International Journal of Multidisciplinary Research and Growth Evaluation.

Artificial Intelligence (AI) Integration in Teacher Education: Assessing Risks, Rewards and policy readiness through the RPET Framework

Aminu Aliyu [1*], Yahaya Muhammad [2]
[1-2] Adamu Augie College of Education, Argungu, Kebbi State, Nigeria

* Corresponding Author: **Aminu Aliyu**

Article Info

ISSN (Online): 2582-7138
Impact Factor (RSIF): 7.98
Volume: 06
Issue: 06
November-December 2025
Received: 22-09-2025
Accepted: 23-10-2025
Published: 21-11-2025
Page No: 646-653

Abstract
The integration of Artificial Intelligence (AI) in teacher education presents opportunities to enhance teaching, learning, and institutional processes, but its adoption in developing contexts such as Nigeria is constrained by infrastructural, ethical, and policy challenges. This study employed the Responsible, Pedagogical, Ethical, and Transformational (RPET) framework to examine stakeholders' perceptions of AI integration, including perceived risks, rewards, institutional and pedagogical readiness, ethical awareness, and familiarity with national education and ICT policies. A quantitative survey design was used to collect data from 302 participants—lecturers, administrators, ICT personnel, and pre-service teachers—across selected Colleges of Education in North-West Nigeria. Descriptive statistics indicated that stakeholders perceived AI as highly transformative and pedagogically beneficial (M = 3.82; M = 3.48), while ethical awareness and policy readiness were comparatively low (M = 3.09; M = 3.21). ANOVA analysis revealed significant differences among stakeholder groups in perceptions of pedagogical readiness and responsibility, with lecturers and ICT personnel rating these dimensions higher than students and administrators. Pearson correlation analysis showed strong positive associations between responsible use, pedagogical alignment, and transformational potential, while ethical awareness was moderately correlated with other dimensions. Regression analysis indicated that policy familiarity significantly predicted responsible AI use. Findings suggest that AI integration can meaningfully transform teacher education when adoption is guided by responsible and pedagogically aligned practices; however, ethical literacy, policy guidance, and infrastructure require strengthening. The study concludes that Nigerian teacher education institutions must implement targeted professional development, ethical awareness programs, and policy frameworks to support sustainable AI integration. By applying the RPET framework, this study provides a roadmap for responsible, effective, and ethically sound AI adoption framework in Teacher Education.

DOI: https://doi.org/10.54660/.IJMRGE.2025.6.6.646-653

Keywords: Artificial Intelligence, Teacher Education, RPET Framework, Ethical Awareness, Pedagogical Readiness, Institutional Transformation, Nigeria, Policy Readiness.

1. Introduction

1.1. Background to Study

The integration of artificial intelligence in education has emerged as a transformative force with the potential to revolutionize teaching and learning practices worldwide (Chen *et al*., 2020) [7]; (Zawacki-Richter *et al*., 2019) [38]. AI tools such as adaptive learning platforms, intelligent tutoring systems (Mousavinasab *et al*., 2021) [19], assessment applications, and data analytics

have demonstrated significant potential in enhancing personalized learning, learner engagement (Muhammad & Yahaya, 2025) [20], automating administrative processes (Crompton & Burke, 2023) [8]; (Seo *et al*., 2021) [29], supporting student assessment, providing real-time feedback for both learners and educators, and improving decision-making processes in educational (Zawacki-Richter *et al*., 2019) [38].

In teacher education, the integration of AI offers significant opportunities to improve pedagogical practices and enhance administrative processes. By leveraging AI technologies, teacher education institutions can provide more individualized learning pathways using intelligent tutoring systems, foster professional development through data-informed feedback, and streamline curriculum delivery (Akinwalere & Ivanov, 2022; OECD, 2024; UNESCO, 2022) [1, 22, 36].

AI is increasingly being explored to improve instructional planning, data-driven decision-making, professional development (Weng & Chiu, 2023) [32], and as a tool for achieving SDG 4 (Hamadneh *et al*., 2022) [13], ensuring quality education for all through reshaping traditional teaching and learning processes by enhancing efficiency, scalability, and inclusivity. However, the application of AI in educational contexts must be pursued with caution, ensuring that AI innovation is aligned with pedagogical goals, ethical standards, and contextual realities of different nations and institutions (Flores-Vivar & García-Peñalvo, 2023) [10]; (Slimi & Carballido, 2023) [30].

Context of Teacher Education in Nigeria

Despite increasing digitization and growing interest in education technology, teacher education institutions in Nigeria face numerous barriers, including inadequate digital infrastructure, insufficient staff training, limited stakeholder awareness, varying levels of digital literacy among students, and the absence of comprehensive regulatory frameworks (NITDA, 2024) [21]; (Ogbu Eke, 2024) [24]. These challenges are compounded by regional disparities, with urban institutions generally having better access to technological resources compared to their rural areas (Bali *et al*., 2024) [4].

Despite these constraints, the Nigerian government recognizes the role of digital transformation in education through key policy instruments such as the National Policy on Education and the National Digital Economy Policy and Strategy (FMCIDE, 2019) [11]; (Omede, 2016). These policies emphasize integrating emerging technologies to promote inclusive and quality education, aligning with the Sustainable Development Goal 4 (SDG 4). Therefore, the integration of AI in Nigerian teacher education represents a significant step toward fostering innovation, equity, and sustainable educational reform.

Although AI holds considerable promise, its implementation in Nigerian teacher education is still in its formative stages (NITDA, 2024) [21], with limited empirical research addressing its implications, particularly from the perspective of RPET Model lenses. Existing studies tend to focus either on general digital technology adoption or on the infrastructural challenges facing teacher education, without specifically examining AI through a multidimensional and context-sensitive framework (Ogbu Eke, 2024) [24]. This presents a critical knowledge gap, as AI introduces unique risks such as data privacy concerns, algorithmic bias, and ethical ambiguity, that require targeted policy responses and pedagogical strategies. The Federal Government of Nigeria has articulated its commitment to digital transformation through the National Digital Economy Policy and Strategy 2020–2030 (FMCIDE, 2019) [11], which outlines eight pillars aimed at fostering a digital economy. Key among these are Digital Literacy and Skills, Solid Infrastructure, and Digital Society and Emerging Technologies, all of which are pertinent to the integration of AI in education.

While several studies have examined AI adoption in education, empirical evidence in Nigerian teacher education remains limited. Existing research highlights infrastructural deficits, fragmented policy guidelines, and low stakeholder awareness as barriers to adoption (Bali *et al*., 2024) [4]. Thus, without understanding challenges and ethical guidelines, AI adoption risks being misaligned, ineffective, or ethically unsound (OECD, 2024) [22].

Conceptual Framework: The RPET Model

The Responsible, Pedagogical, Ethical, and Transformational (RPET) framework was adopted to conceptualize AI integration in teacher education. The study's theoretical foundation draws from the existing literatures, including the UNESCO ethical guidelines for responsible AI adoption (Flores-Vivar & García-Peñalvo, 2023) [10]; (Jantakun *et al*., 2021) [15]; (OECD, 2024) [22]; (UNESCO, 2022) [36] and aligns with the World Bank's three-tiered framework for AI integration in developing countries. The RPET framework model posits that effective AI adoption requires:

1. **Responsible Use:** Institutional accountability, risk management, and adherence to regulatory standards.
2. **Pedagogical Readiness:** Alignment of AI tools with teaching practices, curriculum objectives, and learner engagement strategies.
3. **Ethical Awareness:** Knowledge of data privacy, algorithmic fairness, and adherence to ethical principles.
4. **Transformational Potential:** Capacity of AI to enhance institutional efficiency, decision-making, and professional practice.

By integrating these dimensions, RPET provides a holistic lens for assessing AI readiness, risks, and rewards in educational contexts.

Purpose and Hypothesis of the Study

This study aims to:

1. Examine stakeholders' perceptions of AI integration in Nigerian teacher education across RPET dimensions.
2. Assess differences in perceptions among lecturers, administrators, ICT personnel, and pre-service teachers.
3. Explore correlations between responsible use, pedagogical readiness, ethical awareness, and transformational potential.
4. Investigate the predictive effect of policy familiarity on responsible AI adoption.

Research Hypotheses

H_1: There is a significant difference among stakeholders in perceptions of responsible AI use.

H_2: There is a significant difference among stakeholders in perceptions of pedagogical readiness.

H_3: There is a significant difference among stakeholders in ethical awareness.

H_4: There is a significant difference among stakeholders in perceptions of the transformational potential of AI.

H_5: Responsible use is positively correlated with pedagogical readiness, ethical awareness, and transformational potential.
H_6: Ethical awareness is positively correlated with pedagogical readiness and transformational potential.
H_7: Policy familiarity significantly predicts responsible AI use.

Literature Review

Conceptualizing Artificial Intelligence in Education

Artificial Intelligence (AI) encompasses computational systems designed to perform cognitive tasks such as reasoning, problem-solving, language processing, and pattern recognition that typically require human intelligence (Bhutoria, 2022) [5]; (Mikalef & Gupta, 2021) [18]; (UNESCO, 2022) [36]. Within educational contexts, AI technologies support personalized learning, automated grading, predictive analytics, and intelligent tutoring systems that adapt instruction to individual learner needs (Crompton & Song, 2021) [9]. Scholars agree that AI has the potential to revolutionize teacher education by automating repetitive tasks, enhancing student engagement, and offering data-driven insights for pedagogical improvement (Holmes *et al*., 2022). However, the effectiveness of AI integration is contingent upon contextual and ethical factors such as teacher competence, ethical considerations, and institutional readiness (Flores-Vivar & García-Peñalvo, 2023) [10].

AI in Teacher Education

Globally, teacher education programs are increasingly embedding AI tools to foster digital pedagogical competence and reflective practice (Tan *et al*., 2025) [32]; (Toyokawa *et al*., 2023) [33] In developed contexts, AI-enhanced instructional design is now part of teacher preparation curricula (OECD, 2024) [22]; (UNESCO, 2022) [36]. AI-driven analytics help teacher educators monitor student performance and customize feedback, thereby promoting adaptive learning and reflective teaching. Studies indicate that when appropriately integrated, AI supports competency-based assessment, inclusivity, and evidence-informed decision-making in teacher education (Salas-Pilco *et al*., 2022) [28]. Nevertheless, concerns persist regarding algorithmic bias, privacy, and the potential dehumanization of the teaching process (Jackson, 2020); (Miao *et al*., 2021) [17]; (Oguguo *et al*., 2024) [25]; (Pasipamire & Muroyiwa, 2024) [26]. Therefore, integrating AI into teacher education requires an approach that balances innovation with ethical responsibility, a principle central to the RPET framework adopted in this study.

Teacher education plays a pivotal role in ensuring that pre-service and in-service teachers acquire the competencies required for AI-enhanced classrooms. Studies show that pre-service teachers often have positive perceptions of AI's educational potential but limited knowledge of its applications in Nigeria (Ayanwale *et al*., 2024) [3]; (Ogbu Eke, 2024) [24]. Effective integration requires teacher educators to model AI-supported pedagogies that align with appropriate learning principles (Giannini, 2023) [12]; (Hannele, 2023); (UNESCO, 2021) [34]. In developing contexts, however, challenges such as lack of infrastructure, inadequate policy frameworks, and insufficient training impede AI adoption (Ka & Chan, 2014); (Stahl, 2021) [31].

The Nigerian Context

Nigeria's educational landscape faces infrastructural, socio-economic, and policy barriers that constrain the effective adoption of emerging technologies. Despite initiatives under the National Policy on Education and the National Digital Economy Policy and Strategy (Federal Republic of Nigeria, 2013; 2019), gaps remain in teacher training, resource allocation, and ethical regulation of AI systems. Empirical research shows that Nigerian educator's express optimism about AI's potential to improve instruction and management but remain concerned about equity, and data privacy (Aleksandra & Tatiana, 2024) [2]; (Ayanwale *et al*., 2024) [3]; (Bali *et al*., 2024) [4]; (NITDA, 2024) [21]; (Oguguo *et al*., 2024) [25], Consequently, teacher education institutions must address both capacity and ethical dimensions of AI integration.

Responsible, Pedagogical, Ethical, and Transformational (RPET) Framework

The RPET framework provides a comprehensive approach for assessing the multifaceted nature of AI integration in education. It emphasises four interconnected dimensions:

1. **Responsible** relates to ensuring AI adoption adheres to principles of fairness, accountability, and inclusivity.
2. **Pedagogical** focuses on aligning AI tools with sound learning theories and teaching practices.
3. **Ethical** centred on addressing issues of data privacy, algorithmic bias, and informed consent.
4. **Transformational** explores how AI can fundamentally improve institutional efficiency, decision-making, and learning outcomes.

By employing this framewor, educators and policymakers can systematically evaluate AI integration readiness and ensure that technological innovation aligns with sustainable development goals in education.

Summary of the Review

The reviewed literature reveals that AI integration in education has transformative potential, yet its realization in Nigerian teacher education faces systemic challenges. Key issues include inadequate infrastructure, limited teacher preparedness, insufficient ethical awareness, and weak policy implementation. The RPET model provides a relevant framework to examine these dimensions collectively. By assessing stakeholders' perceptions across responsibility, pedagogy, ethics, and transformation, this study contributes to bridging the gap between AI innovation and responsible educational practice in developing contexts.

Methodology

Research Design

This study adopted a quantitative research design to assess stakeholders' perceptions of the risks, rewards, and policy readiness associated with Artificial Intelligence (AI) integration in Nigerian teacher education. The design was deemed appropriate as it facilitated the collection of empirical data that could be analyzed statistically and generalized across similar educational contexts (Creswell, 2009) [16].

Population and Sample

The target population comprised lecturers, administrators, students, and ICT staff in Colleges of Education located in North-West Nigeria. A multi-stage sampling technique was employed. In the first stage, three colleges were purposively selected based on their ICT infrastructure and digital initiatives. In the second stage, stratified random sampling was used to ensure proportional representation of stakeholder categories. A total of 302 respondents participated in the study, consisting of 111 lecturers, 40 administrators, 111students, and 40 ICT personnel.

Instrumentation

Data were collected using a structured questionnaire titled "Responsible AI Integration in Teacher Education Survey (see appendix A), developed based on existing literature. The instrument comprised five sections:

1. Demographic Information (6 items)
2. Perceived Rewards of AI Integration (10 items)
3. Perceived Risks of AI Integration (10 items)
4. Ethical and Policy Awareness (8 items)
5. Institutional and Pedagogical Readiness (10 items)

All items were measured on a five-point Likert scale ranging from *1 = Strongly Disagree* to *5 = Strongly Agree*.

Validity and Reliability

The instrument was subjected to both content and construct validation. Three experts in Educational Technology and Measurement reviewed the questionnaire for clarity, relevance, and alignment with the RPET framework. Their feedback led to minor revisions in wording and structure. To ascertain internal consistency, a pilot study involving 30 participants was conducted in a college not included in the main study. The resulting Cronbach's alpha coefficients ranged from 0.78 to 0.91, indicating high reliability (Bonett & Wright, 2015) [6]; (Creswell, 2009) [16].

Data Collection Procedure

The data collection was conducted over a period of four weeks. Questionnaires were administered both physically and electronically using Google Forms to accommodate participants with differing access levels. The researcher, assisted by trained research aides, ensured voluntary participation and confidentiality throughout the process.

Data Analysis

Descriptive statistics (means, standard deviations, and percentages) were employed to summarize responses. Inferential statistics including ANOVA, Pearson correlation and linear regression were conducted to examine differences, correlation and prediction in perceptions across stakeholder groups. The analysis was structured according to the RPET framework dimensions. Effect sizes were computed to determine the magnitude of observed differences, following Cohen's (1988) guidelines.

Data Analysis and Results

Descriptive Statistics

Data from 302 respondents were analyzed to examine perceptions of AI integration across the RPET dimensions. Stakeholders included lecturers (37.7%), students (39.7%), administrators (12.3%), and ICT personnel (10.3%). Descriptive statistics are presented in Table 2.

Table 1: Descriptive Statistics for RPET Dimensions (N = 302)

RPET Dimension	Mean (M)	SD	Interpretation
Responsible Use (R1–R10)	3.67	0.72	High
Pedagogical Readiness (P1–P10)	3.48	0.80	Moderate
Ethical Awareness (E1–E8)	3.09	0.69	Low
Transformational Potential (T1–T10)	3.82	0.76	High
Policy Familiarity (PF1–PF5)	3.21	0.71	Moderate

Inferential Statistics

Hypotheses H_1–H_4: Stakeholder Differences

A one-way ANOVA (Table 1) was conducted to examine differences among stakeholder groups in perceptions of Responsible Use, Pedagogical Readiness, Ethical Awareness, and Transformational Potential.

Table 2: ANOVA Results for Stakeholder Group Differences

RPET Dimension	F(3, 298)	p-value	η^2	Interpretation
Responsible Use	3.21	.024*	0.03	Significant
Pedagogical Readiness	4.62	.004*	0.04	Significant
Ethical Awareness	1.97	.12	0.02	Not Significant
Transformational Potential	3.09	.028*	0.03	Significant

Post hoc Tukey tests revealed that lecturers reported higher pedagogical readiness than students ($p < .05$). While ICT personnel reported higher responsible use and transformational potential than lecturers and students. However, no significant differences were observed for ethical awareness, suggesting uniformly low familiarity across groups.

Hypotheses H_5–H_6: Correlations

Pearson correlation analysis was conducted to examine relationships among RPET dimensions (Table 2).

Table 3: Correlation Matrix of RPET Dimensions

Dimension	1	2	3	4
1. Responsible Use	—			
2. Pedagogical Readiness	.65**	—		
3. Ethical Awareness	.39**	.41**	—	
4. Transformational Potential	.72**	.68**	.42**	—

Note: $p < .01$.

The result in Table 2 indicates a strong positive correlation between responsible use, pedagogical readiness, and transformational potential, supporting the RPET framework. Ethical awareness was moderately correlated with other dimensions, highlighting the need for deliberate ethical interventions.

Hypothesis H_7: Predictive Effect of Policy Familiarity

A linear regression analysis examined whether policy familiarity predicts responsible AI use. Results showed $R^2 = .18$, $F(1, 300) = 65.88$, $p < .001$, $\beta = 0.42$, $t = 8.12$, $p < .001$. This indicates that stakeholders' knowledge of relevant policies significantly predicts their perception of responsible AI use, accounting for 18% of the variance.

Summary of Results

1. **H_1–H_4:** Significant differences were observed among stakeholder groups in Responsible Use, Pedagogical Readiness, and Transformational Potential; no difference in Ethical Awareness.
2. **H_5–H_6:** Responsible use strongly correlates with pedagogical readiness and transformational potential; ethical awareness shows moderate correlations.
3. **H_7:** Policy familiarity significantly predicts responsible AI use.
4. **Overall Interpretation:** While AI is perceived as transformative and pedagogically beneficial, ethical literacy and policy knowledge require strengthening to ensure responsible, sustainable adoption.

Discussion of Findings

The study investigated the integration of Artificial Intelligence (AI) in Nigerian teacher education through the Responsible, Pedagogical, Ethical, and Transformational (RPET) framework, examining stakeholder perceptions, readiness, and ethical awareness. Findings reveal that stakeholders perceive AI integration positively, particularly regarding transformational potential (M = 3.82) and responsible use (M = 3.67). These findings align with global literature indicating that AI can enhance instructional efficiency, learner engagement, and institutional decision-making (Chen *et al*., 2020) [7]; (Crompton & Song, 2021) [9]; (Hamadneh *et al*., 2022) [13]; (OECD, 2024) [22]; (Seo *et al*., 2021) [29]; (Tan *et al*., 2025) [32].

However, ethical awareness (M = 3.09) and policy familiarity (M = 3.21) were comparatively low, indicating a need for deliberate interventions. The lack of significant stakeholder differences in ethical awareness suggests uniformly low understanding across groups, consistent with studies highlighting gaps in ethical literacy during technology adoption (Ayanwale *et al*., 2024) [3]; (Ogbu Eke, 2024) [24]; (Zawacki-Richter *et al*., 2019) [38].

Significant differences were observed among stakeholder groups in pedagogical readiness, responsible use, and transformational potential, with lecturers and ICT personnel scoring higher than students and administrators. These differences point to disparities in access, exposure, and training, emphasizing the importance of cross-functional professional development. Correlation analyses confirmed that responsible use strongly predicts transformational and pedagogical outcomes, validating the RPET framework's interdependent dimensions. Ethical awareness was moderately correlated with other dimensions, highlighting that ethical literacy does not automatically align with pedagogical or transformational readiness without targeted support.

The regression analysis further indicated that policy familiarity significantly predicts responsible AI use, suggesting that awareness and understanding of institutional and national regulations are essential for responsible technology adoption, consistent with the established ethical guidelines (Giannini, 2023) [12]; (Pasipamire & Muroyiwa, 2024) [26]; (UNESCO, 2021) [34].

Conclusion

This study concludes that AI integration in Nigerian teacher education is feasible, desirable, and transformative when guided by responsible and pedagogically grounded practices. However, ethical awareness, policy familiarity, and equitable access remain challenges that must be addressed to ensure sustainable adoption. Application of the RPET framework demonstrates that responsible and pedagogically aligned AI adoption strongly predicts transformational outcomes, while policy familiarity further enhances responsible use.

The study recommends targeted professional development, policy formulation, ethical literacy programs, and infrastructure investment to maximize the benefits of AI integration. By doing so, Nigerian teacher education institutions can harness AI to enhance instructional quality, administrative efficiency, and alignment with Sustainable Development Goal 4 (SDG 4), promoting inclusive, equitable, and quality education.

Recommendations

Based on the findings, the following recommendations are proposed:

1. **Strengthen Policy Frameworks:** Develop and enforce comprehensive AI policies at institutional and national levels, covering ethical use, data governance, digital literacy standards, and AI deployment in teaching and administration.
2. **Enhance Professional Development:** Implement continuous training programs for lecturers, ICT personnel, administrators, and students to improve AI literacy, ethical awareness, and pedagogical competencies.
3. **Invest in Infrastructure:** Prioritize funding for reliable ICT infrastructure, access to AI-enabled learning platforms, and consistent internet connectivity across colleges of education to support equitable adoption.
4. **Promote Ethical Awareness:** Integrate ethics-focused modules and workshops into teacher education curricula to build knowledge of responsible AI use, data privacy, and algorithmic bias.
5. **Foster Collaborative Implementation:** Encourage cross-functional teams involving lecturers, administrators, ICT staff, and students to oversee AI integration projects, ensuring shared responsibility and informed decision-making.
6. **Monitor and Evaluate AI Use:** Establish institutional mechanisms for periodic assessment of AI adoption outcomes, ethical compliance, and pedagogical impact to guide iterative improvement.

By implementing these recommendations, Nigerian teacher education institutions can harness the potential of AI responsibly, ethically, and pedagogically, thereby supporting sustainable educational transformation and alignment with Sustainable Development Goal 4 (SDG 4) for inclusive and quality education.

Appendix A
RESEARCH INSTRUMENT

Responsible AI Integration in Teacher Education Survey (RAITES) Questionnaire
(Developed based on the Responsible, Pedagogical, Ethical, and Transformational (RPET) Framework)

Instructions to Respondents
This survey seeks to gather your views on the integration of Artificial Intelligence (AI) in teacher education. Your responses will help assess institutional and individual readiness, ethical awareness, perceived risks, and rewards of AI adoption. All responses will be treated with strict confidentiality and used for research purposes only.

For Sections B–E, please indicate your level of agreement with each statement using the scale below:

Scale	Meaning
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

Section A: Demographic Information *(6 items)*
Please tick (✔) or write your response where applicable.
1. **Age:** _____
2. **Gender:** ☐ Male ☐ Female ☐ Prefer not to say
3. **Role in College:** ☐ Lecturer ☐ Student ☐ Administrator ☐ ICT Personnel ☐ Other (specify): _____
4. **Highest Educational Qualification:** ☐ NCE ☐ B.Ed/BA ☐ M.Ed/M.Sc ☐ Ph.D. ☐ Other (specify): _____
5. **Years of Experience in Education:** ☐ <1 ☐ 1–5 ☐ 6–10 ☐ 11–15 ☐ >15
6. **Name/Location of College:** _____

Section B: Perceived Rewards of AI Integration (10 items)
This section measures stakeholders' perceptions of the potential benefits of integrating AI in teacher education.

#	Statement	1	2	3	4	5
B1	AI enhances learner engagement through personalized instruction.	☐	☐	☐	☐	☐
B2	AI improves the efficiency and timeliness of assessment feedback.	☐	☐	☐	☐	☐
B3	AI supports curriculum modernization and innovation.	☐	☐	☐	☐	☐
B4	AI facilitates data-driven teaching and administrative decisions.	☐	☐	☐	☐	☐
B5	AI promotes inclusivity by supporting diverse learners' needs.	☐	☐	☐	☐	☐
B6	AI reduces workload by automating repetitive classroom tasks.	☐	☐	☐	☐	☐
B7	AI contributes to continuous professional development for educators.	☐	☐	☐	☐	☐
B8	AI improves students' academic performance through tailored interventions.	☐	☐	☐	☐	☐
B9	AI enhances collaboration among teachers and learners.	☐	☐	☐	☐	☐
B10	AI increases the overall quality and innovation of teaching and learning.	☐	☐	☐	☐	☐

Section C: Perceived Risks of AI Integration *(10 items)*
This section assesses potential risks or negative perceptions of AI adoption.

#	Statement	1	2	3	4	5
C1	AI may reduce human interaction between teachers and students.	☐	☐	☐	☐	☐
C2	AI may cause over-dependence, reducing teachers' autonomy.	☐	☐	☐	☐	☐
C3	AI systems can be biased, leading to unfair academic decisions.	☐	☐	☐	☐	☐
C4	Inadequate training can result in poor use of AI tools.	☐	☐	☐	☐	☐
C5	AI adoption may be costly and strain institutional resources.	☐	☐	☐	☐	☐
C6	Weak infrastructure limits effective AI use in teacher education.	☐	☐	☐	☐	☐
C7	AI use increases risks related to data security and privacy.	☐	☐	☐	☐	☐
C8	AI may replace teachers' roles rather than complement them.	☐	☐	☐	☐	☐
C9	Overreliance on AI may reduce students' creativity and critical thinking.	☐	☐	☐	☐	☐
C10	Technical failures can disrupt teaching and learning processes.	☐	☐	☐	☐	☐

Section D: Ethical and Policy Awareness *(8 items)*

This section evaluates awareness of ethical principles and policies guiding responsible AI use.

#	Statement	1	2	3	4	5
D1	I am aware of existing policies governing AI use in Nigerian education.	☐	☐	☐	☐	☐
D2	I understand ethical principles related to AI in teaching and learning.	☐	☐	☐	☐	☐
D3	I am knowledgeable about data privacy laws affecting AI in education.	☐	☐	☐	☐	☐
D4	I believe AI algorithms should be transparent and explainable.	☐	☐	☐	☐	☐
D5	Institutions should have clear ethical guidelines for AI integration.	☐	☐	☐	☐	☐
D6	I recognize potential bias in AI systems and its educational consequences.	☐	☐	☐	☐	☐
D7	Ethical considerations influence my willingness to use AI.	☐	☐	☐	☐	☐
D8	I am familiar with national ICT and AI regulatory frameworks.	☐	☐	☐	☐	☐

Section E: Institutional and Pedagogical Readiness *(10 items)*

This section measures institutional capacity and individual preparedness to implement AI tools in teaching and learning.

#	Statement	1	2	3	4	5
E1	My institution has adequate infrastructure for AI integration.	☐	☐	☐	☐	☐
E2	Educators receive sufficient training to use AI technologies effectively.	☐	☐	☐	☐	☐
E3	Students possess the digital skills necessary for AI-based learning.	☐	☐	☐	☐	☐
E4	AI integration aligns with curriculum and instructional goals.	☐	☐	☐	☐	☐
E5	Institutional leaders actively support AI adoption.	☐	☐	☐	☐	☐
E6	AI-related software, hardware, and internet access are reliable.	☐	☐	☐	☐	☐
E7	AI adoption is included in institutional strategic plans.	☐	☐	☐	☐	☐
E8	Faculty and students are encouraged to explore AI tools.	☐	☐	☐	☐	☐
E9	Institutional policies promote ethical and responsible AI use.	☐	☐	☐	☐	☐
E10	AI implementation is regularly monitored and evaluated.	☐	☐	☐	☐	☐

References

1. Akinwalere SN, Ivanov V. Artificial intelligence in higher education: challenges and opportunities. Border Crossing. 2022;12(1):1-15. doi:10.33182/bc.v12i1.2015
2. Aleksandra K, Tatiana B. Students' intention to learn and academic performance in the blended learning environment: the role of artificial intelligence chatbots. Int J Inf Educ Technol. 2024;14(6):807-13. doi:10.18178/ijiet.2024.14.6.2105
3. Ayanwale MA, Adelana OP, Molefi RR, Adeeko O, Ishola AM. Examining artificial intelligence literacy among pre-service teachers for future classrooms. Comput Educ Open. 2024;6:100179. doi:10.1016/j.caeo.2024.100179
4. Bali B, Garba EJ, Ahmadu AS, Takwate KT, Malgwi YM. Analysis of emerging trends in artificial intelligence for education in Nigeria. Discov Artif Intell. 2024;4(1):1-12. doi:10.1007/s44163-024-00163-y
5. Bhutoria A. Personalized education and artificial intelligence in the United States, China, and India: a systematic review using a Human-In-The-Loop model. Comput Educ Artif Intell. 2022;3:100068. doi:10.1016/j.caeai.2022.100068
6. Bonett DG, Wright TA. Cronbach's alpha reliability: interval estimation, hypothesis testing, and sample size planning. J Organ Behav. 2015;36(1):3-15. doi:10.1002/job.1960
7. Chen L, Chen P, Lin Z. Artificial intelligence in education: a review. IEEE Access. 2020;8:75264-78. doi:10.1109/ACCESS.2020.2988510
8. Crompton H, Burke D. Artificial intelligence in higher education: the state of the field. Int J Educ Technol High Educ. 2023;20(1):22. doi:10.1186/s41239-023-00392-8
9. Crompton H, Song D. The potential of artificial intelligence in higher education. Rev Virtual Univ Catól Norte. 2021;(62):1-4. doi:10.35575/rvucn.n62a1
10. Flores-Vivar JM, García-Peñalvo FJ. Reflections on the ethics, potential, and challenges of artificial intelligence in the framework of quality education (SDG4). Comunicar. 2023;30(74):35-44. doi:10.3916/C74-2023-03
11. Federal Ministry of Communications, Innovation and Digital Economy (FMCIDE). National Digital Economy Policy and Strategy (2020-2030): for a digital Nigeria. Abuja: FMCIDE; 2019.
12. Giannini S. Generative AI and the future of education. Paris: UNESCO; 2023.
13. Hamadneh NN, Atawneh S, Khan WA, Almejalli KA, Alhomoud A. Using artificial intelligence to predict students' academic performance in blended learning. Sustainability. 2022;14(18):11642. doi:10.3390/su141811642
14. Niemi H, Pea RD, Luikanen PY, editors. AI in learning: designing the future. Cham: Springer; 2023. doi:10.1007/978-3-031-09687-7
15. Jantakun T, Jantakun K, Jantakoon T. A common framework for artificial intelligence in higher education (AAI-HE model). Int Educ Stud. 2021;14(11):94-103. doi:10.5539/ies.v14n11p94
16. Creswell JW. Research design: qualitative, quantitative, and mixed methods approaches. 3rd ed. Thousand Oaks, CA: SAGE; 2009.
17. Miao F, Holmes W, Huang R, Zhang H. AI and education: guidance for policy-makers. Paris: UNESCO; 2021.
18. Mikalef P, Gupta M. Artificial intelligence capability: conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. Inf Manag. 2021;58(3):103434. doi:10.1016/j.im.2021.103434
19. Mousavinasab E, Zarifsanaiey N, Niakan Kalhori SR, Rakhshan M, Keikha L, Ghazi Saeedi M. Intelligent

tutoring systems: a systematic review of characteristics, applications, and evaluation methods. Interact Learn Environ. 2021;29(1):142-63. doi:10.1080/10494820.2018.1558257
20. Muhammad Y, Yahaya WAJW. Breaking barriers to equitable education for sustainable future: creating inclusive learning opportunities in higher education through AI innovations. In: Advances in Science, Technology and Innovation. Cham: Springer; 2025. p. 57-64. doi:10.1007/978-3-031-56848-0_7
21. National Information Technology Development Agency (NITDA). National Artificial Intelligence Strategy. Abuja: NITDA; 2024.
22. Organisation for Economic Co-operation and Development (OECD). Assessing potential future artificial intelligence risks, benefits and policy imperatives. Paris: OECD Publishing; 2024.
23. Organisation for Economic Co-operation and Development (OECD). Towards a common reporting framework for AI incidents. Paris: OECD Publishing; 2025.
24. Ogbu Eke E. Assessing the readiness and attitudes of Nigerian teacher educators towards adoption of artificial intelligence in educational settings. J Educ Technol Online Learn. 2024;7(4-ICETOL Special Issue):473-87. doi:10.31681/jetol.1503305
25. Oguguo BCE, Okeke AO, Aneshie-Otakpa VO, Okebanama CI, Okorie CI, Efuribe VD. Application of artificial intelligence in education: challenges and prospects. Afr J Sci Technol Math Educ. 2024;10:1-15.
26. Pasipamire N, Muroyiwa A. Navigating algorithm bias in AI: ensuring fairness and trust in Africa. Front Res Metr Anal. 2024;9:1486600. doi:10.3389/frma.2024.1486600
27. Richard PR, Vélez MP, Van Vaerenbergh S, editors. Mathematics education in the age of artificial intelligence: how artificial intelligence can serve mathematical human learning. Cham: Springer; 2022. (Mathematics Education in the Digital Era series).
28. Salas-Pilco SZ, Xiao K, Oshima J. Artificial intelligence and new technologies in inclusive education for minority students: a systematic review. Sustainability. 2022;14(20):13572. doi:10.3390/su142013572
29. Seo K, Tang J, Roll I, Fels S, Yoon D. The impact of artificial intelligence on learner–instructor interaction in online learning. Int J Educ Technol High Educ. 2021;18(1):54. doi:10.1186/s41239-021-00292-9
30. Slimi Z, Carballido BV. Navigating the ethical challenges of artificial intelligence in higher education: an analysis of seven global AI ethics policies. TEM J. 2023;12(2):590-602. doi:10.18421/TEM122-02
31. Stahl BC. Artificial intelligence for a better future: an ecosystem perspective on the ethics of AI and emerging digital technologies. Cham: Springer; 2021. (SpringerBriefs in Research and Innovation Governance).
32. Tan X, Cheng G, Ling MH. Artificial intelligence in teaching and teacher professional development: a systematic review. Comput Educ Artif Intell. 2025;8:100355. doi:10.1016/j.caeai.2024.100355
33. Toyokawa Y, Horikoshi I, Majumdar R, Ogata H. Challenges and opportunities of AI in inclusive education: a case study of data-enhanced active reading in Japan. Smart Learn Environ. 2023;10(1):67. doi:10.1186/s40561-023-00286-2
34. UNESCO. AI and education: guidance for policy-makers. Paris: UNESCO; 2021. doi:10.54675/PCSP7350
35. UNESCO. International Forum on AI and Education: ensuring AI as a common good to transform education – synthesis report. Paris: UNESCO; 2021.
36. UNESCO. Recommendation on the ethics of artificial intelligence. Paris: UNESCO; 2022.
37. Weng X, Chiu TKF. Instructional design and learning outcomes of intelligent computer-assisted language learning: systematic review in the field. Comput Educ Artif Intell. 2023;4:100117. doi:10.1016/j.caeai.2022.100117
38. Zawacki-Richter O, Marín VI, Bond M, Gouverneur F. Systematic review of research on artificial intelligence applications in higher education – where are the educators? Int J Educ Technol High Educ. 2019;16(1):39. doi:10.1186/s41239-019-0171-0

How to Cite This Article
Aliyu A, Muhammad Y. Artificial Intelligence (AI) Integration in Teacher Education: Assessing risks, rewards and policy readiness through the RPET Framework. Int J Multidiscip Res Growth Eval. 2025;6(6):646-653. doi:10.54660/IJMRGE.2025.6.6.646-653.