

REVIEWER'S REPORT

Manuscript No.: IJAR-58151

Title: INFLUENCE OF ARTIFICIAL INTELLIGENCE- DRIVEN EDUCATIONAL TOOLS ON INCLUSIVE PEDAGOGICAL PRACTICES AND LEARNING OUTCOMES AMONG DIVERSE LEARNERS IN LAGOS STATE TECHNICAL COLLEGES, NIGERIA,

Recommendation:

Accept after minor revision

Rating	Excel.	Good	Fair	Poor
Originality			✓	
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer's ID: JPR-Bilqees Hamza

Detailed Reviewer's Report

The manuscript titled "Influence of Artificial Intelligence-Driven Educational Tools on Inclusive Pedagogical Practices and Learning Outcomes Among Diverse Learners in Lagos State Technical Colleges, Nigeria" addresses a highly contemporary and critical intersection in modern education. Integrating Artificial Intelligence (AI) into technical and vocational educational environments holds significant transformative promise, particularly within developing economies where classroom diversity is coupled with severe infrastructural and resource constraints. By contextualizing this investigation within public technical colleges in Lagos State, the authors target a notable gap in Technical and Vocational Education and Training (TVET) literature, which frequently overlooks the specialized pedagogical shifts necessitated by adaptive technologies. The study represents a meaningful scholarly contribution by attempting to theoretically ground technology adoption within Constructivist Learning Theory, Universal Design for Learning (UDL), and the Technology Acceptance Model (TAM), thereby offering a multidimensional conceptual lens to evaluate educational technology deployment.

The primary significance of this research lies in its empirical focus on how AI-driven tools can democratize technical instruction by facilitating differentiated learning pathways, real-time performance analytics, and specialized assistive functionalities. The positive findings regarding heightened student engagement, improved knowledge retention, and enhanced teacher responsiveness underscore the clinical and systemic value of shifting away from rigid, teacher-centric traditional paradigms. Furthermore, the study does not merely romanticize technological integration; it acknowledges structural impediments

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such as the digital divide, acute lack of institutional readiness, and the necessity for robust teacher professional development. Consequently, the paper provides valuable, localized data that can inform policymakers, institutional administrators, and curriculum designers in Nigeria and similar sub-Saharan contexts regarding the strategic deployment of digital resources.

Methodological and Analytical Issues Requiring Improvement

While the manuscript possesses distinct conceptual merit, it suffers from a fundamental methodological contradiction that requires rigorous rectification before publication can be considered. In the methodology section, the authors explicitly state that the study adopts a descriptive survey research design of a correlational type, choosing this framework because they intend to examine naturally occurring relationships without manipulating instructional conditions. However, this narrative is completely contradicted by the instruments used and the subsequent data presentation. The authors describe utilizing an "AI-Integrated Instructional Module" explicitly designated as a "Treatment Tool," alongside an "Achievement Test" to evaluate academic performance before and after an intervention. Furthermore, the results display explicit comparisons between an "Experimental Group" exposed to AI-supported practices and a "Control Group" subjected to traditional methods.

This is a structural flaw in research classification. A correlational survey design is non-experimental and explicitly precludes the manipulation of independent variables, the deployment of treatment tools, or the categorization of participants into experimental and control conditions. The methodology must be completely re-conceptualized and rewritten to accurately reflect a quasi-experimental pretest-posttest non-equivalent control group design. This misalignment seriously undermines the validity of the methodological narrative and must be harmonized.

Additionally, the instrumentation and statistical reporting require deeper clarification. The authors state that the overall reliability of the researcher-developed instrument was established via Cronbach's alpha with a coefficient of 0.70. While 0.70 is widely accepted as a minimum threshold for internal consistency, the manuscript evaluates vastly distinct constructs within a single composite questionnaire, including tool integration, pedagogical practice, and learning outcomes. The authors should report individual alpha coefficients for each sub-scale rather than a single aggregated metric to prove the reliability of each separate variable dimension.

Moreover, the description of the statistical tools lacks alignment with the tables provided. The text mentions the application of t-tests, ANOVA, and regression analysis. While Table 3 and Table 4 list independent and paired t-tests, Table 5 outlines a multiple linear regression model where AI integration and inclusive practices act as predictors. The authors must clearly explain the unique role of the ANOVA model displayed in Table 6, clarifying whether it serves as the overall significance test for the regression

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model or if it represents a separate comparative analysis across groups. The textual explanation accompanying these tables is brief and would benefit from an expanded discussion regarding how these statistical assumptions were satisfied.

Recommendations for Improvement

To elevate the manuscript to a standard suitable for publication, the authors must first systematically revise the methodology section to eliminate the contradiction regarding the research design. The narrative must explicitly state that a quasi-experimental design was utilized, detailing the precise mechanism through which the 320 participants were selected, sampled, and distributed into the experimental and control cohorts of 160 students each. The authors should explicitly clarify how instructional equivalence was maintained between the two groups, who administered the treatments, and whether measures were taken to eliminate instructor bias during the intervention period.

Secondly, the authors need to expand the instrument description section. It is crucial to disclose the exact number of items contained within the Artificial Intelligence-Driven Educational Tools, Inclusive Pedagogical Practices and Learning Outcomes Questionnaire (AIDET-IPPLOQ). The calculation of the Content Validity Index (CVI) is noted as exceeding the 0.78 threshold, but the exact calculated index value should be explicitly stated. Similarly, while the text mentions that Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed to confirm construct validity, the factor loadings, fit indices, and specific variance explained are entirely absent from the text. The authors must incorporate these statistical values to empirically substantiate their claims of valid instrumentation.

Thirdly, the discussion section requires a more nuanced critical interpretation. While the findings are well-aligned with existing international literature, the authors should deepen their discussion of the specific contextual constraints operating within Lagos State Technical Colleges. Given that public technical institutions in Nigeria frequently face erratic power supply and high student-to-teacher ratios, the discussion should articulate how the "AI-Integrated Instructional Module" managed to achieve such substantial learning gains (+32.7 points) under real-world conditions. Grounding this success against the backdrop of systemic infrastructural deficits will lend the paper higher ecological validity and provide a more authentic, balanced perspective on technology adoption.

Finally, a thorough proofreading of the manuscript is necessary to correct minor formatting and typographical oversights. For instance, there are instances of overlapping references or double-citations in the text, such as the repeated citations for Luckin et al. and Holmes et al. across different years that need to be streamlined in the reference list. Ensuring strict adherence to standard academic referencing guidelines will improve the overall cohesion and aesthetic quality of the paper.

Final Recommendation



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This manuscript addresses an incredibly vital, timely, and under-researched geographic and thematic domain in vocational education. The empirical evidence gathered offers genuine insight into the utility of adaptive learning tools within resource-constrained environments. However, due to the critical tension between the stated correlational survey design and the actual quasi-experimental procedures executed in the field, the paper cannot be published in its current form. I recommend that the article be accepted for publication subject to **Minor Revision**, contingent upon the authors thoroughly resolving the design contradictions, clarifying the factor analysis parameters, and elaborating on the individual sub-scale reliabilities.