

## BUSINESS EDUCATORS' PERCEPTIONS OF INTEGRATING ARTIFICIAL INTELLIGENCE FOR EFFECTIVE BUSINESS EDUCATION PROGRAMMES

**Ubaka, Roseline Nkechi**

Department of Office Technology and Management

Federal Polytechnic, Oko

Anambra State, Nigeria

alamsorj@gmail.com

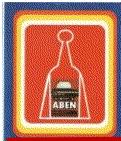
### Abstract

*This study examined the perceptions of business educators regarding the integration of artificial intelligence (AI) into Business Education Programmes. Two research questions and two hypotheses guided the study. The research utilized a descriptive survey design. The population of the study comprised 108 business educators from Universities and Colleges of Education in Anambra State where business education programmes are offered. There was no sample since the population size was manageable. The instrument for data collection was a 37-item questionnaire which was validated by three experts: two from Business Education Department and one from Measurement and Evaluation. The instrument was pilot-tested and data obtained used to determine the reliability of the instrument with the Cronbach Alpha approach, and it yielded co-efficient index of 0.81. One hundred and eight (108) copies of questionnaire were administered and 102 retrieved, and used for analysis. Data collected were analysed by using mean and standard deviation to answer research questions, while t-test statistics was used to test the hypotheses of no significant difference at 0.05 level of significance. Findings revealed that most artificial intelligence tools are perceived as necessary for business education programmes, with some tools deemed highly critical. Additionally, business educators generally hold positive views on integrating artificial intelligence in teaching and learning business education programmes, recognizing its role in making education more inclusive and effective. However, there is some scepticism regarding AI's ability to foster creativity and innovation. The study concludes that while AI is a valuable tool in business education, its integration should complement rather than replace the human element in teaching. Based on findings, recommendations were made, including that; business educators should prioritize the adoption and integration of AI tools that have been identified as "Highly Required" or critical, such as QuillBot and tools improving accessibility, among others.*

**Keywords:** artificial intelligence, business education, educators, perceptions, integration, teaching and learning.

### Introduction

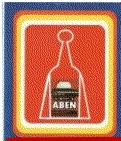
Artificial intelligence has revolutionized the way teachers interact with students in the educational system. By utilizing artificial intelligent technologies, business educators are able to personalize learning experiences for students based on their individual needs and abilities. This is because artificial intelligence has programmes developed to perform specific tasks. These are utilized for a wide range of activities. These activities include medical diagnosis, electronic trading platforms, robot control, and remote sensing. Ouyang and Jiao (2021) observed that artificial intelligence is a powerful tool to facilitate new paradigms for instructional design, technological development, and education research that are otherwise impossible to develop in the traditional education modes. Onwuachu (2014) viewed artificial intelligence as a group of related



technologies that attempt to develop machines to emulate human-like qualities, such as learning, reasoning, communication, seeing, and hearing. The author further stated that the artificial intelligence main areas include robotics, perception system, expert system, natural language processing, fuzzy logic, neural networks and genetic algorithms. AI is also revolutionizing the field of education. It offers tools and technologies to personalize learning, automate administrative tasks, and provide valuable insights into students' performance.

In education, artificial intelligence is applied to enhance teaching and learning processes. Srivastava (2024) stated that artificial intelligence in education can personalize learning experiences, redefine teaching practices, offer real-time feedback, and support educators with advanced tools and insights, leading to more effective and engaging educational environment. It has in store significant attention in the educational field due to its potential to revolutionize learning processes, personalize instruction, and improve educational outcomes. It encompasses other various applications such as personalized instruction, intelligent tutoring systems, virtual mentors, adaptive learning systems, educational games, virtual reality simulations, and automated grading systems. Artificial intelligence in education may also be seen as the use of technology to address cognitive, physical, academic, social and emotional factors that impact learning. Good examples of artificial intelligence in education for students include grammar checking software, text-to-speech platforms and flash card software. Artificial intelligence in education helps educators identify gaps in students' knowledge and provide targeted feedback to improve learning outcomes. With the help of AI-powered chatbots and virtual assistants, educators can provide students with immediate support and assistance outside the classroom, and help them stay engaged and motivated. Camelia et al (2024) posited that artificial intelligence in education system significantly enhance learners' experience; and aids teachers and students in educational processes. Artificial intelligence is growing rapidly in the education sector. Hefferman (2021) affirmed that this rapid growth is due to its ability to transform many aspects of the teaching and learning processes. It can create immersive virtual learning environments, produce smart content, ease language barriers, fill gaps between learning and teaching, creates specialized plans for each student, among others. Nguyen (2023) equally affirmed that artificial intelligence helps students to learn smarter by providing them with personalized experiences that are tailored to their individual learning styles, as well as access to information and data to help them better understand the material. This creates need to integrate artificial intelligence in education process. Integration of artificial intelligence in education aims to improve student engagement, provide customized learning experiences, and streamline administrative tasks for educators. It can also improve how students are assessed and guided while also helping to build digital literacy, critical thinking, creativity, and problem-solving (Kengam, 2020; World Economic Forum, 2024). Artificial intelligence is an emerging advanced technology that has started modifying educational tools and institutions. AI tools in education are diverse devices ranging from intelligence tutoring system and adaptive learning platforms to virtual automated grading and virtual assistants. These tools are designed to meet variety of needs for both students and teachers. They include quillbot, grammarly, gradescope, improved accessibility, automated tasks, writing aids, among others (York, 2024).

However, artificial intelligence possesses a number of challenges. It may be biased because it provides information only on the knowledgeable on the information it has been trained on. It may generate misinformation because it draws data from many sources hence spread misinformation and errors to both teachers and students (Ofgang, 2024). Moreover, there are artificial intelligence programmes that detect artificial writing. This can help teachers determine if their students are cheating but sometimes those programmes may falsely identify a student's



original work as plagiarism. Also, students who interact with artificial intelligence-software programmes more than a teacher may begin to feel disconnected and isolated from the teacher, thereafter the motivation and engagement in the classroom may decrease. Based on these concerns, the extent artificial intelligence will support teaching and learning is yet to be established.

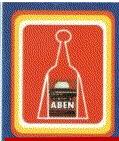
Teaching and learning involve complex processes used in the active transfer of knowledge from an instructor (teacher) to a learner (student). It is further described as transformation process of knowledge from teachers to students. This process is referred to as the combination of various elements within the process where an educator identifies and establishes the learning objectives and develops teaching resources and implements the teaching and learning strategy. In the words of Munna and Kalam (2021), learning brings about a permanent change in behaviour through the acquisition of new skills because it is the process of acquiring new understanding, knowledge, behaviours, skills, values, attitudes, and preferences. While teaching is the process of sharing knowledge, skills, and experience with others in a way that helps them learn. This involves a variety of activities such as planning, instruction, assessment and feedback. Effective teaching involves aligning the three major components of instruction: learning objectives, assessments, and instructional activities (Ambrose, 2010).

Teaching and learning business education programmes is a deliberate, well planned and organized process. It is also flexible to the point that it reflects the ever evolving technological driven societal change from time to time. This is due to the fact that business education is a branch of education that involves teaching skills and operations of the business industry. Unfortunately, the curriculum preparing students/graduates with the skills needed to be successful contributors in the society is not adequate, and does not meet the 21<sup>st</sup> century industry demands. Sollosy and McInerney (2023) observed that a contributing factor is business schools' inability to keep pace with rapidly evolving business needs. Changing curriculum is often a herculean task. The authors further affirmed to the unspoken mismatch between the jobs wanted, the requisite skills needed, actual training being provided, and the actual jobs. Similarly, Okpara (2024) stated that universities in Nigeria and across Africa continue to offer courses that are becoming out-dated in today's rapidly evolving technological landscaped. These out-dated courses do not align with the current needs of the labour market and the demand of the 21<sup>st</sup> century. Moreover, the problem is being exacerbated because most traditional educational institutions are slow to integrate artificial intelligence training into their programmes resulting in delay of graduates with necessary digital skills. The need to groom and mentor business education students with artificial intelligence tools therefore arise.

By creating and supplementing business education content through artificial intelligence-powered platforms, teachers can curate a range of educational resources (McFarland, 2024). However, it should be noted that Artificial Intelligence in business education is not meant to replace business educators. The human element remains crucial in business education programmes as business teachers possess qualities such as empathy, critical thinking, and the ability to inspire and motivate students. Artificial intelligence should be seen as a tool that complement and enhance teaching and learning business education programmes rather than a substitute for human interaction hence the need to integrate artificial intelligence in business education programme to augment teachers' efforts in the classroom. The extent educators perceive this integration therefore is the thrust of this study.

### **Statement of the Problem**

In today's rapidly evolving world, the need to integrate artificial intelligence (AI) in business education programmes has become necessary and also a possibility. It has become a



necessity because artificial intelligence has the potential to revolutionize the way business education students learn, teachers instruct, and schools operate. The world is therefore continually embracing technologies advancements, exploring how artificial intelligence can revolutionize the business education programmes to benefit teachers and students (Shulman, 2024).

Unfortunately, many African universities still focus on traditional subjects such as law, medicine, and engineering, which are important but may not be sufficient enough to prepare students for the changing job market. Artificial intelligence brings efficiency, innovation and new job opportunities, then changes the tasks the workers do and the skills they require. The wide spread adoption of artificial intelligence is now increasing skills gap, as people struggle to stay up to date on the latest artificial intelligence skills. Employers increasingly expect candidates to have artificial intelligence-related skills, even for roles that traditionally do not require them. This calls for the integration of AI in business education programmes.

Business educators need to embrace artificial intelligence as potential support system for the business education programmes. Their perception of integrating artificial intelligence in the programme is therefore important. Hence, this research addressed the business educators' perceptions on integrating artificial intelligence in the curriculum of business education programmes.

### **Purpose of the Study**

The purpose of this research was to find business educators' perceptions of integrating artificial intelligence for effective business education programmes. Specifically, the study:

1. Identified business educators' perceptions of artificial intelligence tools required in teaching and learning business education programmes.
2. Determined business educators' perceptions of integrating artificial intelligence in business education programmes.

### **Research Questions**

The following two research questions were answered in the study:

1. What are the artificial intelligence tools required in business education programmes?
2. How do business educators perceive integrating artificial intelligence in business education programmes?

### **Hypotheses**

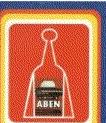
The following null hypotheses were tested at 0.05 level of significance:

HO1 There is no significant difference in the mean ratings of the business educators from Universities and those of Colleges of Education on artificial intelligence tools required in business education programmes.

HO2: There is no significant difference in the mean ratings of the business educators from Universities and those of Colleges of Education on integrating artificial intelligence in business education programmes.

### **Methodology**

The descriptive survey research design was adopted for this study. The study was carried out in Universities and Colleges of Education in Anambra States where business education programmes are offered. The institutions are Nnamdi Azikiwe University, Awka; Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus; Federal College of Education (Technical), Umunze; and Nwafor Orizu College of Education, Nsugbe. The population of the study was 108 business educators, which comprised Nnamdi Azikiwe University, Awka (18); Chukwuemeka Odumegwu Ojukwu University, Igbariam (07); Federal College of Education (Technical), Umunze (66); and Nwafor Orizu College of Education, Nsugbe (17). Total enumeration was carried out due



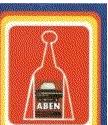
to the size of the population was manageable. The instrument for data collection was a 37-item questionnaire constructed by the researcher titled business educators' perceptions of integrating artificial intelligence instrument (BEPIAI). The questionnaire was designed according to research questions, and a 4-point rating scale of strongly agreed (SD), agreed (A), disagreed (D), and strongly disagreed (SD) was adopted. The validation of instrument was done by three experts: two from Business Education Department and one from Measurement and Evaluation, all from Federal College of Education (Technical), Umunze, Anambra State. The instrument was pilot-tested and data obtained used to determine the reliability of the instrument with the Cronbach Alpha approach, and it yielded co-efficient index of 0.81. One hundred and eight (108) copies of questionnaire were administered and twenty-five (25) copies retrieved from the business educators in the universities, seventy-seven (77) from colleges of education. Total number retrieved; one hundred and two (102) copies. Mean and standard deviation were used to answer research questions to determine the homogeneity of the business educators' perceptions, while t-test statistics was used to test the hypotheses of no significant difference at 0.05 level of significance. Decisions on the research questions were based on the grand mean in relation to the real limits of numbers. Thus, items with mean rating of 0.50 to 1.49 were rated not required/strongly disagreed; those with 1.50 - 2.49 were rated little required/disagreed; those with 2.50 - 3.49 were rated required/agreed; while those with 3.50 - 4.00 were rated highly required/strongly agreed. For the hypotheses if the calculated t-value was equal or greater than the critical t-value, it was rejected, otherwise, not rejected.

## Results

Research Question One: What are the artificial intelligence tools required in business education programmes?

**Table 1: Mean ratings and standard deviation on AI tools required in business education programmes. N = 102**

AI Tools	Mean	Std. Deviation	Decision
1. Classpoint	3.35	.34	Required
2. QuillBot	3.52	.32	Highly Reqd.
3. Owlift	3.50	.31	Highly Reqd.
4. Grqmmarly	3.33	.39	Required
5. Writing Aids	3.36	.34	Required
6. Gradescope	3.36	.37	Required
7. Fireflies.ai	3.42	.36	Required
8. Orrer.ai	3.35	.34	Required
9. Google Bard	3.41	.35	Required
10. Course Hero	3.32	.56	Required
11. Automated Tasks	3.41	.35	Required
12. Improved Accessibility	3.52	.32	Highly Reqd.
13. Fetchy	3.50	.31	Highly Reqd.
14. Congnii	3.33	.39	Required



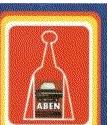
15. Carnegie learning	3.36	.34	Required
16. Ivy	3.36	.37	Required
17. Adobe firefly	3.42	.36	Required
18. Techmatai.com	3.35	.34	Required
19. Fun learning	3.41	.35	Required
Grand Mean	3.40	.36	Required

Table one presents mean ratings and standard deviation for various artificial intelligence tools required in business education programmes, along with a decision on whether each tool is "Required" or "Highly Required." The grand mean of 3.40 indicates that, on average, the AI tools evaluated are generally considered "Required" for inclusion in the business education programmes. The standard deviation of 0.36 suggests that there is some variation on how these tools are perceived, but the variation is not extreme. Most AI tools fall into the "Required" category, meaning they are seen as necessary but not indispensable. The "Highly Required" tools stand out as more critical for the business education programmes. In summary, while all the listed artificial intelligence tools are deemed necessary, some are viewed as more crucial (Highly Required) than others, reflecting their perceived impact or importance in the educational setting.

**Research Question Two:** How do educators perceive integrating artificial intelligence in business education programmes?

**Table 2: Mean ratings and standard deviation on perceptions of integrating AI in business education programmes.**

Perceptions on Integrating AI	Std.		Decision
	Mean	Deviation	
1. make teaching more inclusive	3.32	.56	Agreed
2. encourage personalised learning experience	3.32	.56	Agreed
3. bring about early detection of learning gap	3.36	.37	Agreed
4. support educators with advanced tools and insight	3.42	.36	Agreed
5. helps students refine their language skills	3.35	.34	Agreed
6. create a more tailored education process	3.41	.35	Agreed
7. provides immediate guidance and correction	3.32	.56	Agreed
8. fosters more effective learning process	3.27	.60	Agreed
9. ensure that students are well-equipped for their academic future	3.50	.31	Strongly Agreed
10. manage other administrative tasks	3.42	.57	Agreed



11. bring about real time feedback	3.38	.55	Agreed
12. redefine teaching practices	3.43	.33	Agreed
13. ensure interactive simulations and new teaching modalities	3.50	.31	Strongly Agreed
14. enhance teachers' training and digital literacy	3.42	.57	Agreed
15. make better presentations and notes	3.38	.55	Agreed
16. organise research papers	3.19	.50	Agreed
17. foster innovation and creativity	2.00	.82	Disagreed
18. encourage Virtual classrooms	2.46	.67	Disagreed
Cluster Mean	3.25	.49	Agreed

Table 2 provides mean ratings and standard deviation for various perceptions of integrating AI into business education programmes, along with a decision on whether respondents "Agreed" or "Disagreed" with each perception. Most perceptions regarding the integration of AI in business education programmes are met with agreement, indicating that respondents see AI as beneficial in enhancing various aspects of teaching and learning. However, there is scepticism or disagreement on AI's role in fostering innovation, creativity, and encouraging virtual classrooms. The cluster mean of 3.25 indicates that, on average, respondents generally agree with the positive perceptions of integrating AI into the business education programmes. The standard deviation of 0.49 suggests that while there is some variability in responses, the overall agreement is consistent.

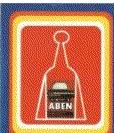
#### Testing of Hypotheses

**HO1:** There is no significant difference in the mean ratings of business educators from Universities and those of Colleges of Education on artificial intelligence tools required in business education programme.

Data collected to test hypothesis 1 are presented on Table 3

**Table 3: Summary of t-test Analysis of the mean ratings of the business educators from University and those of Colleges of Education on AI tools required for effective business education programmes**

		Independent Samples Test					
		t-test for Equality of Means					
		95% Confidence Interval of the Difference					
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference
							Std. Error Difference
Sco	Equal variances assumed	1.53		8	100	.928	.01241
re1							.13591
							.26085
							.28568



Equal variances assumed	.109	26.272	.914	.01241	.11356	.22089	.24571
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Table 3 presents the results of an independent samples t-test to determine whether there is a statistical significance difference in the mean ratings of AI tools required for an effective business education programmes between business educators from Universities and those of Colleges of Education. Since the significance value (0.221) is greater than 0.05, we do not reject the null hypothesis that the variances are equal. Therefore, we assume that the variances are equal when interpreting the t-test results. There is no statistically significant difference between the mean ratings of AI tools required for an effective business education programmes between business educators at Universities and those at Colleges of Education. Both groups generally agree on the importance of these tools, as reflected by the small mean difference and the non-significant p-value. This suggests that both groups of educators have similar perceptions of the AI tools needed in business education, regardless of whether they teach at a University or a College of Education.

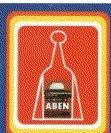
**HO2:** There is no significant difference in the mean ratings of business educators from Universities and those of Colleges of Education on integrating artificial intelligence in business education programmes.

Data collected to test hypothesis 2 are presented on Table 4

**Table 4: Summary of t-test Analysis of mean ratings of business educators from Universities and those of Colleges of Education on integrating artificial intelligence in business education programmes**

Score 2	Levene's Test for Equality of Variances	t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	T	df	Mean Difference	Std. Error Difference	Lower	Upper
								Sig. (2-tailed)	
Equal variances assumed		.602	.441	.406	100	.686	.04320	.10631	-.25696 .17056
						.435	.20.839	.668	.04320 .09921 .16321
Equal variances not assumed									-.24961

Table 4 presents the results of an independent samples t-test to determine whether there is a statistical significance difference in the mean ratings of integrating artificial intelligence for an effective business education programmes between business educators from Universities and those of Colleges of Education. Since the significance value (0.441) is greater than 0.05, we do not reject the null hypothesis that the variances are equal. Therefore, the assumption of equal variances is valid for interpreting the t-test results. The results indicate no statistically significance



difference in the mean ratings of integrating AI tools between business educators at Universities and those at Colleges of Education. Both groups have similar perceptions of the importance of integrating AI tools into the business education programmes.

### **Discussion**

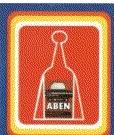
Most AI tools evaluated are considered "Required," with a few rated as "Highly Required." Tools like QuillBot, Improved Accessibility, Owlift, and Fetchy stand out as more critical, reflecting their perceived impact on enhancing business education programmes. Research has shown that AI tools are increasingly essential in educational environments due to their ability to personalize learning, automate administrative tasks, and provide real-time feedback. For example, McFarlane (2024) emphasizes the role of AI in supporting personalized learning experiences and improving educational outcomes through tools like QuillBot and automated grading systems like Gradescope. Similarly, Heffernan (2021) highlights the importance of AI tools in fostering inclusivity and accessibility, which aligns with the high rating for tools that improve accessibility.

There is no statistically significant difference between the respondents from Universities and those of College Education in their ratings of the AI tools required for effective business education programmes. This finding is consistent with research by McKinsey & Company (2020), which suggests that educators across different educational levels recognize the value of AI tools similarly. Both the respondents from Universities and those of Colleges of Education likely face similar challenges and opportunities in integrating AI, leading to comparable evaluations of these tools. This uniformity might also be attributed to the widespread adoption of AI in education, as noted by Holmes et al. (2019), who argue that AI tools have become universally recognized for their potential to enhance educational outcomes.

The perceptions of AI integration are generally positive, with most respondents agreeing that AI can enhance teaching, personalize learning, and support educators. However, there is disagreement on AI's ability to foster innovation and encourage virtual classrooms. The positive perceptions align with studies by Luckin et al. (2016), who argue that AI can revolutionize education by making teaching more inclusive and supporting educators with advanced tools. The disagreement regarding AI fostering innovation might reflect concerns about AI's current limitations, as discussed by Selwyn (2019), who points out that while AI can enhance existing processes, it may not yet fully drive innovation or replace human creativity in education.

Similar to the earlier hypothesis, there is no significant difference between University and College of Education educators in their perceptions of integrating AI tools into the business education programmes. This consistency across educational institutions is supported by studies like those by Broadbent and Poon (2015), who found that educators at all levels are increasingly aware of the benefits of AI in creating more effective and efficient teaching and learning environments. The lack of significant difference suggests a shared understanding and appreciation of AI's role, regardless of the type of institution. This is further supported by the work of Stangstar et al. (2016), who highlighted the growing consensus on the importance of integrating digital tools in education to enhance learning experiences.

The overall results suggest a broad consensus among business educators on the importance of AI tools in business education, with slight variations in the perceived necessity of certain tools and their potential to drive innovation. The findings from Tables 3 and 4 indicated that the type of educational institution (University or Colleges of Education) does not significantly impact educators' perceptions of AI, implying that the benefits and challenges of AI integration are perceived similarly across different educational contexts.



The results imply that efforts to integrate AI in business education programmes should focus on addressing the common needs of educators across various institutions. As the literature suggests, providing adequate training and resources can help educators maximize the benefits of AI, particularly in areas where there is already strong agreement on its value. In summary, the results align with existing research; reinforcing the idea that artificial intelligence is widely recognized as a valuable tool in business education programmes, with strong consensus on its role across different educational institutions. However, there is room for further exploration into the areas where artificial intelligence's impact is less agreed upon, particularly in fostering innovation and supporting new teaching modalities like virtual classrooms.

### Conclusion

The findings from the tables indicate a strong consensus among business educators regarding the importance and effectiveness of AI tools in business education. Tools such as QuillBot and Fetchy are seen as critical for enhancing business education programmes, reflecting their perceived impact on improving accessibility and personalized learning. Generally, business educators view AI positively for its potential to enhance teaching and personalize learning, though there is scepticism about AI's ability to drive innovation or fully support virtual classrooms. Both University and College educators have similar views on the required AI tools and the integration of AI into business education programmes, suggesting a universal recognition of AI's value. There are gaps in understanding AI's role in fostering innovation and supporting virtual learning environments, indicating areas where further exploration could be beneficial.

### Recommendations

Based on the findings and conclusion, the following are recommended:

1. Business educators should prioritize the adoption and integration of AI tools that have been identified as "Highly Required" or critical, such as QuillBot and tools improving accessibility.
2. Institutions should develop comprehensive training programmes to help business educators maximize the benefits of AI tools. This should include practical workshops, tutorials, and on-going support to address any challenges in using AI tools effectively.
3. Researchers should investigate and address concerns related to AI's potential to foster innovation. This could involve exploring new AI applications or improvements in existing tools that could better support creative and innovative teaching practices.
4. Business education researchers should conduct further research into how AI can support and enhance virtual classrooms. This includes evaluating current limitations and exploring potential solutions to better integrate AI into online and hybrid learning environments.

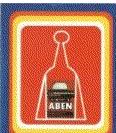
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