EMPIRICAL INVESTIGATIONS OF THE ETHOS AND PATHOS OF ARTIFICIAL INTELLIGENCE PEDAGOGY IN ACCOUNTING EDUCATION

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To cite this article (APA): Auru, H. O. (2025). Empirical investigations of the ethos and pathos of artificial intelligence pedagogy in accounting education. *AAU Journal of Business Educators, 5* (2), 57-65.

Abstract

The study examined the ethical behaviour (ethos) and emotional impact (pathos) of AI in college based-programme from the perspectives of students and educators. The study adopted a descriptive survey research design, involving a total sample of 165 students and 12 educators. It was found out that students are more concerned about being able to use AI to solve academic problem than the ethical and emotional challenges of using AI. Educators however are concerned about ethical issues such as trust issues associated with AI algorithm application as well as the emotional fallout of job losses due to AI usage in administration. The test of the first hypothesis revealed that there is no significant difference between the ethical behaviour of students and educators associated with the integration of AI in accounting education pedagogy. The test of the second hypothesis revealed that there is no significant difference in the emotional behaviour of students and educators associated with the adoption of AI in accounting education pedagogy. It was therefore recommended, among others, that relevant ethical behaviour and skillful use of AI in learning and problem solving should be encouraged among students of accounting education.

Keywords: Accounting Education, Artificial Intelligence, Emotional Impact, Ethical Behavior, Pedagogy, Ethos and Pathos.

Introduction

The rapid advancement of Artificial Intelligence (AI) has ushered in transformative changes across various sectors, including education. In the field of accounting education, for instance, AI holds the potential to revolutionize traditional pedagogical methods, enhance learning outcomes, and equip students with the skills required for modern accounting profession (Martaseli & Maragita, 2023; Sutton et al., 2016). However, the integration of AI into accounting education is not without challenges, particularly in addressing the ethical considerations (ethos) and emotional impacts (pathos) associated with its adoption. This research seeks to explore these dimensions, focusing on how AI can be responsibly and effectively integrated into accounting education pedagogy, particularly in the Nigerian tertiary education context.

Artificial Intelligence technologies, such as machine learning, natural language processing, and data analytics, have already demonstrated their potential to personalize learning experiences, automate administrative tasks, and provide real-time feedback to students (Holmes et al., 2019; Luckin & Holmes, 2016). In accounting education, AI can be used to simulate real-world firm situations, blended with financial and accounting scenarios, thus enabling students to flexibly apply theoretical knowledge in a practical context. The opportunity provided to apply constructive learning method in this way

should by no means aid significantly in bridging the gap between academic learning and professional practice (Akash & Suganya, 2024; Zeidan & Bishnoi, 2020). At the pedagogical level, AI-driven platforms can use students' data to analyze their performance in a bid to identify learning gaps and recommend customized study plans and tutorials, thereby reducing the workload on educators while enhancing individual learning outcomes (Wecks et al., 2023).

Despite these promising applications, the integration of AI in accounting education raises significant ethical concerns, such as data privacy, possible algorithmic bias, and the potential for job displacement (Williamson & Eynon, 2020). Additionally, the emotional impact of AI on both students and educators cannot be ignored. While some may feel excited about the new opportunities AI may present, others experience anxiety and even fear about the rapid pace of technological change and its implications for career security (Brougham & Haar, 2018). These emotional responses, if not adequately addressed, could hinder the successful adoption of AI in accounting education.

The existing studies on AI in education largely focused on its technical applications and benefits that are well-documented in studies such as Kizilcec and Brooks (2017), Shermis and Burstein (2013) and VanLehn (2011), with limited attention to the ethical and emotional dimensions in relations to its implementation. This gap is particularly pronounced in the context of developing countries, such as Nigeria, where infrastructural, financial, and cultural barriers may further complicate the adoption of AI in education. With respect to accounting education, studies have explored the potential of AI in accounting education (e.g., Akanle & Shittu, 2020; Iman et al., 2024), again, there is a lack of researches that specifically address the ethical and emotional challenges faced by educators and students in transitioning to AI-enhanced pedagogical methods. The foregoing gaps are critical because the success of AI adoption in accounting education depends not only on technological readiness but also on the ability of educators and students to adopt and adapt to new innovation in ways that are both ethically responsible and emotionally supportive.

Purpose of the Study

The specific aims of the study were to examine:

1. the ethical behaviour of students and educators associated with the integration of AI in accounting education pedagogy.
2. whether the ethical behaviour of students is different from that of educators associated with the integration of AI in accounting education pedagogy.
3. the emotional impact of AI adoption on students and educators in accounting education.
4. whether the emotional impact of AI adoption on students is different from that of educators in accounting education.

Research Questions

The following research questions guided the study.

Research Question 1: What is the key ethical behaviour of students and educators associated with the integration of AI pedagogy in accounting education?

Research Question 2: Are there ethical behaviour differences between students and educators associated with the integration of AI pedagogy in accounting education?

Research Question 3: What is the associated emotional impact of AI adoption and pedagogy on students and educators in accounting education?

Research Question 4: To what extent does the emotional impact of AI adoption and pedagogy on students different from that of educators in accounting education?

Conceptual Framework

The push to integrate AI into accounting education represents a paradigm shift in pedagogical approach to teaching and learning. Russell and Norvig (2016) described AI as machine-based systems

capable of performing cognitive tasks which traditionally require human intelligence. Holmes and Douglass (2022) and Qasim and Kharbat (2020) observed that AI is capable of transforming accounting education through adaptive learning platforms, automated grading systems, and data-driven feedback mechanisms. Based on the Self-Determination Theory perspective, Ryan and Deci (2000) depicted that AI's role extends beyond facilitating higher levels of efficiency, rather tending towards humanistic pedagogy, by addressing students' psychological needs for autonomy, competence, and relatedness, such as being able to construct learning independently. In providing insight into accounting education pedagogy, Apostolou et al. (2020) stated that it encompasses the systematic methods used in teaching accounting principles, extending to both technical proficiency and professional judgment. Beyond this definition, accounting education pedagogy provides in-depth understanding of the philosophy that guides accounting postulates, principles and concepts formulation. It provides a balance between utilitarian efficiency and deontological ethics, making sure that technology serves educational goals without compromising integrity (Williams, 2010).

This study examines AI integration into accounting education through dual lenses of ethos and pathos. Ethos represents the ethical credibility governing AI adoption (Brennan & Merkl-Davies, 2013; McPhail & Walters, 2009; Moll & Yigitbasioglu, 2019). Pathos captures the affective dimensions of learning, including student engagement and resistance to technological change (bearing on cost, skill deficiency and social background) (Popenici & Kerr, 2017). In accounting education, the proxies of ethos are meant to guarantee that AI applications will meet regulatory and moral obligations (Kokina & Davenport, 2017), whereas pathos epitomizes the emotional intelligence required by educators and learners for effective technology-mediated learning to take place (Hoy et al., 2013; Schwartz et al., 2022). The philosophical foundation combines virtue ethics (MacIntyre, 2007) with constructivist pedagogy serving as a means of positioning AI as both a technical tool and a mediator of professional identity formation.

Theoretical Framework and Hypotheses Formulation

The present study is grounded in Technology Acceptance Model (TAM), which posits that the perceived usefulness and ease of use of technology influence its adoption (Davis, 1989). If AI systems are designed to be user-friendly, transparent and aligned with user needs, ethical challenges that may arise should be inconsequential, as users will perceive the technology as beneficial and trustworthy. Empirically, studies have shown that ethical challenges in AI adoption often stem from poor design or implementation rather than the technology itself. For instance, Williamson and Eynon (2020) argued that ethical bias can be mitigated through rigorous testing and oversight examination, suggesting that well-designed systems may not inherently lead to significant ethical concerns that are likely to affect educators and students. Based on this discussion, the first hypothesis was formed:

> *Research Hypothesis 1:* There is no significant difference between the ethical behaviour of students and educators associated with the integration of AI pedagogy in accounting education.

This present study is also supported by Constructivist Learning Theory, which emphasizes that learners construct knowledge through experiences and interactions (Bruner, 1974). If AI is introduced in a way that aligns with the learning needs and preferences of students and educators, there is a strong likelihood that it may not significantly alter their emotional responses, as they will actively engage with the technology in a meaningful way. From empirical perspectives, research by Moncada and Moncada (2014) reported that emotional responses to AI adoption vary widely and are often context-dependent. In some cases, AI has been shown to reduce anxiety by providing personalized support and feedback, indicating that emotional responses may not significantly change if the technology is flexible and well-integrated. Based on this discussion, the second hypothesis was formed:

Research Hypothesis 2: There is no significant difference in the emotional behaviour of students and educators associated with the adoption of AI pedagogy in accounting education.

Methods

Research Design

This study employed a cross-sectional survey research design for examining ethical (ethos) and emotional (pathos) dimensions of AI adoption in accounting education.

Participants and Sampling Procedure

The study targeted 12 accounting educators and 263 accounting students from the FCT College of Education Zuba. Given the small size and homogeneity of the participants, a census sampling or total population sampling procedure was adopted, following Dhivyadeepa (2015) recommendation when studying finite group of population. For students, Krejcie and Morgan's (1970) Formula was used to calculate the sample size, allowing for a 5% margin of error. From the sample frame, simple random sampling was used to select respondents across NCE 100 - 200 (Alvi, 2016). For NCE 300 level, a census sampling was used given the small size and homogeneity of students offering the option.

Research Instrument

Data collection instrument was based on a structured questionnaire. The Likert-scale questionnaire was used consisting of items weighted from 1 to 5.

Validation and Reliability of Instrument

Content validity was assured through three experts review, two in Business Education and one in Measurement and Evaluation. The reliability of the instrument and the internal consistency of all items in the instrument was confirmed using Cronbach's alpha, yielding a coefficient value of 80.2%, which is found to be within the expected threshold of 70% and above as recommended by Taber (2018).

Data Analysis

Descriptive statistics and inferential statistics were used to explain observations. Independent sample t-tests was employed using SPSS ver.23 to find out whether differences exist between educators' and students' mean responses. Based on the outcome of the analysis, hypotheses were tested at 0.05 level of signification.

Results

Testing Hypotheses

Research Hypothesis 1: There is no significant difference between the ethical behaviour of students and educators associated with the integration of pedagogy AI in accounting education.

Table 1: Mean and Standard Deviation of Difference Between the Ethical Behaviour of Students and Educators Associated with the Integration of AI Pedagogy in Accounting Education.

Group Statistics

	Group Mean	N	Mean	Standard Deviation	Standard Error Mean
Ethos	Students	165	21.3333	5.72471	.44567
	Educators	12	21.2500	3.46738	1.00095

Note. N=Population

Table 2: Summary of Independent Sample T-Test on the Difference Between the Ethical Behaviour of Students and Educators Associated with the Integration of AI Pedagogy in Accounting Education.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	p	MD	SED	Lower	Upper
COMPUTE Compared Mean	Equal variances assumed	3.286	.072	.050	175	.960	.08333	1.67722	-3.22684	3.39351
	Equal variances not assumed			.076	15.752	.940	.08333	1.09568	-2.24238	2.40904

Note. MD=Mean Difference, SED=Std. Error Difference.

As observed from Table 1, the descriptive statistics for ethical behaviour showed a total response of 165 and 12 for students and educators. Their corresponding means were 21.33 and 21.25 while the standard deviation (δ) were 5.72 and 3.47 respectively. In Table 2, for the same number of responses in both groups, the mean responses of data analyzed were 24.95 and 22.58, while their corresponding standard deviation (δ) of the mean were 6.44 and 4.56 respectively.

Research Hypothesis 2: There is no significant difference in the emotional behaviour of students and educators associated with the adoption of AI pedagogy in accounting education.

Table 3: Mean and Standard Deviation of Difference in the Emotional Behaviour of Students and Educators Associated with the Adoption of AI Pedagogy in Accounting Education.

Group Statistics

	Group Mean	N	Mean	Standard Deviation	Standard Error Mean
Pathos	students	165	24.9515	6.43903	.50128
	Educators	12	22.5833	4.56186	1.31690

Note. N=Population.

Table 4: Summary of Independent Sample T-Test on the Difference in the Emotional Behaviour of Students and Educators Associated with the Adoption of AI Pedagogy in Accounting Education.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	P	MD	SED	Lower	Upper
Pathos	Equal variances assumed	.868	.353	1.250	175	.213	2.36818	1.89482	-1.37145	6.10782
	Equal variances not assumed			1.681	14.398	.114	2.36818	1.40908	-.64616	5.38252

Note. MD=Mean Difference, SED=Std. Error Difference.

From Table 4, the Leven's test for equality of variance was conducted based on the null hypothesis assumption that the variances of the grouped mean are equal. The result showed a p-value of 0.07 at 0.05 level of significance (∞). Therefore, we fail to reject the null hypothesis regarding equality of variance. On this basis, the hypothesis which states that there is no significant difference between ethical behaviour of students and educators associated with the integration of AI in accounting education pedagogy, with a p-value of 0.96 tested at 0.05 level of significance (∞) is accepted. Similarly, result from Table 4 present the outcome of the Leven's test for equality of variance which tested the null hypothesis assumption that the variances of the grouped mean of the independent samples are equal. The result showed a p-value of 0.35 at 0.05 level of significance (∞). Therefore, we fail to reject the null hypothesis regarding equality of variance and conclude that the variances of the grouped mean are equal. therefore, the hypothesis which states that there is no significant difference in the emotional behaviour of students and educators associated with the adoption of AI in accounting education pedagogy, with a p-value of 0.11 tested at 0.05 level of significance (∞) is accepted.

Discussion

The study investigates the ethical behavior (Ethos) and emotional impact (Pathos) of students and educators concerning the integration of AI in accounting education pedagogy context. In addressing the first objective, attention was directed towards question one which is about key ethical behaviour of students and educators associated with the integration of AI in accounting education pedagogy. From the data analyzed, the statement with the highest mean value were, statement 10 (3.78) and statement 7 (4.25) respectively, considered as the key ethical behaviour indicators for students and educators alike. Statement number 10 based on students' responses is the key ethical behaviour associated with AI integration. This means that students consider the ability to use AI in solving problems often confronted in the cause of learning as more important, compared to educators who based on statement number 7 felt that demonstrating caution in using AI in teaching and learning will more likely save educators from costly errors and infractions. Educators are cautious about the gray areas surrounding AI algorithm bias, trust issues and plagiarism. Apparently, students at Nigerian Certificate in Education (NCE) levels don't consider plagiarism a pressing challenge to contend with in

their academic pursuit.

The Levene's test clearly showed that there is no significant difference in the group's mean between the ethical behaviour of students and educators. Evidence of this is found in the variance of the group mean which was 0.07 at 0.05 level of significance. This implies that both students and educators share similar view on ethical behaviour regarding AI. While the position of students as learners is relatively understandable, should they have knowledge deficit about ethically acceptable moral conduct, same argument cannot be advanced for educators. Furthermore, while students may be excused regarding the potential risk related to critical reasoning suppression, knowledge building block, originality and need to acknowledge sources of ideas when using AI, are few of the many of the ethical issues surrounding the adoption of AI which educators ought to know better compared to students. These ethical issues are inimical to the proper use of AI in teaching and learning and therefore need to be urgently resolved.

The findings revealed that there are no significant differences between the two groups for ethical behaviour and emotional impact of AI. For ethical behavior, the mean scores of 21.33 was almost the same with that of educators which stood at 21.25. Though their Covariances of 27% and 16% depicts a wider dispersion and lack of consensus response amongst student relative to educators. Also, the associated p-value (0.96) in the independent samples t-test is observed to be rather high. This however indicates that the difference is statistically insignificant.

The implication of the above findings can be traced to several possibilities. AI a is relatively new technology in this clime, the euphoria surrounding it is still high, as a result, both students and educators are yet to come to terms with the full import of the technology and how it should be used to aid teaching and learning. Institution of learning are yet to come out with a hand book on AI ethical guide nor is there evidence suggesting that it has been integrated into existing handbook assessable by students and educators. This policy gap, creates leeway for ignorance in the use of AI among students and educator resulting in plagiarism and trust concerns. These findings are closely aligned with (Grájeda et al., 2024; Moll & Yigitbasioglu, 2019).

Similarly, for emotional impact, while students reported a slightly higher mean score of 24.95 compared to that of educators of 22.58 with a p-value result of 0.213 for the group's independent t-test which confirmed that there is no significant difference between the groups based on mean results. Again, the Covariance of the group are 26% and 20% for students and educators respectively, showing once again as discovered in the results for ethical behaviour, the result for emotional impact displays a similar pattern, with students have a higher Covariance. This implies that students probably don't feel threatened by AI in any material particular way compared to educators who may have to contend with AI in their day-to-day schedule of work.

Arisen from above, educators and administrators in education, are more than likely to resist change due the advent of IA innovation. This is attributed to of having to grapple with new skills, unlearning and relearning knowledge at the cognitive levels that many may not wish to contend with stands as a stumbling block to speedy adoption of AI. The findings align with the works of George and Wooden (2023) and Watty et al. (2016).

Conclusion

From the perspectives of students, the integration of AI into accounting education is a welcome idea, it should make personalized learning a lot easier. That the use of AI within the academia, whether as a tool for enhancing learning or administration will likely give rise ethical and emotional challenges are matters of concern that appears to burden educators more than any other stakeholder. It is therefore important to consider in proper context, the implications of AI, particularly on ethical behaviour as it affects teacher preparation. In the sense that students need to know that student teachers' professional ethics extend beyond responsibility to those who will one day be in their care, relation with peer and examination conduct among others to including how learning is constructed, use of materials,

proprietary rights and plagiarism infringement. With the spread of AI into all facets of daily life, the need to develop a policy framework should be considered necessary and urgent.

Though educators appear to have more in-depth grasp of the ethical and emotional dilemma surrounding the ethos and pathos of integrating AI accounting education programme of colleges of education, they are not immune to its far-reaching implications, such as trust surrounding use AI algorithm, job security, instruction content development and copyright issues among others. Notwithstanding the state of entropy surrounding AI application, educators remain the first line of defense against the improper use of AI as an educational technology. Since the responses of students appears to be closely aligned with that of educators, it is imperative to have in place, an AI policy that clearly prescribes how it should be used by students and educators alike to enhance learning, teaching and research.

Recommendations

The following recommendations were made:

1. Incorporation of relevant ethical behaviour and skillful use of AI in learning and problem solving should be encouraged among students of accounting education.
2. Educators should be guided by the highest standard of ethical behaviour in using AI as an instructional technology tool for teaching and research.
3. Faculty members should upskill their knowledge on AI application and ensure that the technology is properly integrated into school and faculty processes.

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