

Perceived Threats of Artificial Intelligence on The Academic Retention and Critical Thinking of Business Education Undergraduates in Public Universities in Anambra State

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ABSTRACT

This study investigates the perceived threats posed by artificial intelligence (AI) on the academic retention and critical thinking of business education undergraduates in public universities within Anambra State. Employing a descriptive survey design, the research focuses on a population of 724 individuals. The sample consists of 206 business education students spanning years 1-4 from both Nnamdi Azikiwe University, Awka, and Chukwuemeka Odumegwu Ojukwu University, Igbariam. A total of 109 business education students were selected from Nnamdi Azikiwe University, Awka, while 97 were chosen from Chukwuemeka Odumegwu Ojukwu University, Igbariam, using stratified random sampling technique. The study was guided by two research questions, and data were collected using a structured questionnaire. Validation of the research instrument was conducted by three experts. Mean scores and standard deviation were utilized to analyze the research questions. The findings reveal a significant perceived threat of artificial intelligence on the academic retention and critical thinking of business education undergraduates in public universities within Anambra State. Recommendations include advocating for controlled usage of artificial intelligence to facilitate student academic retention and emphasizing the importance of students'-controlled use of AI to mitigate potential negative impacts on academic performance.

Keywords: Artificial Intelligence, Academic Retention, Critical Thinking, Business Education, Undergraduates, Public Universities, Anambra State.

INTRODUCTION

In recent years, the rapid advancement of technology, particularly in the realm of artificial intelligence (AI), has brought forth transformative changes in various sectors, including education. As Artificial Intelligence technologies continue to evolve, their integration into educational settings has become increasingly prevalent, offering new opportunities for enhancing teaching and learning experiences (Al-Jumeily, Hussain, Abuelma'atti and Tawfik, 2019). However, alongside these opportunities, concerns have arisen regarding the perceived threats that Artificial Intelligence might cause on traditional educational paradigms (Goel and Joyner, 2020).

Artificial Intelligence (AI) is the development of computer systems that can perform tasks that typically require human intelligence, such as learning, problem-solving, and decision-making (Russell and Norvig, 2021). AI mimics cognitive functions to process information, adapt to inputs, and improve over time. Artificial Intelligence is a machine intelligence whose perfection largely depends on its ability and capacity to detect, identify process, and remember increasing number of relevant variables from an environment

(Goodfellow et al., 2016). This is part of the statistical and machine learning that Artificial Intelligence uses to mimic human intelligence.

AI is categorized into two types: Narrow AI (Weak AI) and General AI (Strong AI) (Minsky, 1974). Narrow AI, such as chatbots and virtual assistants, is specialized for specific tasks, while General AI, like Siri and Alexa, exhibits hypothetical intelligence with human-like abilities. Examples of AI's applications include voice recognition, language processing, computer vision, and neural networks (Jordan and Mitchell, 2015).

The benefits of AI are diverse and span across different sectors, impacting efficiency, accuracy, and innovation in numerous applications (Bishop, 2006). However, some challenges and effects of AI on students include job displacement, educational inequality, ethical concerns, dependency on technology, and changing skill requirements (Brynjolfsson & McAfee, 2014). These factors underscore the importance of understanding the implications of AI in education and preparing students to navigate the evolving landscape of technology (Anderson and Anderson, 2007).

Artificial intelligence (AI) has become increasingly prevalent in various sectors, and the field of education is no exception. AI technologies offer promising opportunities to enhance teaching, learning, and administrative processes in educational institutions. However, as AI integration accelerates, concerns arise regarding the perceived threats it may cause to academic performance of Business Education undergraduates in public universities in Anambra State. In recent years, Artificial Intelligence has made significant advancements in the educational domain. According to Bessen (2019), AI-based tools and platforms are being utilized for personalized learning, adaptive assessments, intelligent tutoring systems, and automated grading systems. These technologies aim to improve learning outcomes, increase efficiency, and provide tailored support to students.

AI also brings forth challenges that need to be examined. Bower et al. (2019) asserted that the academic retention of Business Education undergraduates is a critical factor for educational institutions and policy makers to ensure student success, program completion, and overall educational quality. Therefore, it is essential to explore and understand the perceived threats that Artificial Intelligence may cause on academic performances of business education undergraduates in public universities in Anambra State.

One key concern is the potential reduction in student engagement and interaction with human instructors and peers. Artificial Intelligence-powered tools may provide personalized learning experiences and instant feedback, but they may lack the human element that fosters critical thinking, communication skills, and collaborative learning. Without adequate human interaction, students may experience a decline in motivation, social interaction, and overall academic engagement (Nilsson and Nils, 2019).

Another perceived threat is that Artificial Intelligence techniques meddle with what students are expected to learn, the standardization, through 'too much' individualization of education. The overreliance on Artificial Intelligence-driven grading systems and feedback mechanisms may limit students' ability to develop essential skills. Automated grading may prioritize surface-level knowledge and neglect the deeper understanding and critical analysis required for Business Education curricula. This overreliance may hinder the development of creativity, problem-solving abilities, and independent thinking among students (Crawford and Paglen, 2019).

Business education forms a critical pillar of higher education, equipping students with essential skills and knowledge required for success in the dynamic and competitive corporate landscape. The introduction of AI has introduced both promise and apprehension, as educators and stakeholders grapple with the delicate balance between harnessing the benefits of Artificial Intelligence-enhanced pedagogical techniques and mitigating any associated risks. It is imperative to comprehensively assess the potential challenges that AI might present, especially when considering its impact on students who are at the forefront of the changing

educational landscape (Brynjolfsson and McAfee, 2014).

This study delves into the sphere of business education within public universities in Anambra State, Nigeria, to examine the perceived threats caused by artificial intelligence on undergraduate students' educational journeys. To address these potential threats, it is necessary to investigate the perceptions, experiences, and concerns of Business Education undergraduates. By understanding their perspectives, educational institutions can develop strategies to mitigate risks and optimize the integration of Artificial Intelligence while maintaining high levels of academic retention and performance. Therefore, this research seeks to fill the gap in existing knowledge by examining the perceived threats that Artificial Intelligence may cause on academic retention and critical thinking of Business Education undergraduates in public universities in Anambra State.

Statement of the Problem

The integration of artificial intelligence (AI) into educational environments, particularly within Business Education programmes in public universities in Anambra State, presents a complex array of challenges concerning academic retention and critical thinking among students. At the heart of this issue lies the potential erosion of traditional modes of engagement and interaction between students and instructors. With the advent of AI-powered tools and platforms, there is a looming risk of diminishing student engagement with human instructors and peers. This shift away from direct human interaction may inadvertently lead to decreased motivation, a decline in collaborative learning opportunities, and ultimately, lower rates of academic retention among Business Education undergraduates.

Moreover, the growing reliance on AI-driven systems for tasks such as grading, feedback provision, and personalized learning interventions poses a significant threat to students' critical thinking abilities. As students increasingly rely on AI-generated feedback and assessments, there is a danger of stunting their capacity to think independently, solve complex problems, and engage in rigorous intellectual inquiry. The standardized nature of AI-based assessments may prioritize surface-level knowledge over deep conceptual understanding, thereby hindering students' development of critical thinking skills essential for success in the dynamic business landscape.

In essence, the integration of AI in Business Education programmes poses multifaceted challenges to academic retention and critical thinking among students. By delving into these complexities, this study seeks to shed light on the nuanced ways in which AI influences student learning experiences and to identify strategies for mitigating its potential adverse effects on academic achievement and cognitive development.

Purpose of the Study

The purpose of this study is to examine the perceived threats of artificial intelligence on the academic retention and critical thinking of business education undergraduates in public universities in Anambra State. Specifically, the study ascertained perceived:

1. Threats of AI on academic retention of business education undergraduates in public universities.
2. Threats of AI on critical thinking of business education undergraduates in public universities.

Research Questions

The following research questions guided the study:

1. What are the perceived threats of AI on academic retention of business education undergraduates in public universities in Anambra State?

2. What are the perceived threats of AI on the critical thinking ability of business education undergraduates in public universities in Anambra State?

EMPIRICAL REVIEW

Oyeleke and Ezeali (2020) explored the perceptions of mass communication students at Ebonyi State University regarding the role of artificial intelligence (AI) in academic retention. Their study employed a descriptive survey design and formulated two research questions to guide the investigation. With a population of 230 students from the Department of Mass Communication, Ebonyi State University, the researchers utilized a census sampling method, administering 230 questionnaires to collect data. Analysis involved frequency, percentage, and chi-square tests to test hypotheses. Findings indicated a high awareness of AI for academic retention among the students. The study recommended embracing AI in teaching and learning, advocating for workshops to familiarize both students and lecturers with this technological innovation in the digital era.

While sharing a focus on academic retention, this study diverges from the present research in location, student population, and scope. While Oyeleke and Ezeali (2020) focused on mass communication students in Ebonyi State, the current study centers on business education students in Anambra State, thus differing in both subject area and geographical context.

Nwile and Edo (2023) investigated the role of artificial intelligence tools in enhancing critical thinking among university students in Rivers State, Nigeria. Employing a descriptive survey design, they formulated three research questions and hypotheses and targeted 154 students from Rivers State University and Ignatius Ajuru University of Education, Port-Harcourt. Using a questionnaire titled “Artificial Intelligence Tools for Critical Thinking Ability,” they distributed 154 copies and retrieved 143 completed questionnaires. Analysis included frequency, mean scores, standard deviation, and the Z-test to test hypotheses. Results indicated improved mobility, knowledge production, and academic efficiency with the use of AI tools. Recommendations included periodic training for students to familiarize them with AI trends, enhancing critical thinking in academic activities.

While both studies share a focus on artificial intelligence and critical thinking, they differ in location, with Nwile and Edo (2023) conducted in Rivers State, Nigeria, while the present study is situated in Anambra State. Additionally, their focus on university students contrasts with the researcher’s emphasis on business education students in Anambra State.

Elvira (2020) examined the benefits of AI on educational performance among college students in Mexico City, using AI algorithms like K-Nearest Neighbor and Random Forest to predict academic success. Conducted as an experimental model with 182 engineering students, the study administered adaptive measures by instructors across six groups. Results showed a significant difference in performance between control and experimental groups, highlighting the potential for AI in predicting academic outcomes. However, the study noted the need for further data training to improve prediction accuracy.

Diverging from the present study’s focus on threats of AI on academic retention and critical thinking among business education students, Elvira (2020) concentrated on AI’s benefits for academic performance, with a specific focus on engineering students in Mexico City. This study contrasts with the present research in both geographical location and subject area focus.

METHOD

The study adopted a descriptive survey design. According to Agu and Akuezilo (2012), a survey research

design involves collecting or analyzing data from a representative sample of a larger group. In this case, data was collected from sampled respondents using questionnaire forms to analyze the perceived threat of artificial intelligence on the academic retention and critical thinking of Business Education undergraduates in public universities in Anambra State. The study was conducted in Anambra State, one of the five states in the Southeastern part of Nigeria. Anambra State consists of 21 Local Government Areas and shares land boundaries with neighbouring states such as Delta, Imo, Rivers, Enugu, and Kogi. The state is densely populated and has a long history of embracing education, with two major public universities: Nnamdi Azikiwe University, Awka, and Chukwuemeka Odumegwu Ojukwu University, Igbariam. The population of the study comprised 724 individuals, including 437 students of Business Education at Nnamdi Azikiwe University and 287 students of the same department at Chukwuemeka Odumegwu Ojukwu University, Igbariam. The sample for the study consisted of 206 Business Education students from year 1-4, with 109 students sampled from Nnamdi Azikiwe University, Awka, and 97 students from Chukwuemeka Odumegwu Ojukwu University, Igbariam. The sample size was determined using the stratified random sampling technique.

DATA ANALYSIS PRESENTATION

The findings and analysis of the data collected in this study are presented below. The related items were grouped together to arrive at a meaningful interpretation using mean scores and standard deviation. This approach was designed to analyze the perceived threats of artificial intelligence on Business Education undergraduates in public universities in Anambra State.

Table 1: What are the perceived threats of AI on academic retention of business education undergraduates in public universities in Anambra State?

Perceived Threats of Artificial Intelligence on Academic Retention of Business Education Undergraduates in Public Universities in Anambra State

S/N	ITEMS	X	SD	DECISION
1	Utilizing AI would reduce the ability to recall previously learned information	4.11	2.05	Agree
2	Utilizing AI affects deep understanding of core concepts	4.25	2.12	Agree
3	Utilizing AI would alter students' level of comprehensive understanding of subject matter	3.94	1.97	Agree
4	Students may not remember information beyond examinations	4.18	2.09	Agree
5	High probability of not being able to use the information in real-world situations	3.92	1.96	Agree
6	Overuse of AI for assignments may lead to passive participation in class discussions	3.96	1.98	Agree
7	Uneven distribution of AI education resources	1.89	0.97	Disagree
8	Potential decrease in academic retention rates due to reduced human interaction	3.98	1.99	Agree
–	Grand Mean	3.79	1.89	Agree

The data in Table 1 illustrates the respondents' views on the perceived threats of Artificial Intelligence (AI) on the academic retention of business education undergraduates in public universities in Anambra State. The respondents agreed with items 1, 2, 3, 4, 5, 6, and 8, indicating that they perceive these factors as significant threats. However, they disagreed with item number 7, suggesting that they do not see the uneven distribution

of AI education resources as a major threat to academic retention. Overall, the findings indicate a perceived significant threat of AI on the academic retention of business education undergraduates in public universities in Anambra State, as evidenced by the agreement with most items in the survey.

Table 2: What are the perceived threats of AI on critical thinking ability of business education undergraduates in public universities in Anambra State?

Perceived Threats of Artificial Intelligence on Critical Thinking Ability of Business Education Undergraduates in Public Universities in Anambra State

S/N	ITEM	X	SD	DECISION
9	Potential hindrance to independent thinking due to reliance on AI for feedback	4.10	2.05	Agree
10	Relying on AI can affect generating innovative ideas to solve academic problems	4.17	2.08	Agree
11	AI affects the ability to clearly articulate thoughts in academic settings	3.71	1.85	Agree
12	Students rarely engage in reflective thinking	3.82	1.91	Agree
13	Students' inability to make well-reasoned decisions based on information available	3.80	1.90	Agree
14	Belief that AI enhances critical thinking ability through exposure to diverse perspectives	2.08	1.04	Disagree
15	Reduced opportunities for problem-solving due to reliance on AI-based tools	4.20	1.94	Agree
16	Fear of decreased development of analytical skills with increased dependence on AI	3.83	2.05	Agree
17	Concerns about overreliance on AI impeding deep understanding of course materials	3.79	2.10	Agree
18	Most students barely conduct thorough research	3.93	1.96	Agree
	Grand Mean	3.74	1.89	Agree

The data in Table 2 represents the respondents' views on the perceived threats of Artificial Intelligence (AI) on the critical thinking ability of business education undergraduates in public universities in Anambra State. The respondents agreed with items 9, 10, 11, 12, 13, 15, 16, 17 and 18, indicating that they perceive these factors as significant threats. However, they disagreed with item number 14, suggesting that they do not believe AI enhances critical thinking ability through exposure to diverse perspectives. Overall, the findings suggest a significant perceived threat of AI on the critical thinking ability of business education undergraduates in public universities in Anambra State, as evidenced by the agreement with most items in the survey.

DISCUSSION OF FINDINGS

Findings related to Research Question 1 reveal a perceived threat of AI on the academic retention of business education undergraduates in public universities in Anambra State. This contradicts the perspective of Oyeleke and Ezeali (2020), who advocate for embracing artificial intelligence in education. The discrepancy may arise from differing views on the potential impact of AI on academic practices. While Oyeleke and Ezeali emphasize the benefits of AI for teaching and learning, this study highlights concerns

about its potential negative effects on academic retention.

Similarly, findings pertaining to Research Question 2 indicate a perceived threat of AI on the critical thinking ability of business education undergraduates in public universities in Anambra State. This contrasts with the findings of Nwile and Edo (2023), who suggest that AI tools can enhance critical thinking skills among students. The discrepancy may stem from variations in the context and implementation of AI tools in educational settings. While Nwile and Edo focus on the potential benefits of AI for critical thinking, this study highlights concerns about the limitations and dependencies associated with AI-driven learning environments.

CONCLUSION

Based on the findings of this study, it is concluded that there is a significant threat of artificial intelligence to the academic retention and critical thinking ability of business education undergraduates in public universities in Anambra State. The concerns expressed by students reflect apprehensions about job displacement, reduced critical thinking opportunities, and potential disruptions to traditional educational practices. These findings underscore the importance of addressing students' concerns and needs in the integration of AI into educational settings.

Overall, this study contributes to a deeper understanding of the perceived threats of AI on academic retention and critical thinking abilities among business education undergraduates in public universities in Anambra State. It provides insights that can inform educational policymakers, administrators, and faculty members in developing strategies to mitigate risks and maximize the benefits of AI integration for student success.

RECOMMENDATIONS:

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

1. Educational institutions should implement policies and guidelines for the controlled use of artificial intelligence to ensure the academic retention of students. This may include regulating the extent to which AI-driven tools are used in teaching and learning processes to maintain a balance between traditional educational practices and technological advancements.
2. Students should be encouraged to avoid over-reliance on artificial intelligence tools, as excessive dependence may hinder the development of critical thinking abilities. Educational programmes should incorporate activities and assignments that promote critical thinking and problem-solving skills to mitigate the potential negative effects of AI on students' cognitive abilities.

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