

Business Educators' Ratings Of Data Privacy Risks In The Adoption Of Artificial Intelligence For Instructional Delivery In Tertiary Institutions

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Abstract

This study determined business educators' ratings of data privacy challenges in the adoption of artificial intelligence for instructional delivery in tertiary institutions in Anambra State. Two research questions and two null hypotheses guided the study. Survey research design was adopted, and 112 business educators in public tertiary institutions offering business education programme were studied without sampling. Structured questionnaire titled "Business Educators' Ratings of Data Privacy Challenges in Adoption of AI for Instructional Delivery (BERDPC-AAIID)" was used for data collection. Face and content validity of the instrument were ascertained using three experts in the field of education, and the reliability of the instrument calculated using Cronbach alpha formula yielded correlation coefficients of .85 and .77 for clusters B1 to B3 respectively with an overall value of .81. Mean and standard deviation were used to answer the research questions and determine the homogeneity of the respondents' perspectives while t-test was used to test the null hypotheses at 0.05 level of significance. Findings revealed that business educators agree that adopting AI technologies for instructional delivery carries risks related to data privacy, data protection measures in adopting AI technologies for instructional delivery was inadequate in tertiary institutions in Anambra State. It was also revealed that years of teaching experience did not influence business educators' ratings of data privacy risks associated with AI technology adoption while years of teaching experience influenced their ratings of adequacy of data protection measures. Based on the findings of the study, the researcher concluded that there was a serious vulnerability that must be addressed in order to guarantee the ethical and responsible adoption of AI technologies in instructional delivery in Anambra State tertiary institutions. It was recommended that administrators of tertiary institutions in Anambra State should prioritize the development and implementation of clear, comprehensive data protection measures specifically tailored for the adoption of AI in instructional delivery. These measures should outline procedures for data collection, storage, processing, and security, aligning with relevant Nigerian data privacy regulations.

Key Words: *Business Educators, Data Privacy Risks, Artificial Intelligence, Instructional Delivery*

Introduction

The use of Artificial Intelligence (AI) in higher education is gaining momentum worldwide, with the potential to improve learning outcomes and address academic challenges. Nigerian tertiary institutions are exploring this transformative potential, as AI mimics human creativity, problem-solving, learning, and decision-making (Panopto, 2024). This branch of science aims to

create machines that can learn, reason, and perform tasks typically requiring human intelligence. AI is defined by the European Commission's High-Level Expert Group on AI (2019) as a system that demonstrates intelligent behaviour by assessing its surroundings and acting, in part, independently, to achieve specific goals. The creation of intelligent machines that can carry out tasks that normally call for human

intelligence is AI's main goal (McKinsey Global Institute, 2020). AI technologies include Smart Content, Intelligent Tutoring Systems, Virtual Facilitators, Generative AI Tools, Assessment, Personalized Learning Platforms, Predictive AI, and Descriptive AI (Igomu et al., 2024). These tools improve educational resources, offer individualized assistance, and automate tests (Anyanwu, Okoroafor & Ikedimma, 2025).

AI technologies enhance lecturers' productivity, freeing up time for research and creative teaching, thereby fostering innovation in tertiary institutions. Fauzi et al. (2023) stated that lecturers (business education lecturers inclusive) can now use AI technologies to tailor texts and course materials for different students, increasing students' productivity and engagement. Nigerian tertiary institutions are expected to integrate AI technologies into business education, a skilled-oriented training program covering disciplines like accounting, marketing, office technology, and entrepreneurship, to personalize learning and provide students with insightful feedback, thereby enhancing their chances of employment or self-reliance (AbdulRafiu et al., 2024). Nigeria's government has prioritized business education over theoretical education due to high graduate unemployment rates (Federal Republic of Nigeria (FRN, 2013). Business education focuses on skills acquisition, personal growth, creativity, financial management, and leadership, preparing students for a changing workforce.

AI-enhanced learning is ideal for business education due to its intricacy and real-world applications, enhancing comprehension and retention through simulation, immediate feedback, and customized instructional materials (Johnson, 2018). Over the coming decades, it is projected that AI technologies will significantly expand in business education, presenting both opportunities and challenges (Ouyang & Jiao, 2021). Numerous scholars, decision-makers, and educators have worked to focus on incorporating AI to enhance instruction, customize learning,

and expedite administrative and assessment duties (Zhang & Aslan, 2021). AI signifies educational progress, providing countless advantages and driving the transformation of teaching and learning through AI technologies. Despite these, some challenges such as resistance to change, lack of ICT infrastructure, poor staff training, and technical difficulties persist (Chiu, 2023). AI is also promoting innovative teaching methods and improving curriculum development. The potential advantages of AI in higher education are highlighted by PowerSchool (2024), and these include improved student feedback, individualized instruction, and assistance via "study buddies." But these tools also bring with them concerns like data privacy, plagiarism, and bias. To guarantee successful and secure course delivery, business educators—who are important stakeholders in the implementation of business education curricula—must evaluate these risks.

The term "data privacy" describes people's right to manage how businesses and systems gather, use, store, and distribute their personal data. It entails protecting private data from unwanted access, making sure data practices are transparent, and shielding people from possible harm brought on by improper use or disclosure of their personal information (Solove & Schwartz, 2020). When implementing technologies like AI, mobile learning platforms, and cloud-based tools, data privacy guarantees that the academic and personal records of both students and lecturers are safely maintained (West, 2021). Data privacy in education involves responsible handling of sensitive data like student names, birth dates, addresses, and Social Security numbers, which includes information about academic performance, attendance, grades, test results, disciplinary records, health information, and behavioural observations (Kanipe, 2025). More includes understanding a provider's third-party sharing and data-collection practices, as well as their safeguards for student data, is crucial when selecting edu-tech tools (Chung, 2024).

In the Nigerian context, data privacy is becoming a central issue as more tertiary institutions digitize their educational delivery, yet many still lack comprehensive frameworks to protect sensitive information adequately (Oladipo & Akande, 2022). To protect user consent and ensure ethical use of digital tools, particularly with the growing use of AI, data privacy in education necessitates well-defined policies, strong technological safeguards, and continuous awareness training. The Nigeria Data Protection Act (NDPA) 2023, replacing the NDPR 2019, aims to protect data subjects' rights in education. It establishes the Nigeria Data Protection Commission (NDPC) to regulate personal information processing and promote security and privacy (National Information Technology Development Agency (NITDA, 2020). Key principles include transparency, lawfulness, purpose limitation, data minimization, and proportionality. The Act emphasizes the protection of children's data and mandates consent-based processing. Educational institutions, particularly tertiary ones, must register with the NDPC and adhere to global best practices. Failure to comply can result in penalties (KPMG, 2023).

Data privacy risks associated with AI may include data breaches, misuse of sensitive information, potential discrimination, and lack of transparency. Ismail and Alosi (2024) asserted that without adequate training, lecturers who adopt AI technologies might not be aware of the privacy risks connected to these platforms, which could lead to the exposure of private student data. Sharing personal information could result in identity theft and discrimination, and many AI platforms are not made with education in mind. Hackers have discovered new ways to exploit AI's accessibility, and there is a serious privacy risk due to the opaqueness of AI's processing (University of Pittsburgh, 2025). Excessive surveillance and possible data breaches may result from an over-reliance on data minimization principles brought on by the use of enormous

volumes of data. Additionally, due to their sensitivity to small data changes, data poisoning, and hacking techniques, AI technologies can be vulnerable to security lapses and illegal access. These flaws may result in improper content, the disclosure of private data, and illegal activity (Farrar, 2025; Sander, 2025). Tertiary institutions can adopt AI to enhance network security but can also be targeted by sophisticated attacks, such as deep fake exposing personal details.

Business educators often worry about data privacy risks but may lack adequate training, especially with new AI technologies. Only half of Nigeria's tertiary institutions have policies for staff access, encryption, and data retention, indicating that these institutions struggle with data privacy (Anjum, 2025). Data breaches are more likely as a result. Ekhaton (2025) noted that the Nigerian Data Protection Commission was looking into violations and levying penalties. Ekhaton disclosed that a data breach occurred at the University of Ilorin, and federal university libraries are dealing with privacy and cybersecurity issues. Some academic institutions digitize their research.

Effective mitigation of data privacy risks associated with AI adoption in tertiary institutions in Nigeria may include transparency, data minimization, informed consent, strong data security measures, and data anonymization. Tulsiani (2024) listed measure such as privacy-first edtech development and procurement, frequent AI audits, user control, awareness and training, human supervision, and an incident response plan are a few of these (Sharma, 2024). Business educators in Nigeria may face ethical dilemmas in handling AI data. Adebayo and Olasupo (2022), and Nwosu and Eze (2021) reported that many tertiary institutions in Nigeria lack comprehensive data protection policies, limiting their ability to integrate AI technologies safely. There is no uniform standard for ensuring data privacy, and educators' awareness remains uncertain. Ayodele (2021) and Okafor (2020)

reported that despite some institutions embracing digital transformation, there was no universal standard for data privacy, and educators' readiness to tackle these challenges remains uncertain. Nigerian universities' technological adoption often outpaces the development of data governance frameworks, exacerbated by past studies.

Business educators' ratings of data privacy risks in the adoption of AI for instructional delivery in tertiary institutions could differ based on years of teaching experience. Business educators with six and above years could differ with those with below five years on data privacy risks in the adoption of AI for instructional delivery. Business educators with six years and above teaching experience may differ from those with below five years probably because more experienced business educators are generally more aware of the complex legal, ethical, and institutional risks involved in handling digital data, including the adoption of AI for instructional delivery. They may have been exposed to various data management practices over time and are likely more cautious about potential breaches, privacy violations, and misuse of students' information compared to their less experienced counterparts, who may be more focused on the immediate functional benefits of AI rather than its underlying risks. In agreement, Ajiboye (2021) revealed that experienced educators tend to have a heightened sense of data security consciousness because they have often witnessed policy lapses, cyber threats, or privacy violations firsthand, making them more skeptical and risk-aware when adopting new technologies. It is against this background, that this study was carried out to examine business educators' ratings of data privacy challenges in the adoption of artificial intelligence for instructional delivery in tertiary institutions in Anambra State.

Statement of the Problem

Artificial intelligence (AI) is changing how education is delivered in tertiary institutions

around the world. It is opening up new avenues for improving teaching and learning. AI technologies such as virtual learning assistants, automated grading tools, and intelligent tutoring systems among others are becoming more and more popular in Nigeria, especially in business education programmes. However, there are serious issues with the adoption of AI in teaching, particularly with regard to data privacy. The integrity and reliability of AI-driven educational systems are seriously threatened by data privacy concerns such as misuse of personal information, illegal access to student data, and inadequate security measures. The ethical management of data produced and processed by AI technologies may present challenges for business educators, who are essential in forming the next generation of business professionals. The evidence that is currently available indicates that a large number of Nigerian tertiary institutions lack both technical safeguards and comprehensive data protection policies. As a result, business educators' ability to confidently and safely incorporate AI technologies into their lessons may be compromised.

Furthermore, even though some tertiary institutions in Nigeria have started the process of digital transformation, there is currently no universal standard for protecting data privacy, and it is unclear whether educators (business educators inclusive) in Nigeria are aware of or equipped to handle these difficulties. The situation is further complicated by the fact that previous research has demonstrated that the adoption of technology in Nigerian universities frequently surpasses the creation of corresponding data governance frameworks. There is a discernible lack of empirical research on business educators' opinions of data privacy issues associated with AI adoption for instructional delivery in tertiary institutions in Nigeria especially Anambra State, despite the expanding corpus of literature on AI in education. The problem of this study was that if the risks of

data privacy are not resolved, there is a chance that business educators and students' confidence in AI technologies will be damaged, which could result in a lack of adoption of AI technologies that are supposed to promote educational progress. This study therefore specifically examined (1) business educators' ratings of data privacy risks associated with the adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State, (2) the adequacy of data protection measures for business educators' adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State.

Research Questions

The following research questions guided the study;

1. What are the business educators' ratings of data privacy risks associated with the adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State?
2. What is the adequacy of data protection measures for business educators' adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State?

Hull Hypotheses

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

1. There is no significant difference in the mean ratings of business educators on data privacy risks associated with the adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State based on years of teaching experience.
2. There is no significant difference in the mean ratings of business educators on the adequacy of data protection measures for effective adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State based on years of teaching experience.

Methods

This study adopted survey research design. It was carried out in Anambra State, South East, Nigeria. The population of the study consisted of 112 business educators in public tertiary institutions offering business education programme in the Anambra State. There was no sampling since the population was manageable and accessible to the researcher. Researcher developed structured questionnaire titled "Business Educators' Ratings of Data Privacy Challenges in Adoption of AI for Instructional Delivery (BERDPC-AAIID)" was used for data collection. The questionnaire consisted of two sections A and B. Section A contained one item on demographic information of the respondents such as years of teaching experience while Section B contained 20 items according to the two research questions. The instrument was structured on a four-point rating scale of Strongly Agreed (SA)/Very Adequate (VA), Agree (A)/Adequate (A), Disagree (D)/Inadequate (IA) and Strongly Disagree (SD)/Very Inadequate (VI).

Face and content validity of the instrument were ascertained using three experts, two from the field of Business Education and one expert from Measurement and Evaluation. The reliability of the instrument was carried out using pilot-test and data collected were calculated with Cronbach Alpha formula to determine the internal consistency of the instrument and correlation coefficients of .85 and .77 was obtained for clusters B1 to B3 respectively with an overall value of .81 obtained. The researcher with the help of three research assistants adequately briefed administered the instrument to the respondents in their offices. On the spot distribution and collection was employed and those who did not fill their copies immediately were revisited on another agreed date for retrieval. Out of 112 copies of the questionnaire distributed, 106(95%) were correctly filled and returned which were

used for data analysis. Mean and standard deviation were used to answer the research questions and determine the homogeneity of the respondents' perspectives while t-test was used to test the null hypotheses at 0.05 level of significance. A null hypothesis was rejected where the p-value is less than the significant level; otherwise the null hypothesis was accepted. The analysis was carried out using Statistical Package for Social Sciences (SPSS) version 25.0.

Results

Table 1: Respondents' Mean Ratings and Standard Deviation on Data Privacy Risks Associated with the Adoption of AI Technologies for Instructional Delivery

S/N	Items on Data Privacy Risks of AI	\bar{X}	SD	Remarks
1	I am concerned about the potential misuse of my students' personal data by AI educational tools.	3.51	.75	Strongly Agree
2	AI tools used in employability training often lack transparency in how they collect and use data	2.53	.82	Agree
3	Business educators are not adequately trained to manage data privacy when using AI tools.	3.41	.79	Agree
4	There is a risk that AI systems may store my students' sensitive information insecurely	3.76	.68	Strongly Agree
5	Lack of clear data privacy policies in tertiary institutions increases AI-related data risks	3.62	.70	Strongly Agree
6	Most AI tools used in teaching do not fully comply with Nigerian data protection regulations	3.00	.74	Agree
7	The integration of AI in teaching business education courses may lead to unauthorized access to students' academic records.	3.81	.69	Strongly Agree
8	Business educators feel uneasy about the unknown extent of data collected by AI tools	3.76	.81	Strongly Agree
9	There is a lack of institutional guidance on secure use of AI for instructional delivery	3.43	.76	Agree
10	Use of AI in teaching business education courses can compromise students' privacy if not properly managed	3.69	.78	Strongly Agree
Cluster Mean		3.45		Agree

Table 1 shows that out of 10 items listed on data privacy risks associated with AI adoption, respondents strongly agree six items are data privacy risks in adopting AI technologies with

mean scores ranging from 3.51 to 3.81. The remaining four items with mean scores ranging from 2.53 to 3.43 indicates that respondents agree that they are data privacy risks associated with adoption of AI technologies in instructional delivery. The cluster mean score of 3.45 shows that on the whole, respondents agree that items listed are data privacy risks associated with the adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State. The standard deviations for all the items are within the same range showing that the respondents are not wide apart in their ratings.

Table 2: Respondents' Mean Ratings and Standard Deviation on Adequacy of Data Protection Measures for Business educators' Adoption of AI Technologies for Instructional Delivery

S/N	Items on Adequacy of Data Protection Measures	\bar{X}	SD	Remarks
11	Availability of institutional data privacy policies guiding the use of AI tools	1.45	.68	Very Inadequate
12	Existence of internal review committees overseeing ethical AI usage	1.49	.76	Very Inadequate
13	Existence of regular training on data protection for business educators using AI	1.76	.73	Inadequate
14	Availability of encrypted data transmission in AI-assisted instructional tools	1.53	.80	Inadequate
15	Clear guidelines on business education students data access, sharing, and retention when using AI	1.46	.70	Very Inadequate
16	Institutional monitoring of AI tools for compliance with data privacy standards	1.39	.67	Very Inadequate
17	Provision of secure data storage for AI-related educational content	1.67	.82	Inadequate
18	Regular data protection audits or evaluations related to AI use.	1.44	.77	Very Inadequate
19	Institutional policies that protect students' and business educators' personal information	1.38	.79	Very Inadequate
20	Adequacy of institutional technical support to ensure secure AI deployment	1.42	.67	Very Inadequate
Cluster Mean		1.50		Inadequate

Table 2 shows that three out of 10 items listed on adequacy of data protection measures in AI technology adoption have mean scores ranging from 1.53 to 1.76, which means that the

respondents rated the data protection measures inadequate. The remaining six items have mean scores ranging from 1.38 to 1.49, indicating that the respondents rated them very inadequate. The cluster mean score of 1.50 shows that on the whole, respondents indicated that data protection measures in adopting AI technologies for instructional delivery is inadequate in tertiary institutions in Anambra State. The standard deviations for all the items are within the same range showing that the respondents are not wide apart in their ratings.

Table 3: T-test Analysis of Significant Difference in the Mean Ratings of Business Educators on Data Privacy Risks Associated with the Adoption of AI Technologies for Instructional Delivery Based on Years of Experience

Years of Experience	N	\bar{X}	SD	df	t-value	P-value	Decision
Below 5 years	39	3.43	.71	104	2.15	1.18	Not Significant
6 and above years	67	3.47	.68				

Table 3 show that t-value of 2.15 at 104 degree of freedom with a p-value of 1.13 which is greater than the alpha value of 0.05 ($1.13 > 0.05$). Since the p-value is greater than the significant value, the null hypothesis is therefore accepted. This means that there is no significant difference in the mean ratings of business educators on data privacy risks associated with the adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State based on years of teaching experience.

Table 4: T-test Analysis of Significant Difference in the Mean Ratings of Business Educators on Adequacy of Data Protection Measures for Business educators' Adoption of AI Technologies for Instructional Delivery Based on Years of Experience

Years of Experience	N	\bar{X}	SD	df	t-value	P-value	Decision
Below 5 years	39	1.52	.68	104	1.26	.58	Not Significant
6 and above years	67	1.48	.74				

Table 4 show that t-value of 1.26 at 104 degree of freedom with a p-value of .58 which is greater than the alpha value of 0.05 ($.58 > 0.05$). Since the p-value is greater than the significant value, the null hypothesis is therefore accepted. This means that there is no significant difference in the mean ratings of business educators on the adequacy of data protection measures for effective adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State based on years of teaching experience.

Discussion of Findings

Findings of the study revealed that respondents agree that items listed are data privacy risks associated with the adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State. The findings of this study agree with the assertion of Chung (2024) that the increasing integration of digital technology into education has brought forth significant data privacy concerns. Kaniye (2025) opined that data breaches in educational settings are common and can lead to severe negative consequences for students, including identity theft, fraud, and extortion. In addition, Hoel, Chen and Yu (2020) noted that lecturers had varying levels of awareness and concern about data privacy in technology-enhanced learning environments. Furthermore, PowerSchool (2024) posited that educators must navigate potential risks in AI adoption for instructional delivery. Findings of

the study also revealed that there was no significant difference in the mean ratings of business educators on data privacy risks associated with the adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State based on years of teaching experience. This finding may be due in part to the fact that knowledge and comprehension of these particular risks are still largely consistent across experience levels. This may indicate that business educators, irrespective of their years of experience, are only now starting to consider the data privacy risks in adopting AI in instruction. Adebayo and Olatunji (2021) found that lecturers' awareness of ICT security risks is generally high, with no significant differences based on years of experience.

Findings of the study also revealed that respondents indicated that data protection measures in adopting AI technologies for instructional delivery is inadequate in tertiary institutions in Anambra State. In agreement, Tunji (2024) noted that despite regulatory pressure, educational institutions are failing to implement mandatory data protection measures effectively. Tunji observed that the Nigeria Data Protection Act (NDPA) 2023 are lagging in its effective implementation and enforcement in tertiary institutions in Nigeria in relation to AI adoption. Additionally, Oladunjoye and Adebayo (2020) observed that most Nigerian universities lack formalized policies on data privacy, leaving educators and students vulnerable to breaches in the use of digital and AI-powered tools. Similarly, Okeke and Ezeani (2021) emphasized that tertiary institutions often deploy digital tools without adequate investment in cybersecurity infrastructure, resulting in poor data security practices among staff. Nwachukwu and Iroegbu (2022) found that a majority of academic staff in South East Nigerian tertiary institutions had not

received adequate formal training on data privacy or AI ethics, limiting their ability to assess or enforce adequate protective measures. Ibe and Nwosu (2020) also observed that the absence of capacity-building programmes on AI and digital ethics in higher institutions has left a gap in responsible technology adoption. Findings of the study revealed that there was no significant difference in the mean ratings of business educators on the adequacy of data protection measures for effective adoption of AI technologies for instructional delivery in tertiary institutions in Anambra State based on years of teaching experience. Owolabi and Ige (2021) reported that *in many Nigerian tertiary institutions, systemic issues such as poor funding, lack of comprehensive digital policies, and inadequate ICT infrastructure affect all staff equally, regardless of their teaching experience or academic rank*. This suggests that exposure to the same structural deficiencies may result in no significant difference in perceptions among educators based on experience.

Conclusion

This study looked at how business educators in Anambra State's tertiary institutions rated the data privacy risk associated with adopting AI to deliver instruction. According to the findings, respondents agree that adopting AI technologies for instructional delivery carries risks related to data privacy; however, tertiary institutions in Anambra State did not implement sufficient data protection measures. Based on the study's findings, the researcher came to the conclusion that there is a serious vulnerability that must be addressed in order to guarantee the ethical and responsible adoption of AI technologies in instructional delivery in Anambra State tertiary institutions.

Recommendations

Based on the findings of the study, the researcher makes the following recommendations:

1. Administrators of tertiary institutions in Anambra State should prioritize the development and implementation of clear, comprehensive data protection policies and frameworks specifically tailored for the adoption of AI in instructional delivery. These policies should outline procedures for data collection, storage, processing, and security, aligning with relevant data privacy regulations.
2. To effectively address data privacy risks and implement protection measures, administrators of tertiary institutions in Nigeria should invest in training and capacity-building programs for business educators. These programs should raise awareness about data privacy issues related to AI, educate them on the implemented policies and best practices, and equip them with the necessary skills to handle data responsibly.
3. To ensure the ongoing effectiveness of data protection measures, administrators of tertiary institutions in Anambra State should establish robust monitoring and evaluation mechanisms. This includes regular audits of data handling practices, assessments of the implemented security measures, and feedback mechanisms to identify and address emerging data privacy risks associated with the evolving use of AI technologies.
4. Teaching experience did not show a significant difference in perceptions, fostering collaboration and knowledge sharing among business educators and across institutions regarding data privacy risks and effective protection measures can be beneficial. Establishing platforms for sharing best practices, challenges, and solutions related to AI adoption and data security can contribute to a more informed and coordinated approach across tertiary institutions in Anambra State.

References

- AbdulRafiu, A., Makinde, S. O., Sakariyahu, S., & Ahmed, A. A. (2024). Awareness and use of AI tools in teaching business education at Kwara universities. *Lagos Journal of Contemporary Studies in Education*, 2(2), 425-434. <https://doi.org/10.36349/lajocse.2024.v02i02.32>
- Abubakar, u., Onasanya, s. A., Aliyu, h. I., & Abdulrahman, m. R. (2025). Reimagining edupreneurship with ai technologies: Pathways to modern educational excellence in Nigerian tertiary institutions. *Ilorin Journal of Education*, 45(2), 222–236. <https://ije.unilorinedu.sch.ng/index.php/ije/article/view/252>
- Adebayo, F. O. & Olasupo, M. F. (2022). *Artificial intelligence in Nigerian universities: Opportunities and data privacy challenges*. *Journal of Educational Technology in Africa*, 10(1), 45-57.
- Anjum, N. (2025). *Artificial intelligence in education: Striking a balance between innovation & privacy*. <https://edly.io/blog/artificial-intelligence-in-education-and-privacy-concerns/>
- Anyanwu, J. A., Okoroafor, P. E. N., & Ikedimma, F. I. (2025). Effectiveness of artificial intelligence (AI)-driven tutoring technologies for a sustainable educational development and management in Nigerian universities. *Advance Journal of Education and Social Sciences*, 10(3), 1–25. <https://aspjournals.org/ajess/index.php/ajess/article/view/2025>
- Ayodele, J. B. (2021). *University readiness for artificial intelligence and big data: A study of public institutions in South West Nigeria*. *Journal of Digital Learning in Teacher Education*, 37(2), 134-146.
- Chiu, F. J. (2023). Measuring students' acceptance to AI-driven assessment in eLearning: Proposing a first TAM-based research model. In: International conference on human– computer interaction 4(4) 15–25). Springer, Cham.
- Chung, A.-M. (2024). *Empowering student agency in the digital age: The role of privacy in EdTech*. New America. <https://www.newamerica.org/education-policy/briefs/empowering-student-agency-in-the-digital-age-the-role-of-privacy-in-edtech/>
- Ekhaton, O. (2025, April 25). *NDPC gets ? 400 million*

- in fines from 7 companies for data breaches. Techpoint Africa. <https://techpoint.africa/news/ndpc-gets-fines-companies-data-breaches/>*
- Ezudike, C. P. (2019). Business education academic staff proficiency in utilizing artificial intelligence for research development in federal college of education (technical) Umunze, Anambra State. *Int. J. Educational Research*, 7(09), 55-69.
- Fauzi, F., Tuhuteru, L., Sampe, F., Ausat, A. M. A., & Hatta, H. R. (2023). Analysing the role of ChatGPT in improving student productivity in higher education. *Journal on Education*, 5(4), 14886-14891.
- Farrar, O. (2025, March 21). *Understanding AI vulnerabilities*. Harvard Magazine. <https://www.harvardmagazine.com/2025/03/artificial-intelligence-vulnerabilities-harvard-yaron-singer>
- Federal Republic of Nigeria, (2013). National Policy on Education (6th Edi.) Lagos: Federal Ministry of Education/NERDC
- Igomu, I., Kwaghbo, M. T., Nayela, S. N. & Elujekwute, E. C. (2024). Application of AI in business education and entrepreneurship practice. *International Journal of Management, Social Sciences, Peace and Conflict Studies (IJMSSPCS)*, 7(3), 131-144.
- Ismail, I. A. & Alosi, J. M. (2024). Data privacy in AI-driven education: An in-depth exploration into the data privacy concerns and potential solutions. [10.4018/979-8-3693-5443-8.ch008](https://doi.org/10.4018/979-8-3693-5443-8.ch008)
- Johnson, R. (2018). The Role of Simulations in Business Education. *Business Education Today*, 30(2), 112-129.
- Kanipe, K. (2025). *Safeguarding student data: Data privacy in education*. Explore Learning reflex. <https://reflex.explorelearning.com/resources/insights/edtech-data-security-challenges>
- KPMG. (2023, September). *The Nigeria Data Protection Act, 2023*. <https://kpmg.com/ng/en/home/insights/2023/09/the-nigeria-data-protection-act--2023.html>
- NITDA. (2020, November). *Nigeria Data Protection Regulation 2019: Implementation framework*. <https://nitda.gov.ng/wp-content/uploads/2021/01/NDPR-Implementation-Framework.pdf>
- Nwosu, B. O., & Eze, C. O. (2021). *Data security and the integration of AI tools in Nigerian higher education: Issues and prospects*. *Nigerian Journal of ICT in Education*, 8(2), 87-98.
- Okafor, U. A. (2020). *Emerging Technologies and Ethical Concerns in Nigerian Universities*. *African Journal of Higher Education Research*, 18(3), 203-215.
- Oladipo, S. E. & Akande, M. O. (2022). *Data protection and privacy challenges in Nigerian higher institutions: An emerging concern*. *Nigerian Journal of Educational Technology*, 5(2), 45-58.
- Panopto (2024). *Understanding different types of AI in learning*. <https://www.panopto.com/blog/understanding-different-types-of-ai-in-learning/>
- PowerSchool (2024). *The ultimate guide to AI in education: Benefits, challenges, & real-world uses*. <https://www.powerschool.com/blog/ai-in-education/>
- McKinsey Global Institute. (2020). Artificial intelligence: The next digital frontier?. McKinsey & Company.
- Sander, A. (2025, January 2). *How has generative AI affected security for schools? Managed Methods*. <https://managedmethods.com/blog/how-has-generative-ai-affected-security/>
- Sharma, S. (2025, March 12). AI surveillance in US schools: Thousands of sensitive student documents exposed in surveillance breach, fueling privacy fears. *The Times of India*. <https://timesofindia.indiatimes.com/education/news/ai-surveillance-in-us-schools-thousands-of-sensitive-student-documents-exposed-in-surveillance-breach-fueling-privacy-fears/articleshow/118936575.cms>
- Solove, D. J., & Schwartz, P. M. (2020). *Information Privacy Law* (7th ed.). Wolters Kluwer.
- Ouyang, Y. & Jiao, S. (2021). Social presence in relation to students' satisfaction and learning in the online environment: *A meta-analysis*. *Computers in Human Behavior*, 1(7), 402–417.
- Tulsiani, R. (2024, July 19). *Ensuring data privacy and ethical considerations in AI-driven learning*. eLearning industry. <https://elearningindustry.com/ensuring-data-privacy-and-ethical-considerations-in-ai-driven-learning>

- West, S. (2021). *Data Privacy in the Age of AI: Implications for Educational Institutions. Journal of Educational Technology, 18(1), 23–35.*
- Zhang, C., & Aslang, W. (2021). Role of instructors' forum interactions with students in promoting MOOC continuance. *Journal of Global Information Management (JGIM), 26(3), 105–120.*