

## ETHICAL CONSIDERATION FOR INTEGRATION OF ARTIFICIAL INTELLIGENCE IN BUSINESS EDUCATION CURRICULUM DEVELOPMENT IN TERTIARY INSTITUTIONS IN BAUCHI STATE

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### Abstract

*This study determined ethical consideration for integration of Artificial Intelligence in business education curriculum development in tertiary institutions in Bauchi state of Nigeria. The study employed a cross-sectional research design, the population of the study comprised 104 business educators, total population sample was used. Structured questionnaire was used as the instrument for data collection which was validated by experts. The reliability of the instrument obtained was 0.82. Data was analyzed using simple linear regression. The findings revealed that there is no significant relationship between AI bias and fairness, data privacy and policy and ethical students' data usage ethical consideration and business education curriculum development in tertiary institutions in Bauchi state. The study concluded that AI can improve educational outcomes in Business education programme when it is integrated, developed and implemented with transparency and ethical considerations in the curriculum. It was recommended that the tertiary institutions should establish and enforce comprehensive ethical guidelines with respect to how AI is used within educational settings, more so regarding the ethical use of AI bias and fairness, data privacy and policy, and ethical students' data usage in business education curriculum development for and integrity in business education programme.*

**Keywords:** Ethics, Artificial Intelligence, Business Education, Curriculum Development.

### Introduction

Artificial intelligence (AI) is the simulation of human intelligence in machines which enable them to perform tasks that typically require human that typically require human intelligence on learning, problem solving, reasoning among other tasks. The use of the tasks in education generally, create intelligent machines that can assist, augment, and automate human capabilities, improving efficiency, accuracy, and decision making if its ethics are properly used. Integration of AI into business education programme has emerged as a transformative force, fundamentally reshaping how curricula are developed, managed, and delivered.

AI technologies, such as machine learning, natural language processing, and data analytics, can personalize learning experiences, smoothen administrative work, and bring efficiency into the decision-making processes of institutions of learning (UNESCO, 2020). With the development of AI, its application in business education programme and other programme in tertiary institutions located in Bauchi state was no longer an option; it became a requirement for those institutions interested in remaining competitive in an increasing digital world. According to Cantú-Ortiz, et al., (2020), Artificial Intelligent analyzes all educational and non-educational needs, identifies gaps and align content with the trends of the industry and job market needs.



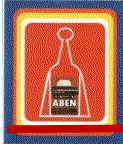
Additionally, it also involved in content creation and recommendation with suggestions for materials and resources based on explicit learning outcomes in relation to curriculum development, implementation and management. However, at the speed by which AI is being infused into corporate and social sectors, it also opens a host of ethical concerns that have to be taken care of if people are going to have the responsible and fair use of AI technologies in curriculum development and management (Selwyn, 2019; Aithal & Maiya, 2023).

According to World Economic Forum (WEF, 2019), the potential effect of AI on education generally, are huge, as it can bring an overall improvement in the learning experience through the analysis of large amounts of data and provide recommendations that are tailored whereas, on the other way round, there are also paramount ethical concerns that need to be heeded. AI systems can perpetuate existing biases if trained on biased data, potentially exacerbating educational inequalities, it also raises concerns about student data privacy and security, most especially in curriculum development in tertiary institutions (WEF, 2019).

In addition, key ethical concerns identified with respect to these are multifaceted and entail issues surrounding bias, transparency, accountability, and privacy, along with broader social implications from AI technologies (Shiohira, 2021). Almost without exception, these AI systems are trained on historical data, duplicating and amplifying biases that lead to potential discriminatory outcomes in such important spheres as student admission, grading, and job placement recommendations (Chinta, et al., 2024). This bias could be further propagated during the curriculum development process in what the AI recommends in terms of content and the paths students take, thus putting some sets of students at a disadvantage. More specifically, the ethical issues in most cases are exacerbated by the fact that many AI systems are "black box" in nature, meaning that decision-making processes are not defined clearly (Wischmeyer, 2020).

This can lead to a lack of transparency, which truly challenges accountability and trust, since educators and administrators are unable to understand how AI-driven decisions are reached or make sure of their compliance with educational values and standards (Al-Zahrani, 2024). Moreover, the integration of AI into business education curricula must account for issues related to the protection of privacy and raising the security level in data treatment. Sometimes, the development of AI-driven curricula requires the collection and analysis of huge amounts of data, including personal information about students and faculty (Luan, et al., 2020). This raises questions of data privacy, potential breaches, and ethical uses of student data. Strong frameworks and guidelines are required to protect this information and that AI tools shall be responsibly used.

This naturally flows into a challenge of how business education institutions can adequately attend to these ethical considerations. There is a sparse problem of comprehensive frameworks guiding the ethical use of AI in educational settings (Borenstein, & Howard, 2021). While several bodies, like UNESCO, have attempted to give ethical guidelines in the area of AI, most of the time, these frameworks remain very general and do not embrace specific difficulties encountered in a business education context (Stine, et al., 2019). Resolving these ethical considerations is critical to ensuring that the integration of AI in the development and management of business education curricula is conducive to fairness, protection of privacy, efficiency, transparency, and ethical standards; and developing general strategies on how to master these challenges will become particularly relevant to foster the responsible and effective use of AI technologies in curriculum development and education generally. Hence, there is the need to ascertain the relationship between the use of ethical consideration for the integration of artificial intelligence in business education curriculum development among business educators in tertiary institutions within Bauchi state, Nigeria.



Self-Determination Theory was developed by Edward Deci and Richard Ryan (1985). The theory is a psychological framework that explains human motivation, development, and well-being. It provides a framework to understand the different baseline psychological needs of autonomy, relatedness, and competence that underpin motivation in education. SDT proposes that people have an inherent tendency to pursue intrinsic motivation, which is motivated by genuine interest and enjoyment. Self-Determination Theory provides a framework to understand the different baseline psychological needs of autonomy, relatedness, and competence that underpin motivation in education. It offers insight, concerning the integration of AI technologies for the development and management of a business education curriculum, with ethical challenges and implications that threaten the autonomy of educators by decision-making, limited by the AI system, potentially leading to resistance and a diminished sense of control (Porayska-Pomsta & Rajendran, 2019).

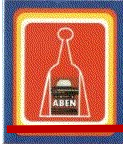
The emphasis of this theory on relatedness would, therefore, be very essential in creating a collaborative and trustworthy educational setting, which the privacy concerns and obscurity of AI-driven decisions could undermine (Kayyali, 2024). Another important element in SDT is competence, and that is also affected, for educators will need to be introduced to more complex AI tools, therefore risking losing some confidence and feelings of effectiveness (Chiu, et al., 2024). Such supportive environments, by addressing psychological needs, would be able to allow for the ethical integration of AI in educational settings. Notably, it would seek to ensure that such technologies do enhance, not diminish, human-centric aspects of curriculum development and management within business education (Vistorte, et al., 2024).

**AI Bias and Fairness of Educational Opportunities and Curriculum Development;** integrating AI into curriculum development runs the risk of perpetuating biases already present in historical data. AI systems are trained with datasets that often reflect the biases and inequalities of society and history (Schwartz, et al., 2022). Such algorithms may continue to bias the design of curricula by emphasizing content that reflects biases, thus possibly inadvertently favoring some demographic segments in a class over others (Mutiga, 2024).

This process may further deepen entrenched inequities and decrease educational opportunities for underrepresented groups. To avoid this, AI systems should be regularly audited for biases, diversity included in data collection, and have a wide stakeholder audience involved in the processes of curriculum development and decision-making. By doing so, these institutions of learning will have managed to come up with more inclusive and fair curricula that give equal opportunities to all their students (Schwartz, et al., 2022).

**AI Data Privacy and Security and Business Education Curriculum Development;** the design and deployment of AI-driven curricula for business education require gathering, storing, and analyzing sensitive data about students, which gives rise to a number of substantial concerns about privacy and protection of data (Ahmad, et al., 2023). AI systems can use personal information to adapt curricula and learning experiences; hence, institutions should develop strict mechanisms in charge of protecting such data. This shall entail compliance with laws to guarantee secure handling and processing of students' data (Luan, et al., 2020). The mandate of institutions also includes the need to acquire informed consent from students and parents regarding the usage of their data and to make sure that this data is protected against unauthorized access or breaches (Mouawad, 2020). It is of prime importance to take up these challenges in privacy issues as much as it is to ensure that AI-driven curriculum development upholds protection of the students' privacy and personal information.

**Ethical Student Data Usage in AI Systems;** one of the major concerns associated with AI-driven decision-making in curriculum management is the lack of transparency and explainability



associated with too many AI systems (Khosravi, et al., 2022). Most AI algorithms are very complex and opaque, and in many instances exert a "black box" effect on the rationale for curriculum-related decisions, making it far from understandability to educators, students, and administrators (Mupaikwa, 2023).

This can then lead to mistrust, in that stakeholders may begin to query the legitimacy and fairness of AI-influenced curricular decisions. opening up algorithmic explanations and increasing the auditability of decision-making procedures might become important steps toward the enhancement of trust and ensuring accountability (Cheong, 2024). There is a great need to focus on the transparency and explain ability of AI systems for curriculum management in order to gain the set-up of a trustable and accountable educational environment.

It's the ethical handling of student data, however, that comes to bear on questions of integrity and trustworthiness in AI technologies applied for business education programs (Saaida, 2023).

AI systems could provide valuable insights into curriculum development in line with student needs in terms of learning content and experiences. However, this shall be done with stringent ethical standards in data utilisation, ensuring student data is only used for educational purposes and shielded from possible unauthorized access; stringent data governance policies, together with parental consent in using their data and anonymization of such data, are quite important in guarding ethical standards and privacy considerations (Reidenberg& Schaub, 2018). The hypothesis underscores the importance of ethical data management in the preservation of credibility and effectiveness of AI-driven curriculum development.

The main aim of the study is to find out the relationship between ethical consideration for the integration of AI and business education curriculum development in tertiary institutions within Bauchi state, Nigeria. Specifically, the study sought to:

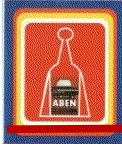
1. Determine the relation between bias and fairness consideration and business education curriculum development
2. Find out the relationship between data privacy and policy consideration and business education curriculum development
3. Ascertain the relationship between ethical student data usage and business education curriculum development

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

1. There is no significant relationship between bias and fairness consideration and business education curriculum development
2. There is no significant relationship between data privacy and security consideration and business education curriculum development
3. There is no significant relationship between ethical student data usage consideration and business education curriculum development.

### **Methodology**

The study adopted the cross-sectional survey research design. The study was conducted in Bauchi state. The target population of the study was the entire 104 Business educators in tertiary institutions within Bauchi state. Total population sample was used where the entire population was considered in the study. Structured questionnaire was used as the instrument for data collection. The structured questionnaire was validated by experts. A reliability coefficient of 0.82 was found. Simple linear regression was used for data analysis with the aid of the Statistical Package for Social Science (SPSS) version 23. In making decision, if  $p \geq 0.05$ , the null hypothesis was accepted, and if  $p \leq 0.05$ , the null hypothesis was rejected.



**Results**

**Null Hypothesis One**

There is no significant relationship between AI bias and fairness ethical consideration and business education curriculum development in tertiary institutions in Bauchi state

The statistical evidence documented in Table 1 revealed that the variable AI bias and fairness consideration had a standardized coefficient beta value of .001,  $p = .987$ . This indicated that there is no significant relationship between AI bias and fairness ethical consideration and business education curriculum development in tertiary institutions in Bauchi state. This result therefore, support the prediction of null hypothesis one.

**Table 1:** simple linear regression analysis on the relationship between AI bias and fairness ethical consideration and business education curriculum development in universities within North-east, Nigeria.

Variable	Standardized Coefficients Beta	t-value	p-value	Decision
AI Bias and Fairness Ethical Consideration	.001	.016	.987	Accepted

**Source:** field survey (2024).

**Null Hypothesis Two**

There is no significant relationship between AI data privacy and security ethical consideration and business education curriculum development in tertiary institutions in Bauchi state

The result documented in Table 2 revealed that the AI data privacy and security ethical consideration had a standardized coefficient beta value of .111,  $p = .228$ . This showed that there is no significant relationship between AI data privacy and security ethical consideration and business education curriculum development in tertiary institutions in Bauchi state. Null hypothesis two was therefore, accepted.

**Table 2:** simple linear regression analysis on the relationship between AI data privacy and security ethical consideration and business education curriculum development in tertiary institutions in Bauchi state.

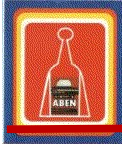
Variable	Standardized Coefficients Beta	t-value	p-value	Decision
AI Data Privacy and Security ethical Consideration	.111	1.212	.228	Accepted

**Source:** field survey (2024).

**Null Hypothesis Three**

There is no significant relationship between AI ethical students' data usage consideration and business education curriculum development in tertiary institutions in Bauchi state.

The result documented in table 3 revealed that the AI ethical students' data usage consideration had a standardized coefficient beta value of .127,  $p = .167$ . This showed that there is no significant relationship between AI ethical students' data usage consideration and business education curriculum development in tertiary institutions in Bauchi state. Therefore, null hypothesis three was accepted.



**Table 3:** simple linear regression analysis on the relationship between AI ethical students' data usage consideration and business education curriculum development in tertiary institutions in Bauchi state.

Variable	Standardized Coefficients Beta	t-value	p-value	Decision
AI Ethical Students Data Usage Consideration	.127	1.390	.167	Accepted

**Source:** field survey (2024).

The result of null hypothesis one revealed that there is no significant relationship between AI bias and fairness ethical consideration and business education curriculum development in tertiary institutions in Bauchi state. Statistical evidence from null hypothesis two indicated that there is no significant relationship between AI data privacy and security ethical consideration and business education curriculum development in tertiary institutions in Bauchi state. Also, the result of null hypothesis three showed that there is no significant relationship between AI ethical students' data usage consideration and business education curriculum development in tertiary institutions in Bauchi state.

### Discussions of the Findings

The study's findings present significant insights into the ethical implications of AI in business education curriculum development.

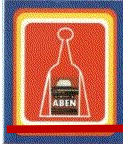
**H<sub>1</sub>** posited that AI bias and fair ethical consideration has no significant relationship with business education curriculum development. The results revealed a non-significant relationship. This do not align with the broader discourse on AI's potential to democratize education by relating ethic consideration and curriculum development (Ayeni, et al., 2024). The findings also agree with that of Schwatz et al., (2022) and Mutiga (2024) who found that there is no significant relationship between AI bias and fairness and curriculum development.

**H<sub>2</sub>** posited that AI data privacy and security ethical consideration has no significant relationship with business education curriculum development. The findings indicated a significant negative relationship. This reflects concerns in the literature about AI's potential to erode trust due to perceived opacity and lack of human judgment in critical decisions (Grimmelikhuijsen, et al., 2023; Omrani, et al., 2022). The finding also agreed with Ahmed et al., (2023) and Luan et al., (2020) that indicated that there is no relationship between AI data privacy and security and curriculum development.

**H<sub>3</sub>** revealed that ethical use of student data consideration has no significant relationship with business education curriculum development. These findings demonstrate the high stakes that data governance plays in artificial intelligence applications for student privacy and ethical practice considerations, aligning concerns raised by (Díaz-Rodríguez, et al., 2023; Olateju, et al., 2024). The research supports prior studies that found no significant relationship between ethical data usage and curriculum development in tertiary institutions (Khosrabi et al., 2022; Saaida, 2023; Cheong, 2024).

### Conclusion

The findings of the study indicated a significant relationship between the use of ethical consideration in the application of AI systems in the development of business education curriculum in these tertiary institutions, thus showing that AI can provide equal chances for using



resources and ensure integrity in business education programs if the proper ethical use of data in the AI system is considered in the curriculum development. The institutions will increase efficiency in great magnitude in Business education curriculum development, and generally improve students' performance. The institutions are thus encouraged to foster transparency with stakeholders, together with the implementation of stringent AI ethical guidelines. By so doing, it shall be able to leverage the benefits associated with AI integration in curriculum development.

### Recommendations

From the conclusion, the study recommended that:

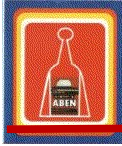
- i. Institutions should establish and enforce comprehensive ethical guidelines with respect to how AI is used within educational settings, more so regarding the ethical use of AI bias and fairness in business education curriculum development for transference and integrity in business education programme curriculum.
- ii. Institutions should establish monitoring and evaluation processes to enable business education programme ensure the consideration of ethical guidelines on the use of AI's data privacy and security for integration in business education curriculum development for fairness, trust, and integrity.
- iii. The institutions should ensure AI ethical students' data usage in business education curriculum development and also, regular audits and feedback mechanisms should be instrumental in pointing out areas for improvement so that AI systems are oriented to ethical standards and educational goals.

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