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ETHICAL CONCERNS IN THE APPLICATION OF ARTIFICIAL INTELLEGENCE IN BUSINESS EDUCATION PROGRAMME IN PUBLIC UNIVERSITIES IN CROSS RIVER STATE

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Abstract
The study evaluate the ethical concerns in the application of AI in business education programme in public universities in Cross River State. Three specific objectives, research questions and null hypotheses guided the study. Descriptive survey design was adopted in the study. The population comprised 52 business educators (males 30 and females 22) in two public universities in Cross River State: Unical and Uncross. The entire population was used since the size is manageable. Self-designed questionnaire title: Ethical Concerns in AI Application Scale was used to collect data from the respondents. The instrument was face validated by three subject experts and was tested for reliability using Cronbach Alpha which produced a coefficient of 0.86. Fifty-two (52) copies of the instruments were administered and were all collected after completion. Mean and Standard Deviation were used to answer the research question while t-test was used to test the hypotheses at 0.05 level of significance. Findings indicated that accountability, privacy and bias are of great concern in the application of AI in business education programme. Furthermore, institution, age and gender of business educators were not significant in respect to the extent of accountability, privacy and gender concerns in the application of AI in business education programme in public universities in Cross River State. It was recommended among others that governments should implement regulations to ensure that AI systems adhere to strict privacy standards and developers are held accountable for any breaches.

Keywords: Ethical concerns, artificial intelligence, business education

Introduction

Artificial Intelligence (AI) has been perceived differently by many writers and as a result, there are different definitions of AI. Russell et al. in Sengsri and Khunratchasana (2024) refers to AI as computer science field that simulates human intelligence, including algorithms that utilize machine learning, deep learning, natural language processing, and neural networks capable of learning and emulating complex human abilities, and even self-improvement. In the assertion of Mohammed (2019) AI is a branch of computer science that involves developing computer programmes to complete tasks which would otherwise require human intelligence. Some of the tasks that AI is designed to do include speech recognition, learning, planning and problem solving. AI is not just a branch of computer science but a scientific discipline concerned with activity that creates machines that can function appropriately and with foresight in their environment (Nilsson in Tuomi, 2018). AI is an interdisciplinary field of science consisting of machine learning, natural language processing, computer vision, robotics, and expert systems working together to achieve human-like intelligent behaviour.

AI has revolutionized the ways of doing things in all fields of life including education. The International Bank for Reconstruction and Development (IBRD, 2024) noted that the rapid integration of AI in education has led to a wide array of innovative applications aimed at enhancing teaching, learning, and education management processes. AI is impacting on the teaching profession by providing innovative tools and solutions that support educators in effective classroom practice. IBRD (2024) observed that AI-assisted lesson planning tools like UmmIA are empowering teachers to efficiently create engaging, standards-aligned content tailored to students needs while reducing planning time. Furthermore, Allam et al. (2023) maintained that AI increase efficiency and

personalization, and reduce administrative processes, giving educators more time and flexibility in their job.

Students are also benefiting immensely from AI. Chen et al. (2020) asserted that AI provide an opportunity for students to interact with Chatbots thus, enhancing their learning and clearing any confusions resulting in facilitating independent learning. Students benefit from AI-powered tutoring systems that adapt to their individual needs and provide real-time feedback (International Bank for Reconstruction and Development, 2024). Harry (2023) postulated that personalized learning, one of the most significant advantages of AI in education, can lead to better students' outcomes, as they can learn at their own pace and in a way that suits their learning style.

One area in education where AI is being applied is business education. Business education focus on imparting theoretical and practical knowledge, skills, attitude and experiences necessary to be successful in business, teaching or self-engagements. Dahiru and Shua (2023) referred to business education as that aspect of vocational education which provides skills, knowledge, competencies and attitudes necessary for effective employment in a specific business occupation. Business education is a vocational field of study with emphasis on functional skills acquisition that enhance employability. AI is one of those skills that has become necessary to be acquired by business education students to be functional in the digital era. Business education has the responsibility to apply AI in preparing students for AI-driven workplace.

There are various areas AI can be applied in business education to enhance teaching and learning. Ukata and Agburuga (2024) noted that AI can be applied in business education through the following ways: Mavis Beacon typing tool, Quillbot paraphrasing tool and Zotero research assistant. Other AI application in business education according to Inalegwu et al. (2024) include intelligence tutoring system, personalized learning, enhanced accessibility, career guidance, and automated grading among others. Godpower et al. (2024) confirmed that Postgraduate business education students strongly agreed that they apply AI in the form of natural language processing (NLP), data analysis, predictive analytics and automation to enhance their learning capabilities in Rivers State Universities. Additionally, Rahma et al (2023) revealed that the application of AI has been shown to improve students' analytical and problem-solving skills, increase engagement, improve learning outcomes, and reduce the administrative burden on lecturers and academic staff.

Despite the potentials of AI in business education, the technology is been perceived with a lot of scepticisms. Studies have revealed many ethical concerns surrounding the application of AI in general education and specifically business education. Among the concerns that arise as AI permeates more activities in cybersecurity are trust, accountability, and fairness (Yashaswini-Nag et al, 2024). Others are privacy and security concerns (Harry, 2023); Bias and discrimination, transparency, intellectual property and copyright (Ihekweazu et al., 2024); and dehumanization of learning and socioeconomic divide (Donatus et al., 2024). Attention is given to accountability, privacy and data bias concerns.

Accountability is an obligation to inform about, and justify one's conduct to an authority (Bovens in Novelli et al., 2023). Furthermore, Novelli et al. (2023) described accountability as a cornerstone of the governance of artificial intelligence (AI). Accountability is characterized by responsibility, answerability and sanctionability of action. Without accountability, the design, production, utilization and operation of AI will go uncheck even when harm may exist in the process. By accountability, someone or something has to be answerable. AI systems often make autonomous decisions, raising questions about accountability when errors occur and determining responsibility on whether it lies with developers, operators, or deploying organization can be challenging (Yashaswini-Nag, 2024). In alignment, Loi and Spielkamp (2021) elucidated that responsibility for actions provides the ground for moral praise or blame, social approval, and being liable to legal sanctions. A call from Faheem (2024) demands that researchers, policy makers, and the public have to team up so as to create a future with AI that is not only ethical but also equitable and accountable.

As the integration of AI into various aspects of human lives including business education continue, it is crucial to address the privacy concerns associated with these technologies to protect the rights and freedoms of individuals especially business educators and their students. IBM in Mbah (2024) explicated that the growing reliance on personal and sensitive information has raised significant privacy concerns, especially in the context of unauthorized data collection and breaches. Therefore,

ethical considerations such as ensuring accessibility, transparency, and fairness in AI-based education systems also need to be taken into account (Harry, 2023). Suffice to note that AI-powered surveillance technologies have raised concerns about invasion of privacy and the potential for abuse by governments and corporations as well as some unscrupulous individuals. Also, AI systems are vulnerable to cyber-attacks, which can result in the unauthorized access and misuse of personal data belonging to business educators and students. As AI systems become more advanced, the amount of data being collected and stored also increases. This can make AI systems a prime target for hackers looking to steal sensitive information.

Bias in AI systems is another ethical concern. Bias in AI refers to the unfair prejudices that are embedded in algorithms which can lead to discriminatory outcomes against certain groups such as People of colour and women. It can be a manifestation of a faulty algorithm that hence discriminates; therefore, it is critical to apply operations such as data pre-processing and fairness algorithms to fix the issue (Faheem, 2024). The deployment of AI in digital forensics poses a risk of bias and discrimination, as the algorithms utilized for data analysis may inadvertently mirror the biases and prejudices embedded by their developers. According to Ihekweazu et al. (2024), this gives rise to the potential for unfair treatment of specific individuals or groups. Studies have revealed gender and colour discrimination especially against women and blacks. Furthermore, Collina et al. (2023) posited that the inaccurate AI threat detection and image recognition algorithms could lead to discriminatory surveillance and over-policing of marginalized groups. It is evidenced that ethical concerns about AI in respect to accountability, privacy and bias has received scholastic scrutiny in some areas. However, it has not been stepped down to business education. This gap is the motivation for this study.

Statement of the Problem

AI is infusing more and more areas of human's daily endeavours. It is increasingly being applied in various professional contexts including education. AI has the ability to increase efficiency, productivity, save time and improve overall performance of school administrative staff, teachers and students. AI can facilitate administrative decision-making, teaching and learning. Intelligent tutoring systems, chatbots, and automated grading and assessment can increase efficiency, save teachers' time, and provide more accurate and consistent feedback (Harry, 2023). Available literature has provided evidence that emphasis of most studies is on the positive applications of Artificial Intelligence and the economic prosperity that it brings about for the economy and how it will lead to human flourishing. However, despite the various benefits of AI, it has some ethical concerns such as accountability, privacy, and bias. Though there are evidences that ethical concerns about AI in respect to accountability, privacy and bias has received scholastic scrutiny in some areas, unfortunately, it has not been stepped down to how it relates to the application of AI in business education. This gap is what the study seeks to fill.

Research Questions

The following research questions were formulated to guide the study:

1. What is the extent of accountability concerns among business educators in the application of AI in business education programme in public universities in Cross River State?
2. What is the extent of privacy concerns among business educators in the application of AI in business education programme in public universities in Cross River State?
3. What is the extent of bias concerns among business educators in the application of AI in business education programme in public universities in Cross River State?

Hypotheses

The study was guided by the following hypotheses:

$H0_1$: There is no significant difference in the mean scores of business educators in federal and state owned universities on the extent of accountability concerns in the application of AI in business education programme in public universities in Cross River State.

$H0_2$: There is no significant difference in the mean scores of business educators of age below 44 and above 45 on the extent of privacy concerns in the application of AI in business education programme in public universities in Cross River State.

$H0_3$: There is no significant difference in the mean scores of male and female business educators on the extent of bias concerns in the application of AI in business education programme in public universities in Cross River State.

Methodology

Descriptive survey design was adopted in the study. The population comprised 52 business educators (males 30 and females 22) in two public universities in Cross River State: Unical and Uncross. The entire population was used since the size is manageable. Self-designed questionnaire title: Ethical Concerns in AI Application Scale was used to collect data from the respondents. The instrument was face validated by three subject experts and was tested for reliability using Cronbach Alpha which produced a coefficient of 0.86. Fifty-two (52) copies of the instruments were administered and were all collected after completion. Mean and Standard Deviation were used to answer the research question while t-test was used to test the hypotheses at 0.05 level of significance. For any of the hypothesis to be accepted, its P-value must be greater or equal to 0.05.

Results

Results of analysed data were presented in Tables as follows:

Table 1: Descriptive Analysis Summary on Accountability Concerns in the Application of AI in Business Education Programme

S/N	Accountability Concerns	$\bar{X}$	SD	DECISION
1	Strategy implementation of AI in business education requires clear accountability in order to be successful	3.61	0.49	Strongly Agree
2	Algorithmic application may fail, making accountability imperative	3.59	0.49	Strongly Agree
3	Opaque algorithms make it hard to pinpoint where accountability lies	3.55	0.50	Strongly Agree
4	A situation where no one is accountable for errors, scepticism to apply AI will increase	3.48	0.54	Strongly Agree
5	A standard must be maintained in the application of AI in business education	3.32	0.55	Agree
6	Accountability for actions provide the ground for legal sanctions	3.55	0.50	Strongly Agree
7	AI often makes decisions that impact individuals' lives without accountability	3.50	0.50	Strongly Agree
	Grand Mean	**3.51**		**Strongly Agree**

Table 1 reveals that the mean score values of the respective items vary between 3.61 and 3.32. The respective standard deviation scores vary between 0.54 and 0.49, indicating that the mean scores do not vary much from each other. The grand mean of 3.51 indicates that the respondents strongly agree to accountability as a concern in the application of AI in business education programme.

Table 2: Descriptive Analysis Summary on Privacy Concerns in the Application of AI in Business Education Programme

S/N	Privacy Concerns	$\bar{X}$	SD	DECISION

8	AI tools like Chatbots are unreliable in handling private data, putting individuals' privacy at risk	3.42	0.49	Agree
9	Many users are unaware of the extent to which their data is being collected	3.34	0.48	Agree
10	One of the major privacy issues with AI is the lack of transparency in how data is being used	3.50	0.54	Strongly Agree
11	lack of control can lead to data being used in ways that users did not consent to	3.51	0.50	Strongly Agree
12	There are no universal standards for how AI systems should handle personal data	3.42	0.49	Agree
13	AI systems are vulnerable to cyber-attacks, which can result in the unauthorized access of personal data	3.57	0.49	Strongly Agree
14	AI-powered surveillance technologies have raised concerns about invasion of privacy by corporations	3.57	0.49	Strongly Agree
	Grand Mean	**3.47**		**Agree**

Table 2 shows that the mean score values of the respective items vary between 3.57 and 3.34. The respective standard deviation scores vary between 0.54 and 0.48, indicating that the mean scores do not vary much from each other. The grand mean of 3.47 indicates that the respondents acknowledge privacy as a concern in the application of AI in business education programme.

Table 3: Descriptive Analysis Summary on Bias Concerns in the Application of AI in Business Education Programme

S/N	**Accountability Concerns**	$\bar{X}$	**SD**	**DECISION**
15	Inaccurate AI threat detection algorithms could lead to attack on other learning applications	3.46	0.50	Agree
16	If the data used to train an AI system is biased, the system itself will be biased	3.23	0.46	Agree
17	AI algorithms may contain biases that result in discriminatory outcomes	3.59	0.56	Strongly Agree
18	A manifestation of a faulty AI algorithm can result in discrimination	3.46	0.50	Agree
19	AI systems favours male candidates over female candidates due to data bias	3.34	0.48	Agree
20	Discriminatory AI systems can have harmful effects on certain group of individuals	3.55	0.50	Agree
21	There are Unconscious prejudices that seep into AI algorithms	3.57	0.49	Agree
	Grand Mean	**3.45**		**Agree**

Table 3 indicates that the mean score values of the respective items vary between 3.59 and 3.23. The respective standard deviation scores vary between 0.56 and 0.46, indicating that the mean scores do not vary much from each other. The grand mean of 3.51 shows that the respondents acknowledge bias as a concern in the application of AI in business education programme.

Table 4: t-test Analysis on Accountability Concerns in the Application of AI in Business Education Programme Based on Institution Ownership

Item	**Institution**	**N=52**	**Mean**	**Std.**	**Sig**	**P-value**	**Decision**
1	Federal	31	3.61	0.49	0.05	0.96	Not Sig

	State	21	3.61	0.49			
2	Federal	31	3.51	0.50	0.05	0.15	Not Sig
	State	21	3.71	0.46			
3	Federal	31	3.64	0.48	0.05	0.12	Not Sig
	State	21	3.42	0.50			
4	Federal	31	3.61	0.55	0.05	0.03	Sig
	State	21	3.28	0.46			
5	Federal	31	3.48	0.50	0.05	0.01	Sig
	State	21	3.09	0.53			
6	Federal	31	3.58	0.50	0.05	0.68	Not Sig
	State	21	3.52	0.51			
7	Federal	31	3.61	0.49	0.05	0.04	Sig
	State	21	3.33	0.48			
	Grand Value					**0.28**	**Not Sig**

Table 4 shows that item 4, 5 and 7 are significant. This is because their respective P-values of 0.03, 0.01 and 0.04 are less than 0.05 level of significance. Other items are not significant because their respective P-value are greater than 0.05 level of significant. Furthermore, the grand value of 0.28 is greater than the level of significance. Therefore, the first null hypothesis is retained, meaning there is no significant difference in the mean scores of business educators in federal and state owned universities on the extent of accountability concerns in the application of AI in business education programme in public universities in Cross River State.

Table 5: t-test Analysis on Privacy Concerns in the Application of AI in Business Education Programme Based on Age

Item	**Age**	**N=52**	**Mean**	**Std.**	**Sig**	**P-value**	**Decision**
8	Below 44	18	3.50	0.51	0.05	0.42	Not Sig
	Above 45	34	3.38	0.49			
9	Below 44	18	3.38	0.50	0.05	0.64	Not Sig
	Above 45	34	3.32	0.47			
10	Below 44	18	3.44	0.61	0.05	0.59	Not Sig
	Above 45	34	3.52	0.50			
11	Below 44	18	3.50	0.51	0.05	0.84	Not Sig
	Above 45	34	3.52	0.50			
12	Below 44	18	3.38	0.50	0.05	0.72	Not Sig
	Above 45	34	3.44	0.50			
13	Below 44	18	3.66	0.48	0.05	0.35	Not Sig
	Above 45	34	3.52	0.50			
14	Below 44	18	3.66	0.48	0.05	0.35	Not Sig
	Above 45	34	3.52	0.50			
	Grand Value					**0.55**	**Not Sig**

Table 5 shows that all the items are not significant because their respective P-values are greater than 0.05 level of significant. Furthermore, the grand value of 0.55 is greater than the level of significance. Therefore, the second null hypothesis is retained, meaning there is no significant difference in the mean scores of business educators of ages Below 44 and Above 45 on the extent of privacy as a concern in the application of AI in business education programme in public universities in Cross River State.

Table 6: t-test Analysis on Bias Concerns in the Application of AI in Business Education Programme Based on Gender

Item	**Gender**	**N=52**	**Mean**	**Std.**	**Sig**	**P-value**	**Decision**
15	Male	30	3.46	0.50	0.05	0.93	Not Sig

	Female	22	3.45	0.50			
16	Male	30	3.20	0.48	0.05	0.58	Not Sig
	Female	22	3.27	0.45			
17	Male	30	3.63	0.55	0.05	0.58	Not Sig
	Female	22	3.54	0.59			
18	Male	30	3.53	0.50	0.05	0.23	Not Sig
	Female	22	3.36	0.49			
19	Male	30	3.33	0.47	0.05	0.82	Not Sig
	Female	22	3.36	0.49			
20	Male	30	3.35	0.50	0.05	0.88	Not Sig
	Female	22	3.35	0.50			
21	Male	30	3.60	0.49	0.05	0.70	Not Sig
	Female	22	3.54	0.50			
	Grand Value					**0.67**	**Not Sig**

Table 6 reveals that all the items are not significant because their respective P-values are greater than 0.05 level of significant. Furthermore, the grand value of 0.67 is greater than the level of significance. Therefore, the third null hypothesis is retained, meaning there is no significant difference in the mean scores of male and female business educators on the extent of bias as a concern in the application of AI in business education programme in public universities in Cross River State.

Discussion

Findings indicated that the respondents strongly agreed to accountability as a concern in the application of AI in business education programme. The findings implies that AI accountability is necessary for successful application of AI in business education. accountability is necessary because someone or something has to be held responsible, answerable or sanctionable when mishaps occur or when praise is accorded. Accountability encourage trust and confidence to use AI freely and wholeheartedly in education for teaching and learning. The findings agrees with Yashaswini-Nag (2024) that AI systems often makes autonomous decisions, raising questions about accountability when errors occur and determining responsibility on whether it lies with developers, operators, or deploying organization. The findings further revealed that there is no significant difference in the mean scores of business educators in federal and state owned universities on the extent of accountability concerns in the application of AI in business education programme in public universities in Cross River State. This means that institution ownership is not sensitive to AI accoutability concerns. In other words, accountability is a concern to those in federal institutions as well as those in states. The findings is supported bu Novelli et al. (2023) that accountability is a cornerstone of the governance of AI. The findings align with Loi and Spielkamp (2021) that accountability is mentioned as a goal in some recently published guidelines concerning the use of AI in the public sector due to its importance. More so, Collina et al. (2023) found that by combining prescriptive accountability rules and data quality evaluation frameworks can optimize resources to enhance AI-assisted decision-making, align regulatory requirements, respect stakeholders, and exploit competitive advantage using advanced technology in different fields including business education.

Findings acknowledged privacy as a concern in the application of AI in business education programme. The findings is an indication that the rise of AI comes with a new set of privacy concerns that need to be addressed drastically. The findings agree with Mbah (2024) that the growing reliance on personal and sensitive information has raised significant privacy concerns, especially in the context of unauthorized data collection and breaches. Findings further revealed that there is no significant difference in the mean scores of business educators of ages Below 44 and Above 45 on the extent of privacy as a concern in the application of AI in business education programme in public universities in Cross River State. Privacy is not a concern to a particular age group, it is a worry for all. AI algorithms rely on vast amounts of data to function effectively. Unfortunately, most of this data often

includes sensitive information about users, such as their personal habits and preferences. Many of these users are not even aware of the extent to which their data is being collected and used by AI systems. For instance, the widespread use of facial recognition technology powered by AI has raised concerns about the loss of anonymity in public spaces. So concerned about privacy, Mbah (2024) suggested that the implementation of privacy-by-design in AI systems, the adoption of advanced data protection technologies like federated learning and differential privacy, and leveraging AI processes, such as automated data audits and real-time breach detection enhances privacy compliance.

Findings acknowledged bias as a concern in the application of AI in business education programme. the findings confirmed that AI often discriminate, an action which can be harmful. AI bais can cause gender stereotypes and inequalities which can hinder the use of AI in effective teaching and learning. Women may be discriminated against in hiring practices or loan approvals and can cause economic hardship. This agrees with Min (2023) that biased AI used in hiring processes can perpetuate discrimination. It can also perpetuate and even amplify existing societal biases which can further marginalize vulnerable populations. This aligns with Dressel and Farid (2018) that software biased against black individuals in predicting recidivism, significantly impacts bail and sentencing decisions. Further findings indicated that there is no significant difference in the mean scores of male and female business educators on the extent of bias as a concern in the application of AI in business education programme in public universities in Cross River State. This means that AI bias concern is predicted by gender type. This is because algorithms do result in bias when they are used in a situation for which they were not intended. This is supported by Ferrer et al. (2021) that an algorithm utilised to predict a particular outcome in a given population can lead to inaccurate results when applied to a different population, a form of transfer context bias. It is therefore pertinent to ensure that training data is comprehensive and inclusive to help reduce biases in AI algorithms. It is crucial for developers to be mindful of bias during the design and implementation of AI systems especially those apply in teaching and learning business education. Also, regular audits and testing can help identify and mitigate bias in AI algorithms. There is equally the need to make AI algorithms more transparent and accountable to allow for better oversight and mitigation of biases.

Conclusion

It is absolute imperative that ethical concerns are addressed so that the application of AI in business education programme can be encouraged. The study found accountability, privacy and bias to among ethical concerns in the application of AI in business education. By promoting accountability, prioritizing data security, and actively working to reduce biases in AI systems, institutions of learning and corporations can help mitigate the privacy risks associated with this powerful technology. Business educators and students can also take steps to protect their privacy in an AI-driven world. This includes being cautious about sharing personal information online. They can also familiarize themselves with privacy settings and controls on AI platforms.

Recommendation

The following recommendations are made:

1. Governments should implement regulations to ensure that AI systems adhere to strict privacy standards and developers are held accountable for any breaches.
2. Business educators and students should take steps to protect their privacy in an AI-driven world.
3. AL developers should be mindful of bias during the design and implementation of AI systems especially those for educational purposes.

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