic tool for improving the quality, accessibility and efficiency of education. AI systems now assist with personalized learning, automated grading, curriculum design and even decision-making processes in Vocational and Technical Education.

Vocational and Technical Education (VTE) is critical to Nigeria's economic transformation. It provides the foundation for skilled manpower development, entrepreneurship and industrialization. According to the National Policy on Education (FRN, 2014), the objectives of VTE include providing trained manpower in applied sciences, technology and commerce, as well as reducing unemployment through self-employment opportunities. In a knowledge-driven economy, the relevance of VTE (business education inclusive) extends beyond traditional skill training to encompass innovation, creativity and digital literacy.

Business Education, a major component of VTE, aims to prepare individuals for gainful employment, entrepreneurship and economic self-reliance in the fields of commerce, management, accounting and office technology. Business education in Nigeria focuses on developing both cognitive and practical skills necessary for effective participation in the business world. Business education is designed to develop individuals' capacity for gainful employment and entrepreneurship in a dynamic business environment. It emphasizes the acquisition of managerial, accounting, marketing and

technological competencies required for effective performance in the business world. As global business operations (such as automated bookkeeping, digital marketing algorithms and decision-support systems) increasingly rely on AI, business education must evolve to prepare learners for these changes (Omede & Chukwu, 2024). Business educators, therefore, occupy a pivotal role in ensuring this transformation. They are the primary agents responsible for interpreting the curriculum, selecting appropriate teaching methods and integrating relevant technologies. Their perceptions of AI integration influence how effectively AI tools can be adopted and utilized. Positive perceptions often lead to enthusiasm and experimentation, while negative or skeptical perceptions may lead to resistance and underutilization (Lawal, 2025). Hence, exploring their perceptions offers valuable insight into the feasibility and sustainability of AI integration in VTE.

The emergence of AI technologies such as machine learning, intelligent tutoring systems, robotics and virtual simulations has opened new possibilities for skill acquisition and assessment in VTE. These tools can simulate real-life work environments, provide adaptive learning experiences and assist educators in identifying learners' strengths and weaknesses (Prasetya, 2025). However, integrating AI into Nigeria's VTE programme remains a major challenge due to infrastructural limitations, inadequate policy frameworks and educators' limited digital competence (Ukala & Iheukwumere, 2025). With AI now shaping business processes globally from automated accounting to data-driven marketing, business education must adapt its curriculum and pedagogy to align with these new realities (Nnamani, 2024). For instance, AI applications in business can be used for financial forecasting, customer analytics and decision support systems, all of which are relevant for modern business education. The successful adoption of AI in business education programme depends largely on business educators, who are responsible for implementing the curriculum and facilitating learning. Business educators are expected to integrate technology-driven pedagogies into their instructional practices and prepare students for the changing dynamics of the world of work. However, the extent to which they can perform this role effectively depends on their perceptions and utilization of AI, whether they see it as beneficial, practical and ethically acceptable in their teaching contexts (Lawal, 2025). Educators' perceptions influence their willingness to adopt new technologies, their confidence in using AI tools and their overall readiness for innovation. Thus, exploring business educators' perceptions of the challenges and prospects of integrating AI in VTE is both timely and necessary.

Statement of the problem

AI has become a global catalyst for innovation, efficiency and competitiveness in both education and industry. Nations across the world are leveraging AI to enhance teaching and learning processes, improve assessment systems and ensure that graduates acquire future-oriented skills. In technologically advanced countries, AI tools are already transforming VTE through intelligent tutoring systems, adaptive learning platforms, virtual reality simulations and predictive analytics for learning management. These innovations have proven effective in bridging the gap between theoretical knowledge and practical application which is an essential objective of VTE. However, the integration of AI into VTE in Nigeria remains limited, fragmented and slow despite its immense potential to revolutionize teaching and skill acquisition. Generally, the implementation of modern technologies, especially AI in VTE programmes is seemingly fraught with numerous challenges. It is evident that most institutions still rely on traditional teaching methods characterized by rote learning, limited access to digital tools and minimal exposure to modern pedagogical innovations. Business education, which forms an integral component of VTE, is also affected by these technological deficiencies. The field demands that students acquire both cognitive and practical skills relevant to modern business environments, which are now heavily influenced by automation, data analytics and digital communication. However, many business educators continue to teach using conventional methods, partly due to limited awareness of AI applications and inadequate institutional support (Srihita, Goli and Rajyalaxmi, 2026). Meanwhile, empirical studies exploring how Nigerian business educators perceive AI integration in VTE remain scarce. Most available literature has focused primarily on

general ICT adoption rather than the specific challenges and opportunities associated with AI technologies. This lack of empirical evidence limits policymakers' ability to design targeted interventions and training programs that address educators' real needs and concerns. In view of all these realities, it becomes imperative to investigate business educators' perceptions of the challenges and prospects of integrating AI in VTE in Nigeria.

Purpose of the Study

The main purpose of this study was to examine business educators' perceptions of the challenges and prospects of integrating AI in VTE in universities in Anambra State. Specifically, the study sought to:

1. Identify the major challenges Business Educators face in integrating AI into VTE programs in universities in Anambra State.
2. Examine the perceived prospects of AI integration in VTE programs in universities in Anambra State

Research Questions

To achieve the purpose of the study, the following research questions are posed:

1. What are the perceived challenges confronting business educators in integrating AI into VTE in universities in Anambra State Nigeria?
2. What are the perceived prospects of integrating AI into VTE as identified by business educators from universities in Anambra State?

Methods

The study adopted the descriptive survey research design. The design was particularly suitable because the study sought to determine business educators' perceptions of the challenges and prospects of integrating AI in VTE in universities in Anambra State. The study was conducted in Anambra State focusing on public universities that offer business education programmes. The area was chosen because these institutions are responsible for training business educators and implementing vocational and technical curricula. The population of the study comprised all business educators teaching in public universities that offer business education programmes in Anambra State. According to data obtained from various institutions, there are 35 business educators across public universities in Anambra state. There was no sampling as the researchers considered the population to be manageable. The instrument used for data collection was a structured questionnaire titled *Business Educators' Perceptions of AI Integration Questionnaire (BEPAIIQ)*, developed by the researchers. The instrument consisted of two major sections**:** Section A focused on items measuring perceived challenges of integrating AI in VTE while Section B was on items measuring perceived prospects of integrating AI in VTE. The items were structured on a 5-point Likert scale of *Strongly Agree (5)* to S*trongly Disagree (1).* To ensure content and face validity, the draft questionnaire was given to three experts for review: The experts assessed the instrument for clarity, relevance and alignment with the study's objectives. Their suggestions led to modifications in wording and item arrangement to ensure clarity and comprehensiveness.

The reliability of the instrument was established using the Cronbach Alpha method to determine internal consistency. A reliability coefficient of 0.88 was obtained for the challenges section, 0.91 for the prospects section and an overall coefficient of 0.90, indicating a high level of reliability and internal consistency suitable for research purposes. The researchers personally administered the questionnaires to the respondents with the help of research assistants in each of the universities. The direct delivery and retrieval approach was adopted to ensure a high response rate and to provide clarification where necessary. Thirty-three (33) copies of the questionnaires distributed had valid responses and were retrieved, representing a 94% return rate. Data collected were analyzed using descriptive statistics**.** Descriptive statistics such as mean ($\bar{x}$) **and** standard deviation (SD) were used to answer the research questions. A decision mean of 3.00 was used as the criterion point; any item with a mean score of 3.00 or above was considered *agreed*, while items below 3.00 were considered *disagreed*.

Results

Research Question 1

What are the perceived challenges confronting business educators in integrating AI into VTE in Universities in Anambra State Nigeria?

Table 1: *Mean scores on the perceived challenges confronting business educators in integrating AI into VTE in universities in Anambra State Nigeria.* *N=33*

S/N	ITEM	X	SD	REMARKS
1	Many Business Educators lack adequate knowledge of AI concepts and tools	3.28	0.71	Agreed
2	There is limited access to AI-enabled teaching resources in most VTE institutions.	3.43	0.62	Agreed
3	Inadequate funding by government and school management hinders AI integration in business education	3.11	0.81	Agreed
4	Poor ICT infrastructure such as unstable electricity and internet connectivity affects the adoption of AI tools	3.39	0.55	Agreed
5	There is a general fear among educators that AI may replace teachers in the future	3.78	0.41	Agreed
6	Lack of institutional policy and strategic framework for integrating AI into the curriculum is a major challenge	3.19	0.69	Agreed
7	Most educators have not received training or professional development in AI-assisted instruction	3.44	0.80	Agreed
8	Resistance to change by educators affects the implementation of AI in teaching	3.01	0.73	Agreed
9	Lack of technical support personnel to maintain AI tools discourages usage	3.70	0.99	Agreed
10	The cost of acquiring and maintaining AI technologies is very high for most institutions	3.21	1.26	Agreed
11	Ethical and data privacy concerns discourage educators from using AI-based applications	2.77	0.64	Disagreed
12	The curriculum in most business education programmes is outdated and not aligned with AI innovations	3.16	0.82	Agreed
13	There is limited awareness of the potential benefits of AI in VTE	2.81	0.69	Disagreed
14	The absence of collaboration between academia and industry limits AI adoption in business education	3.14	0.51	Agreed
15	AI applications are perceived as complex and difficult to use by many educators	2.69	0.66	Disagreed
	Grand	3.21	0.73	Agreed

Note: $\bar{X}$ = *Mean;* ***SD*** = *Standard Deviation*

The data in Table 1 reveals that the mean values of 12 out of the 15 items in the table were above 3.0 on 5-point rating scale which implies that the respondents agreed to them. This result implies that the 13 identified items are agreed by the respondents to be the perceived challenges confronting business educators in integrating AI into VTE in universities in Anambra State Nigeria. The mean values of items 11, 13 and 15 are 2.77, 2.81 and 2.69 respectively which are in each case less than the cut-off point value of 3.0 on 5-point rating scale indicating that the three items are not perceived challenges confronting business educators in integrating AI into VTE in universities in Anambra State Nigeria.

Research Question 2

What are the perceived prospects of integrating AI into VTE as identified by business educators from universities in Anambra State?

Table 2: *Mean scores on perceived prospects of integrating AI into VTE as identified by business educators from universities in Anambra State.*

S/N	ITEM	X	SD	REMARK
1	AI integration can make teaching and learning more efficient and personalized	3.22	0.80	Agreed
2	AI can support teachers by automating administrative and routine classroom tasks	3.19	0.75	Agreed
3	AI-powered virtual assistants can enhance students' access to learning resources	3.58	0.54	Agreed
4	Integrating AI can improve students' engagement and motivation to learn	3.81	0.91	Agreed
5	AI can help identify students' strengths and weaknesses for adaptive instruction	3.72	0.82	Agreed
6	The use of AI can prepare business education graduates for emerging digital jobs	3.95	0.66	Agreed
7	AI integration will encourage innovative teaching practices among educators	3.80	0.51	Agreed
8	AI can improve assessment accuracy through automated grading	3.74	0.75	Agreed
9	AI will foster collaboration and knowledge sharing among educators and students	3.33	0.61	Agreed
10	The integration of AI will make VTE globally competitive	3.42	0.93	Agreed
11	AI can support inclusive education by assisting learners with disabilities	3.51	0.71	Agreed
12	AI-based simulations can provide hands-on practical experiences for learners	3.49	0.65	Agreed
13	AI can contribute to better educational planning and decision-making	3.63	0.47	Agreed
14	Integrating AI promotes continuous professional development for educators.	3.91	0.64	Agreed
15	AI has the potential to transform business education into a more technology-driven discipline.	3.85	0.98	Agreed
		3.61	0.71	Agreed

Note: $\overline{X}$ **=** *Mean;* ***SD*** *= Standard Deviation*

The data in Table 2 reveals that all the mean values in the table were above 3.0 on 5-point rating scale which implies that the respondents agreed to them. This result implies that all the items are agreed by the respondents to be perceived prospects of integrating AI into VTE as identified by business educators from universities in Anambra State.

Discussion

Perceived Challenges Confronting Business Educators in Integrating AI into VTE

The results showed that many business educators lack adequate knowledge of AI concepts and limited awareness of its benefits in teaching and learning. This finding is consistent with Ogunode and Fakunle (2024) who observed that low digital literacy among educators impedes AI integration and with Okolie, Igwe and Nwosu (2023), who reported that insufficient pedagogical and technical knowledge limits AI adoption in teacher education. Also, the findings showed limited access to AI-enabled teaching resources and poor ICT infrastructure corroborating Odo and Ezeani (2022) and Adebayo and Olanrewaju (2023), who highlighted unreliable power supply and inadequate internet access as hindrances to technological innovation. The World Bank (2023) also noted Nigeria's widening digital infrastructure gap, which further constrains the deployment of advanced technologies. Inadequate funding and the high cost of AI technologies were also observed, aligning with Edeh and Oboh (2023) and UNESCO (2022), who asserted that limited institutional budgets and financial

constraints impede AI readiness in sub-Saharan Africa's education systems. Additionally, the absence of institutional policy and strategic frameworks was highlighted as a critical barrier, consistent with Agu and Eze (2024), who found that most Nigerian universities lack AI governance structures and ethical guidelines, leading to unsystematic implementation. Insufficient training and professional development were also evident, confirming Okoro and Ndubuisi's (2023) view that teacher professional development in AI remains neglected and UNESCO's (2023) call for continuous capacity building for educators to ethically and effectively apply AI tools. Moreover, resistance to change and fear of job displacement were significant, echoing Okafor and Nnamdi (2024) and Buh et al. (2023), who found that psychological resistance and job insecurity hinder educators' willingness to embrace AI. The lack of technical support and collaboration between academia and industry further limits AI integration, supporting Omede and Chukwu (2024) and Onyeonoru and Okafor (2023), who stressed that technical expertise and industry partnerships are vital for innovation and practical AI application. Ethical and data privacy concerns were also raised, resonating with Adeoye (2023) and OECD (2023), who emphasized that fear of data misuse and lack of ethical frameworks discourage AI adoption in education. The overall implication of these findings is that effective AI integration in Nigerian VTE requires enhanced educator competence, improved infrastructure, adequate funding, supportive policy frameworks, continuous professional development, industry collaboration, ethical governance and curriculum modernization to prepare educators and students for the demands of an AI-driven educational environment.

Prospects of Integrating AI into VTE

The results revealed that AI enhances teaching and learning efficiency by making instruction more personalized and adaptive, which aligns with UNESCO (2023), Buh, Duru and Opara (2023) and Okafor and Nnamdi (2024), who emphasized that AI tools provide individualized feedback and data-driven instructional designs that improve pedagogical outcomes. The finding that AI supports teachers through automation of administrative and routine classroom tasks corroborates Edeh and Oboh (2023) and OECD (2023), who explained that automation reduces educators' workload and enhances productivity, particularly in resource-constrained environments like Nigeria. Similarly, AI-powered virtual assistants were found to enhance students' access to learning resources, supporting Adebayo and Olanrewaju (2023) and Okoro and Ndubuisi (2023), who highlighted the role of Chabot and virtual tutors in promoting ubiquitous and interactive learning experiences. The study also found that AI integration improves student engagement and motivation, corroborating Eze, Anene and Okoli (2023) and Agu and Eze (2024), who asserted that gamified and simulation-based learning environments driven by AI foster active participation and sustained learner interest. Furthermore, AI's ability to identify students' strengths and weaknesses aligns with UNESCO (2022) and Odo and Ezeani (2022), who emphasized the significance of adaptive learning analytics in providing personalized instruction and closing achievement gaps. The result showing that AI prepares graduates for emerging digital jobs supports Okolie, Igwe and Nwosu (2023) and World Bank (2023), who argued that AI literacy strengthens employability and aligns skills with global digital workforce demands. Additionally, AI integration encourages innovative teaching practices, consistent with Ogunode and Fakunle (2024) and Okafor and Nnamdi (2024), who found that exposure to AI stimulates creative pedagogical experimentation. AI was also found to improve assessment accuracy and feedback, corroborating Adeoye (2023) and OECD (2023), who emphasized that AI reduces grading bias and enhances transparency in evaluation. The study further revealed that AI fosters collaboration and knowledge sharing, in agreement with Onyeonoru and Okafor (2023) and UNESCO (2023), who observed that AI-powered learning management systems promote peer engagement and global academic networks. The finding that AI integration enhances global competitiveness in VTE aligns with Edeh and Oboh (2023) and the World Economic Forum (2023), who posited that AI adoption elevates institutional innovation and global standing. Moreover, AI supports inclusive education by providing tools for learners with disabilities, echoing UNESCO (2022) and Adebayo and Olanrewaju (2023), who highlighted technologies like speech recognition and screen readers as

enablers of equity. AI-based simulations were also found to promote experiential learning, consistent with Eze et al. (2023) and Omede and Chukwu (2024), who stated that simulations enhance practical skills and workplace readiness. Similarly, AI contributes to educational planning and decision-making, supporting Agu and Eze (2024) and OECD (2023), who reported that predictive analytics aid in policy formulation and resource management. The study further found that AI promotes continuous professional development for educators, corroborating Okoro and Ndubuisi (2023) and UNESCO (2023), who observed that AI-enabled training platforms offer personalized, data-informed learning opportunities for teachers. Finally, the finding that AI can transform business education into a technology-driven discipline reinforces the assertions of Okafor and Nnamdi (2024) and Eze et al. (2023), who noted that AI integration signals a paradigm shift toward innovation-led, technology-centered education. Collectively, these findings underscore that AI integration has immense potential to revolutionize VTE in Nigeria by enhancing efficiency, inclusivity, engagement and global competitiveness, while fostering innovation and lifelong learning among educators and students.

Conclusion and recommendations

The findings of this study have revealed that the integration of AI in VTE, particularly in business education programmes in universities in Anambra State, presents both significant challenges and immense prospects**.** The discussions demonstrated that although AI offers numerous opportunities to transform teaching, learning and educational management, its adoption in universities in Anambra State remains constrained by several contextual barriers. Collectively, the findings underscore that the successful integration of AI in business education requires a balanced approach which addresses infrastructural, human capacity and policy-related challenges while simultaneously leveraging the transformative opportunities AI provides. If appropriately implemented, AI could reposition VTE to meet global standards, enhance employability and foster innovation-driven economic development in Nigeria.

Recommendations

In light of the findings and conclusions drawn from this study, the following recommendations were made:

1. The Federal and State Ministries of Education, in collaboration with teacher training institutions and professional associations such as ABEN, should organize continuous capacity-building programmes on AI literacy and application for business educators. This will improve their digital competence and confidence in using AI tools for instructional purposes.
2. Government and school management should invest in robust ICT infrastructure, including stable electricity, high-speed internet connectivity and cloud-based systems to support AI operations.

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